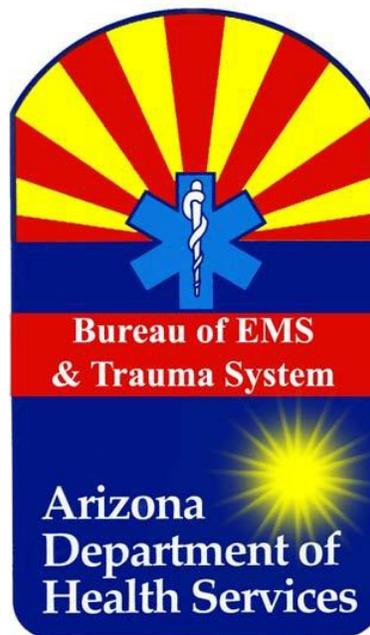


TRIAGE, TREATMENT AND TRANSPORT GUIDELINES

As recommended by the

**Bureau of Emergency Medical Services
& Trauma System**



Arizona Department of Health Services

April 2011

[Revised September 2015]

Table of Contents	Page
Disclaimer	iii
Adult Chest Pain of Probable Cardiac Origin	1
Adult Bradycardia, Symptomatic	2
Adult Tachycardia with Pulse	3
Adult Pulseless Arrest-Cardiocerebral Resuscitation (CCR)	4
Adult Pulseless Arrest – Cardiopulmonary Resuscitation (CPR)	5
Adult Termination of Resuscitation Efforts	6
Adult Withholding of Resuscitation Efforts	7
Adult Transport to Designated Cardiac Arrest Center/Cardiac Arrest Post-Resuscitation	8
Adult Respiratory Difficulty	9
Adult Unconscious/Unresponsive	10
Adult Behavioral Emergency – Violent or Combative Patient	11
Poison-Ingestion/Inhalation	12
Poison-Bites and Stings	13
Poison – Snakebite	14
Adult Adrenal Insufficiency	15
Adult Seizures	16
Hypothermia	17
Hyperthermia	18
External Hemorrhage	19
Suspected Stroke	20
Trauma-General Management	21
Trauma-Amputated Parts	22
Trauma-Extremity Fractures, Dislocation, and Sprains	23
Trauma-Brain Injury	24
Trauma-Management of Acute Traumatic Pain	25
Spinal Motion Restriction - Adult Blunt Trauma	26
Spinal Motion Restriction - Adult Penetrating Trauma	27
Spinal Motion Restriction - Pediatric Blunt Trauma	28
Spinal Motion Restriction - Pediatric Penetrating Trauma	29
Trauma-Field Triage Decision Scheme	30

Arizona Ground and Air Ambulance Mode of Transport Guidelines	32
High Risk OB	33
Pediatric Shortness of Breath	34
Pediatric Heat Exposure	35
Pediatric Anaphylaxis/Allergic Reaction	36
Newborn Resuscitation	37
Pediatric Pulseless Electrical Activity(PEA)/Asystole	38
Pediatric Bradycardia, Unstable	39
Pediatric Supraventricular Tachycardia	40
Pediatric Ventricular Fibrillation/Pulseless Ventricular Tachycardia	41
Pediatric Seizures	42
Pediatric Altered Mental Status	43
Pediatric Shock	44
Pediatric Shock including Sodium Succinate	45
Pediatric Submersion Injury	46
Pediatric Burn Injury	47
Pediatric Withholding of Resuscitation Efforts	48

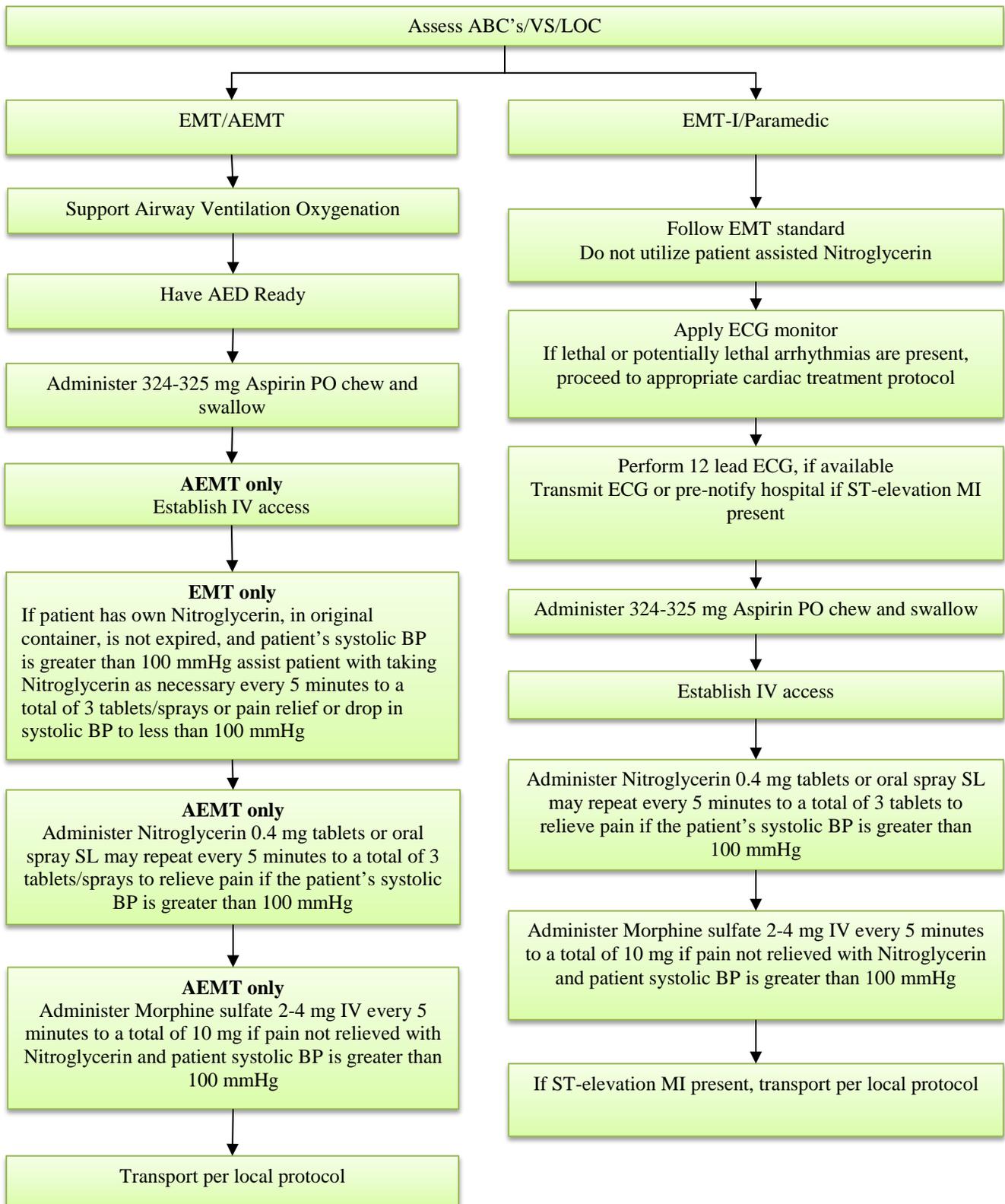
DISCLAIMER

These protocols are designed to be a resource document for use by Medical Direction Authorities, as defined by A.R.S. § 36-2205, responsible for the administrative, organizational and on-line medical direction of pre-hospital Emergency Medical Care Technicians (EMCTs). It is specifically recognized that documented regional or local variations from the guidelines contained within are not only acceptable, but also appropriate, depending on the individual circumstances of the involved areas and organizations.

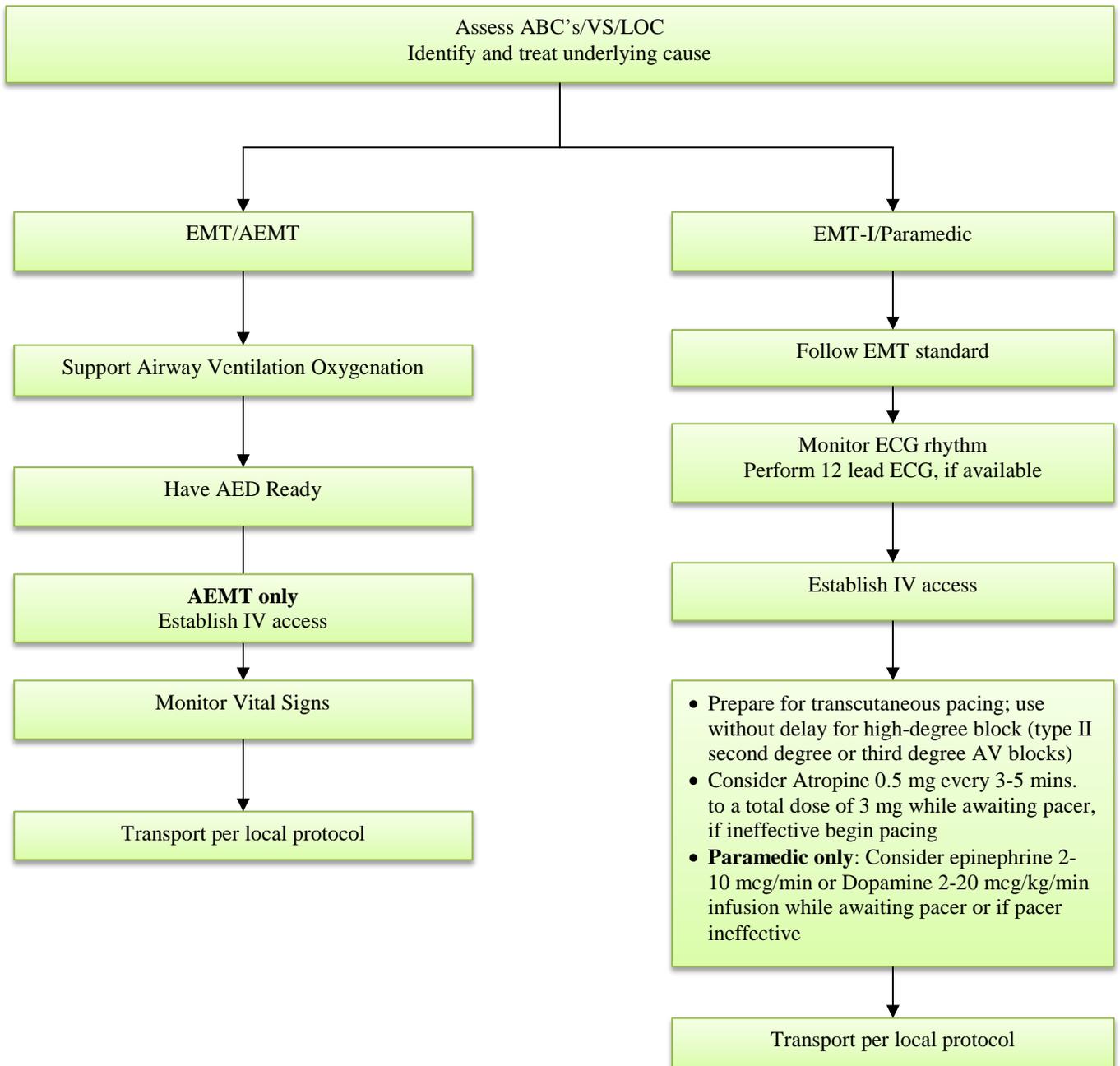
By Statute and Rule, all advanced life support pre-hospital EMCTs shall have administrative and on-line medical direction. These guidelines are not meant to act as a substitute, proxy or alternative to that medical direction. Any conflict between these guidelines and the EMCT's medical direction shall default to the Administrative or on-line medical direction.

These protocols are set forth guidelines deemed by the Bureau of EMS and Trauma System to be within the acceptable standard of medical care. It is specifically recognized that there are acceptable documented regional or local variations from these procedures and protocols, which may also satisfy the standard of care. This manual does NOT define, limit, expand, or otherwise purport to establish the legal standard of care.

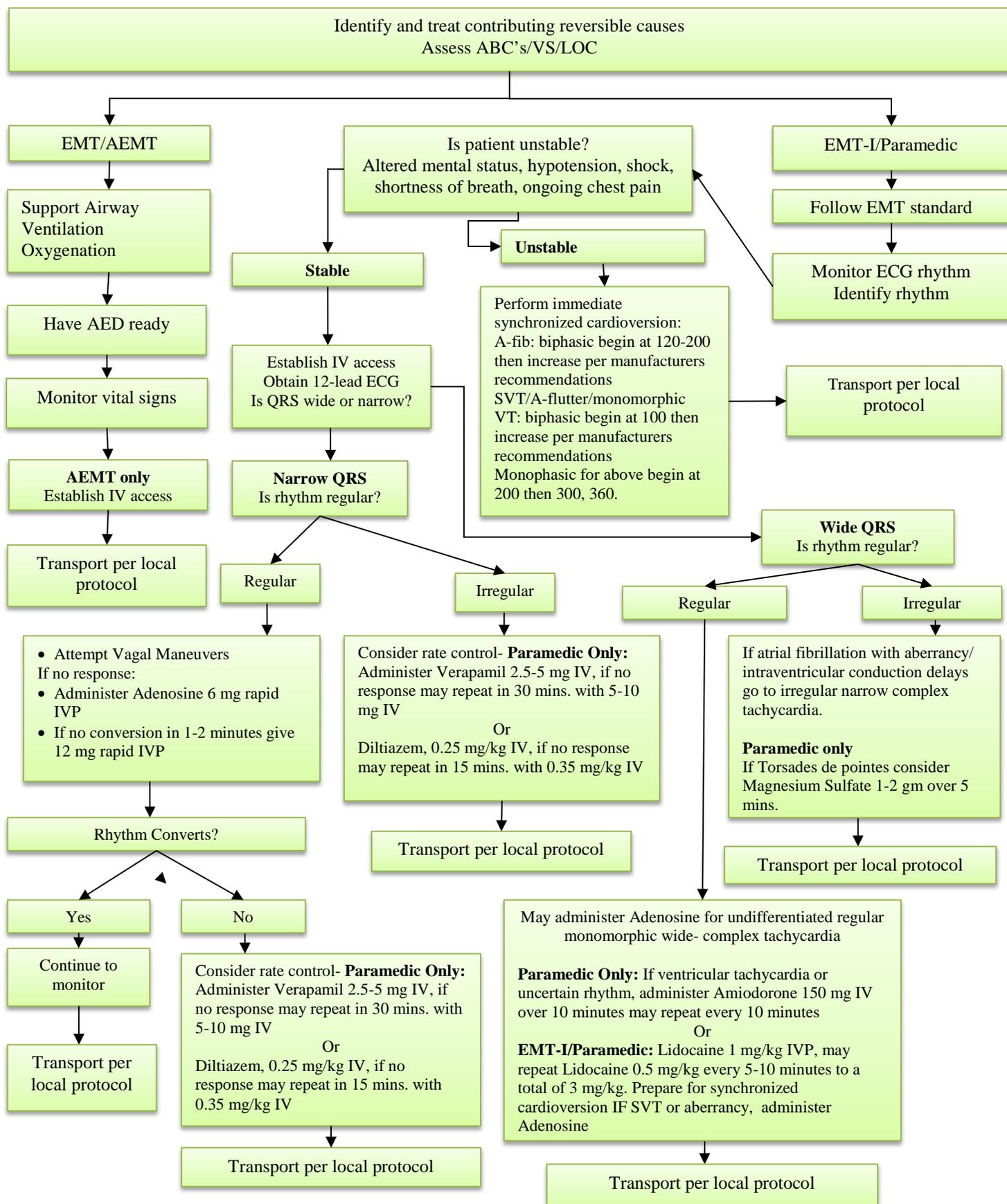
Adult Chest Pain of Probable Cardiac Origin



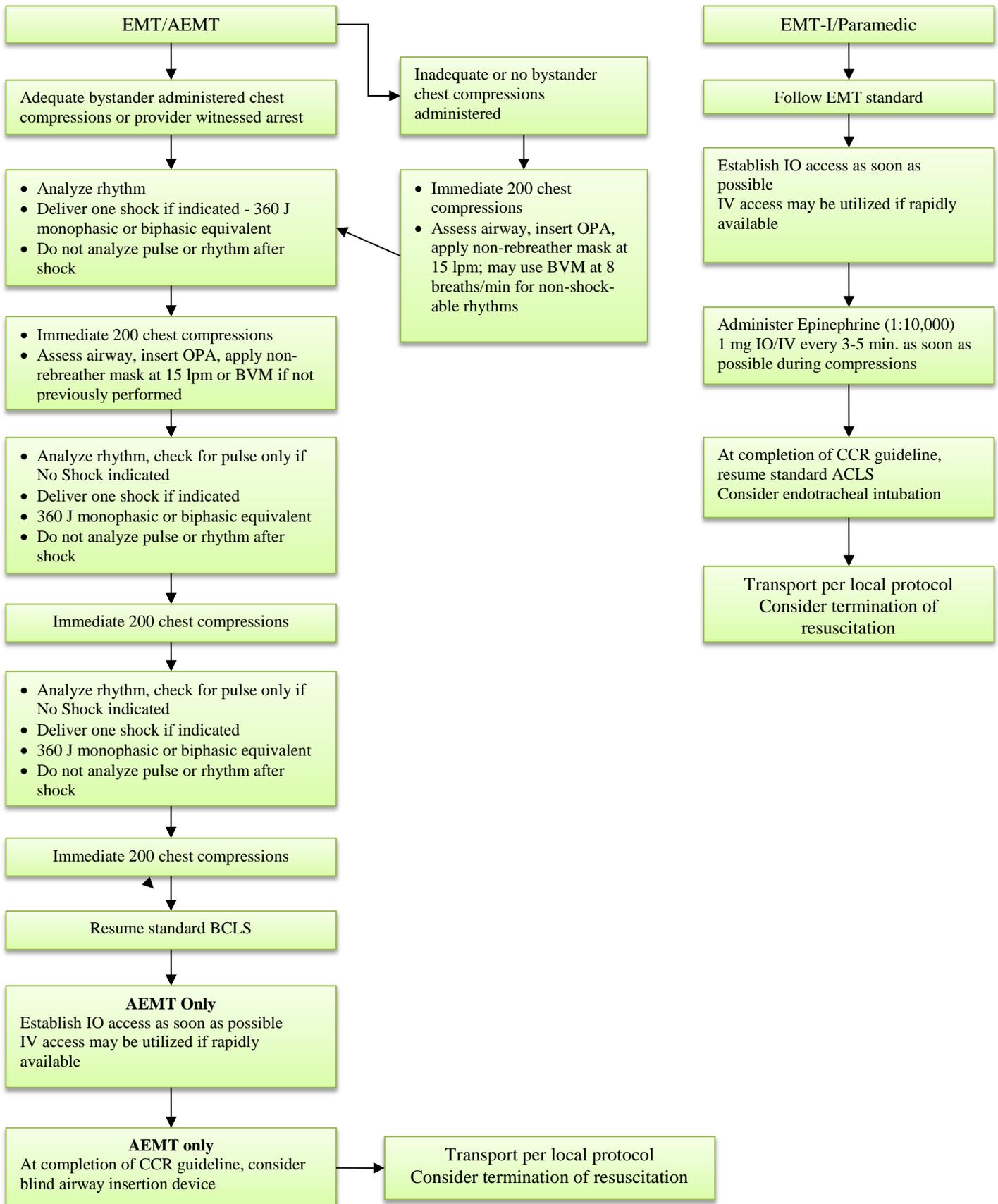
Adult Bradycardia, Symptomatic



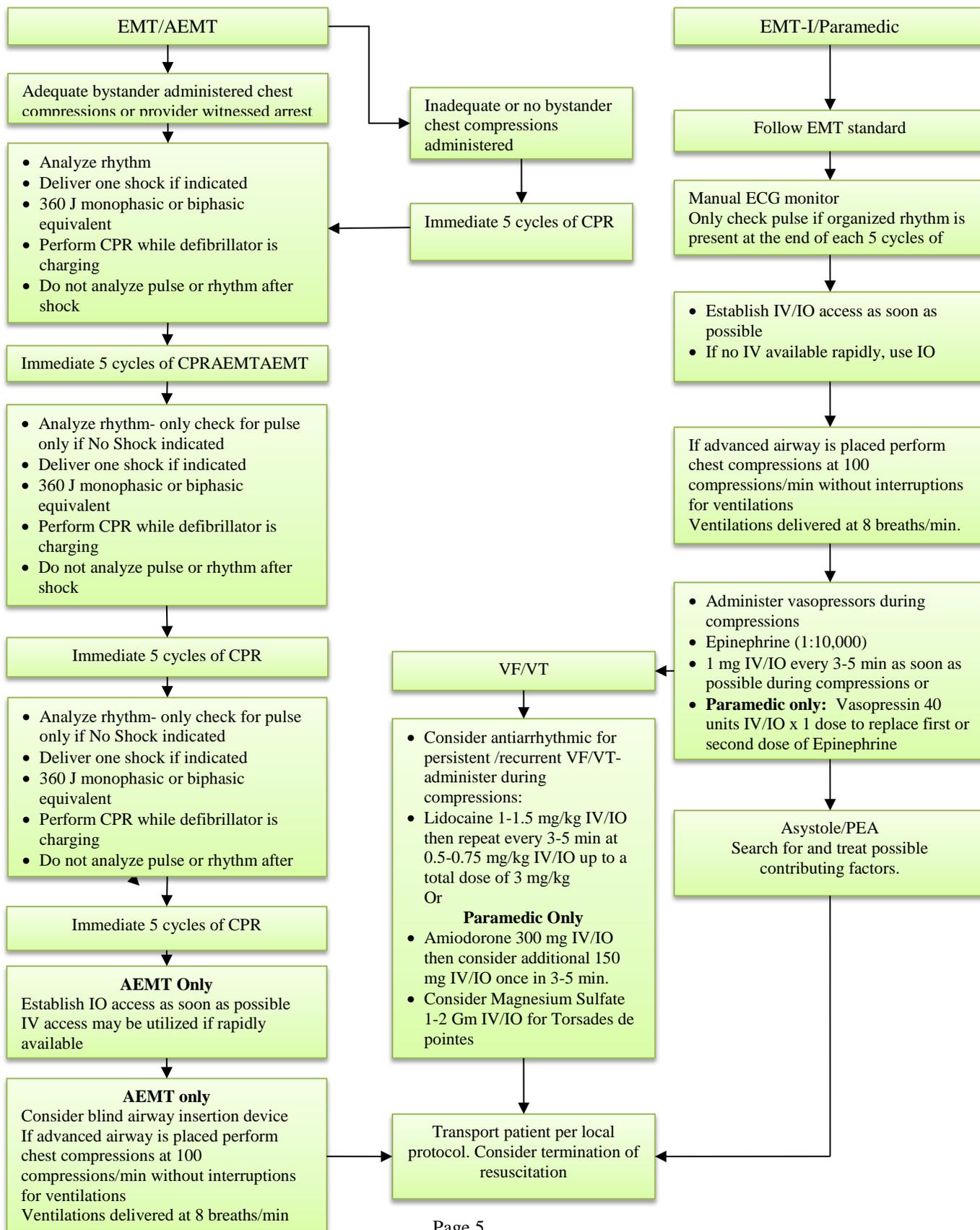
Adult Tachycardia with Pulses



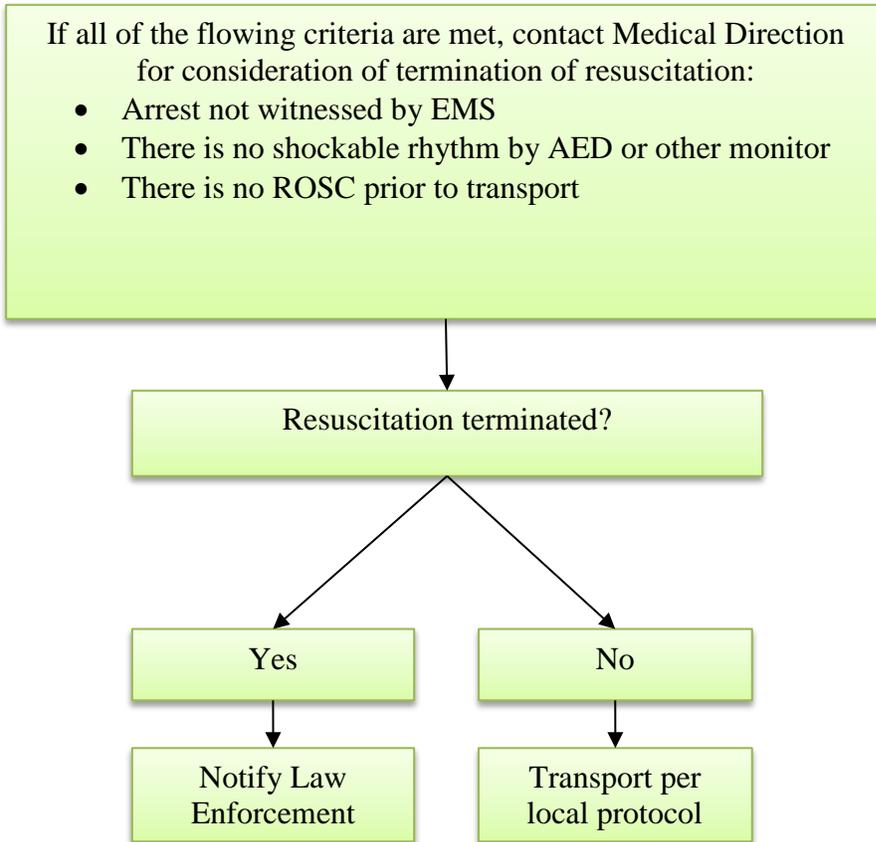
Adult Pulseless Arrest-Cardiocerebral Resuscitation



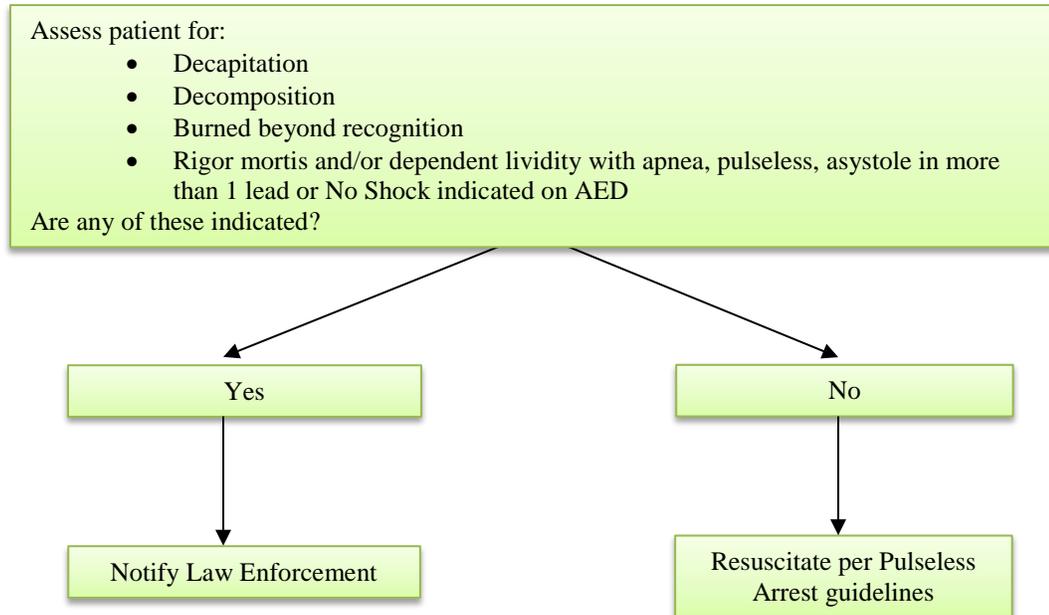
Adult Pulseless Arrest



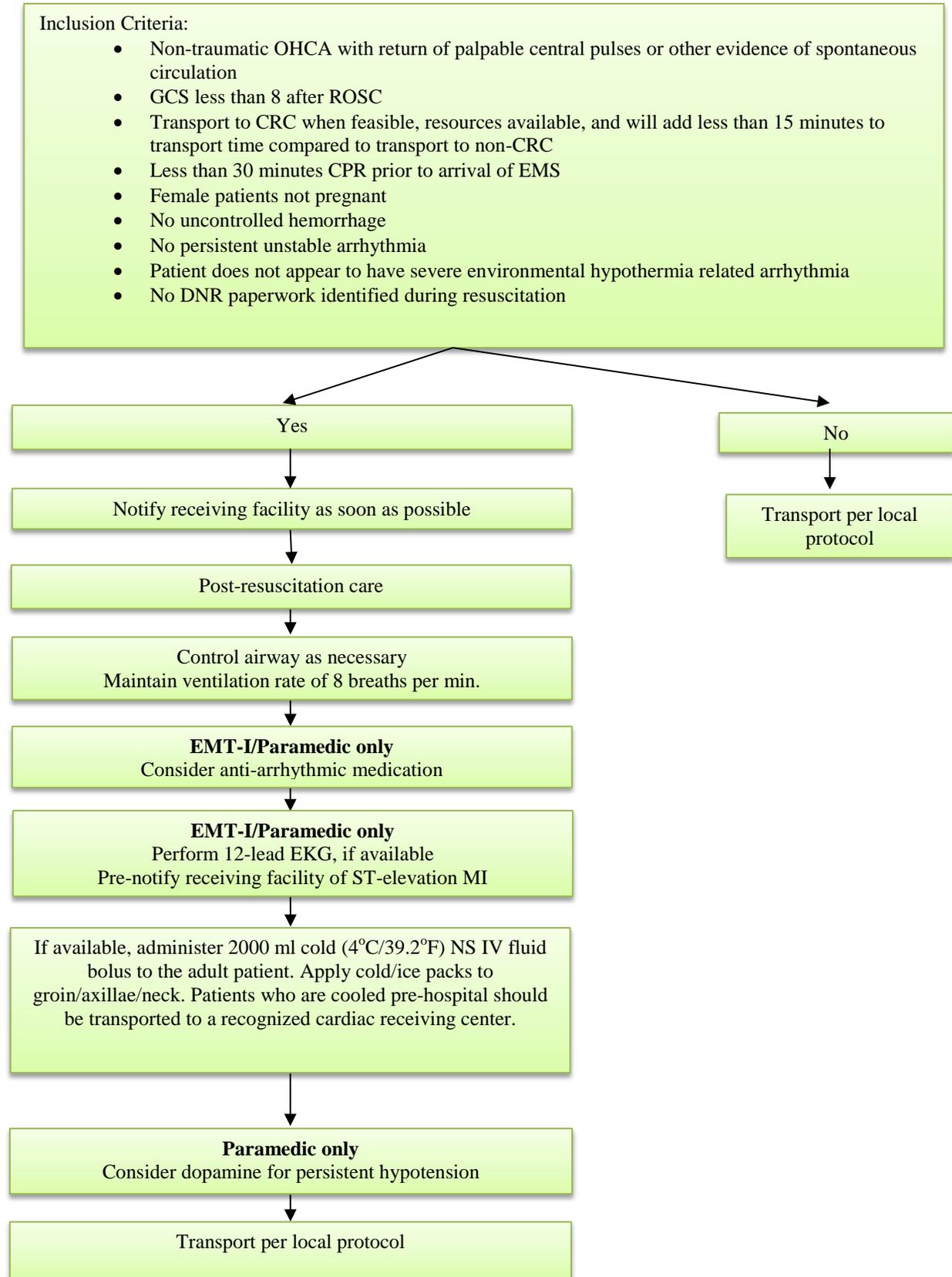
Adult Termination of Resuscitation Efforts
[Environmental Hypothermia not Present]



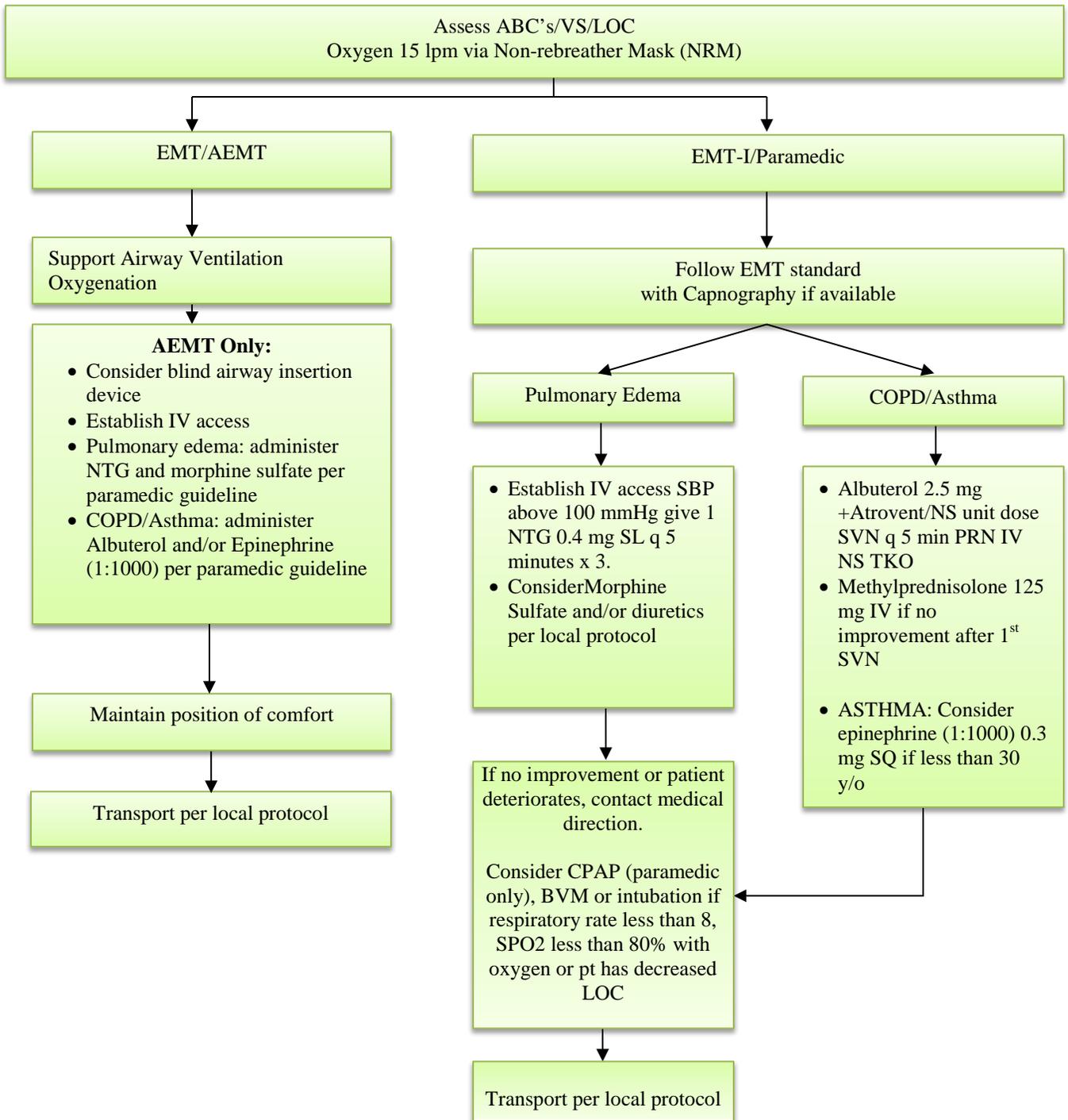
Adult Withholding of Resuscitation Efforts



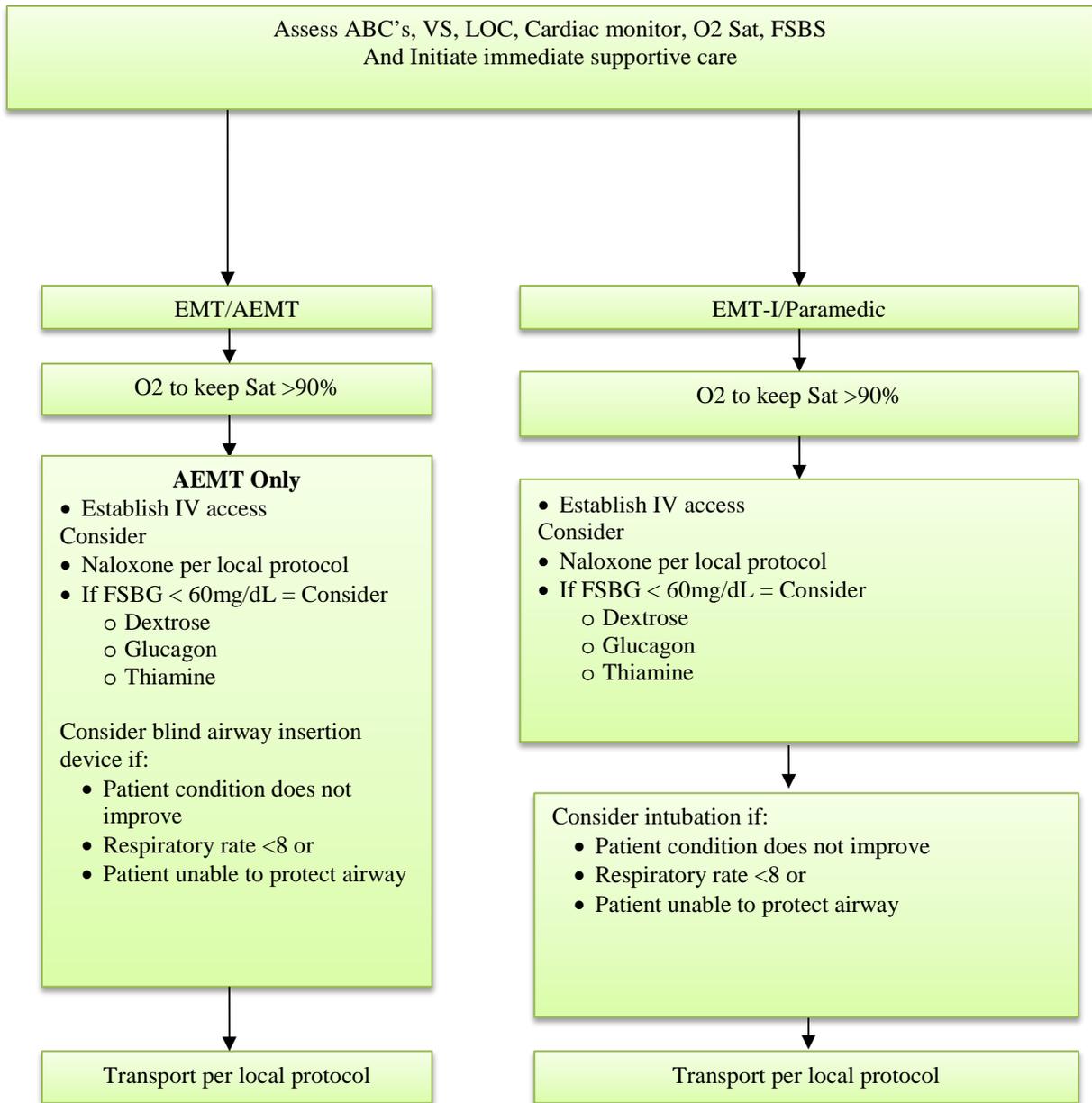
Adult Transport to a Recognized Cardiac Receiving Center/Cardiac Arrest Post-Resuscitation



Adult Respiratory Difficulty

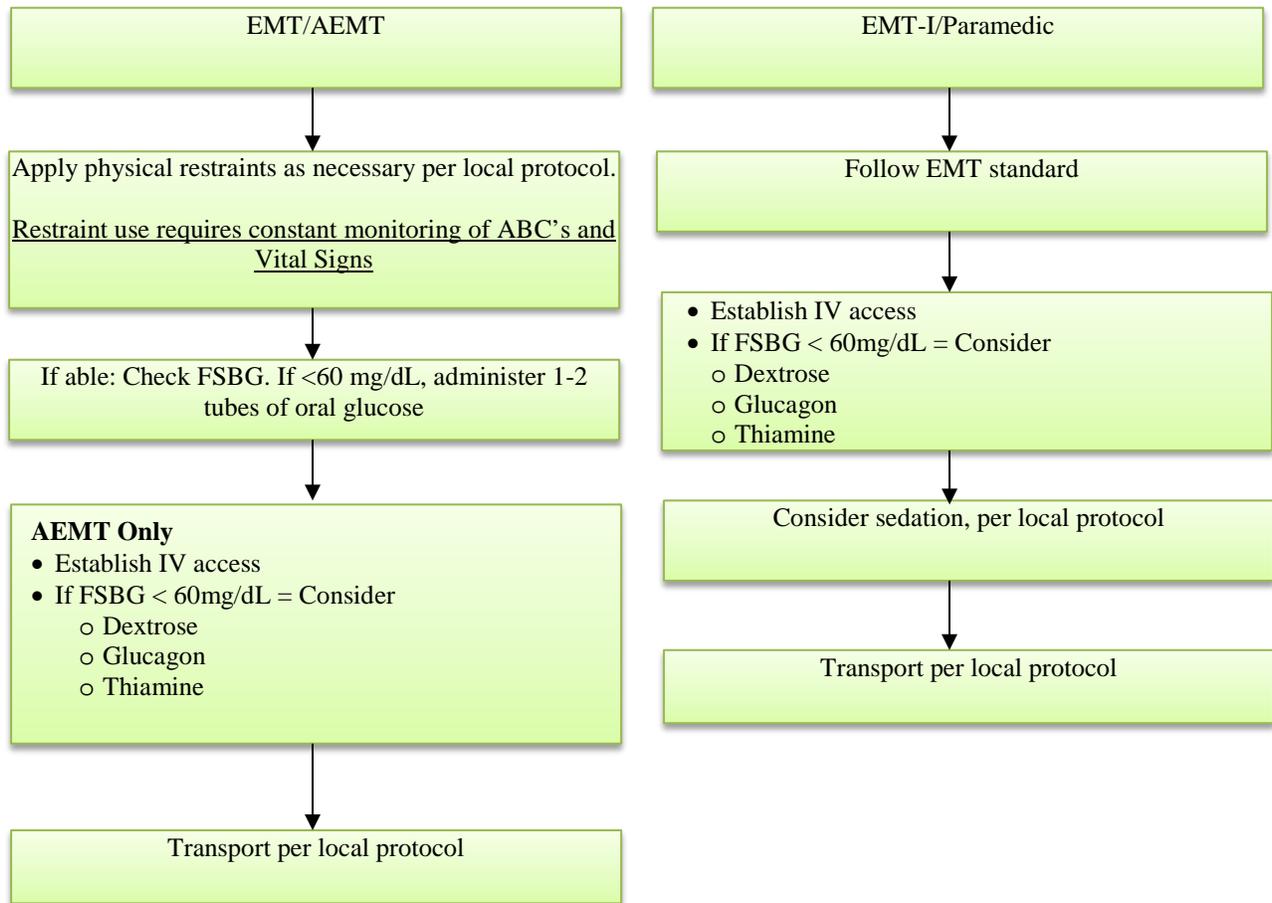


Adult Unconscious/Unresponsive
[Non-Traumatic Adult ≥ 15 Y/O]

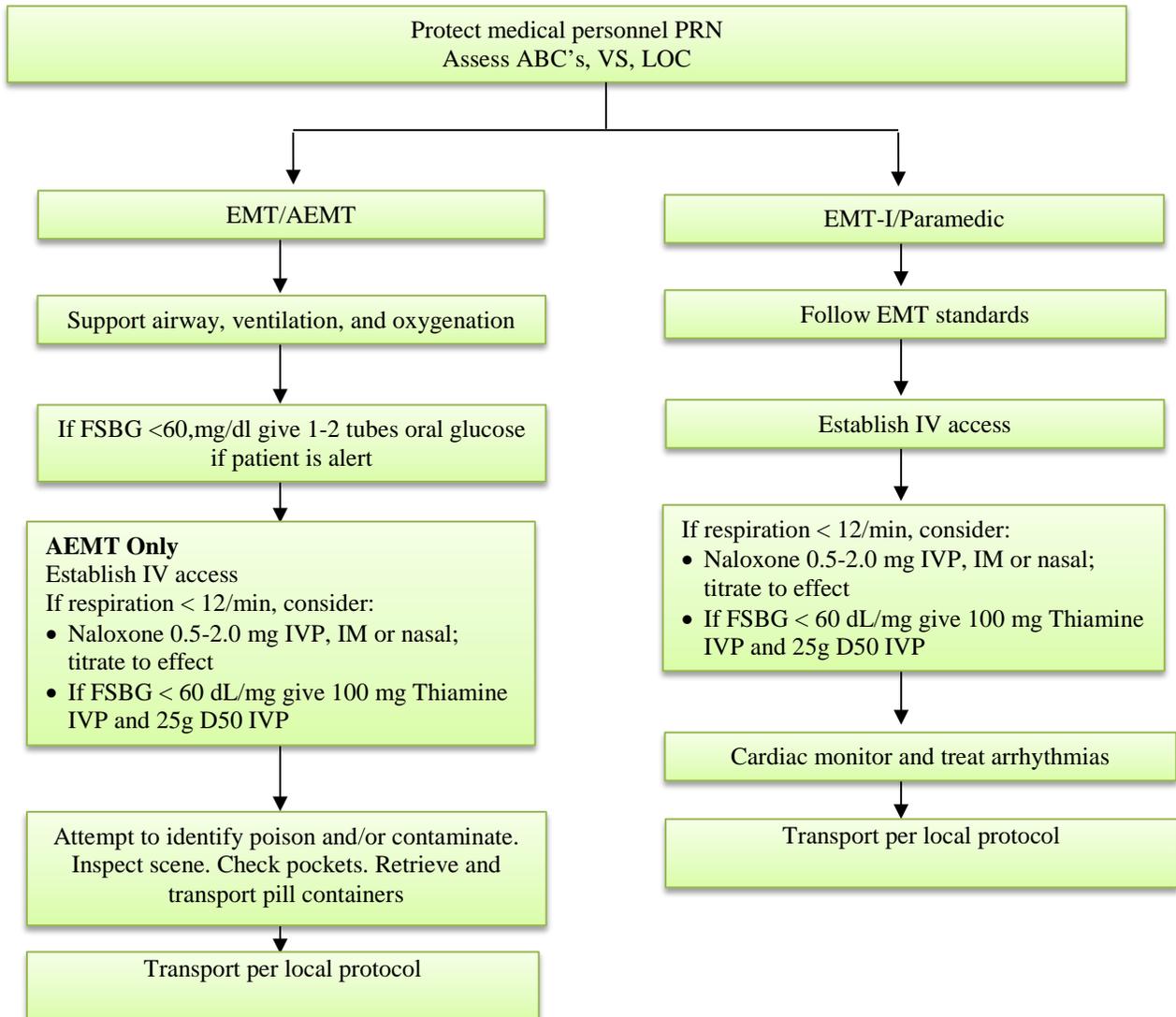


Adult Behavioral Emergency – Violent or Combative Patient

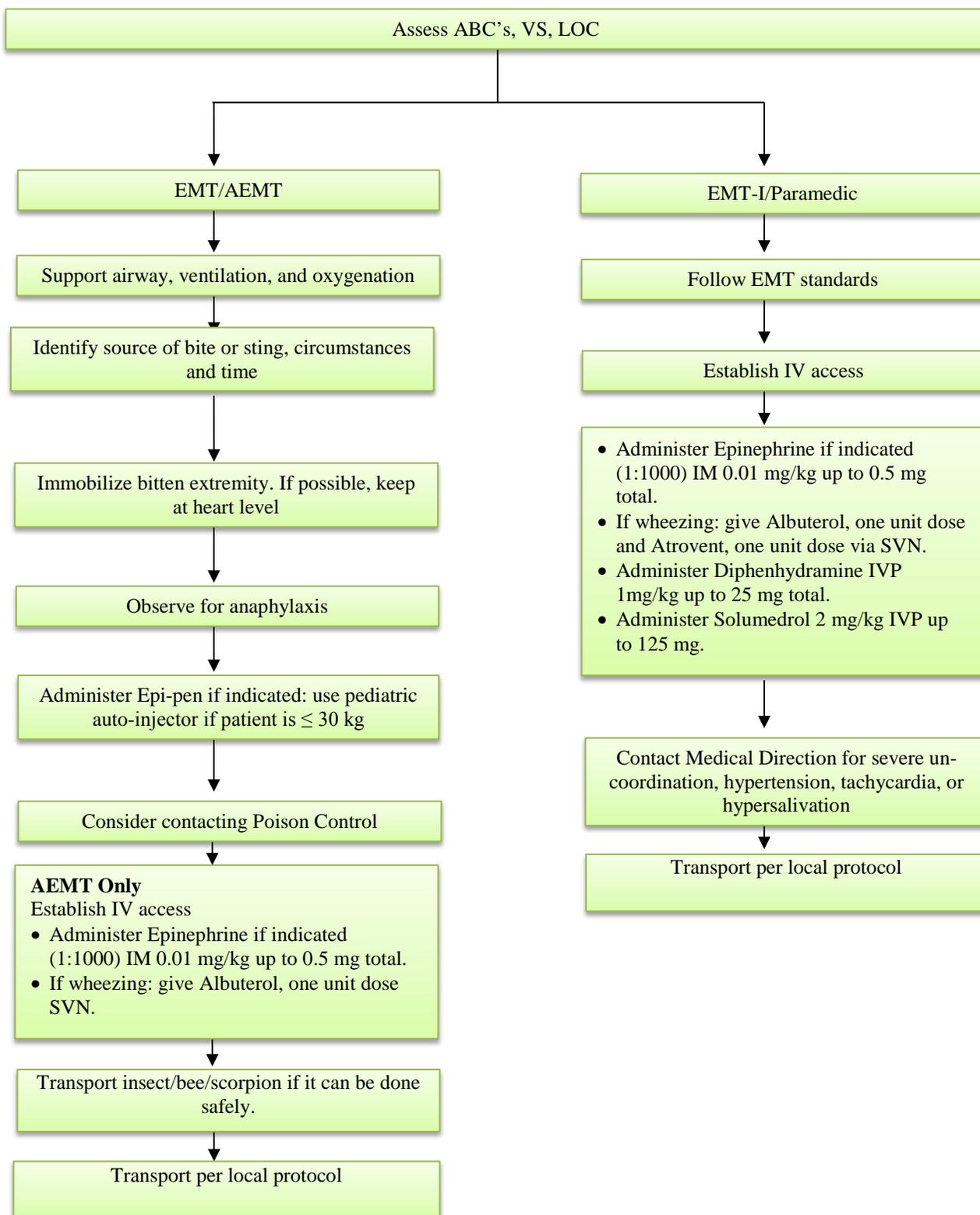
If patient is an immediate threat to the crew or bystanders, step away from scene and call for police assistance.
If able, assess ABC's, VS, LOC



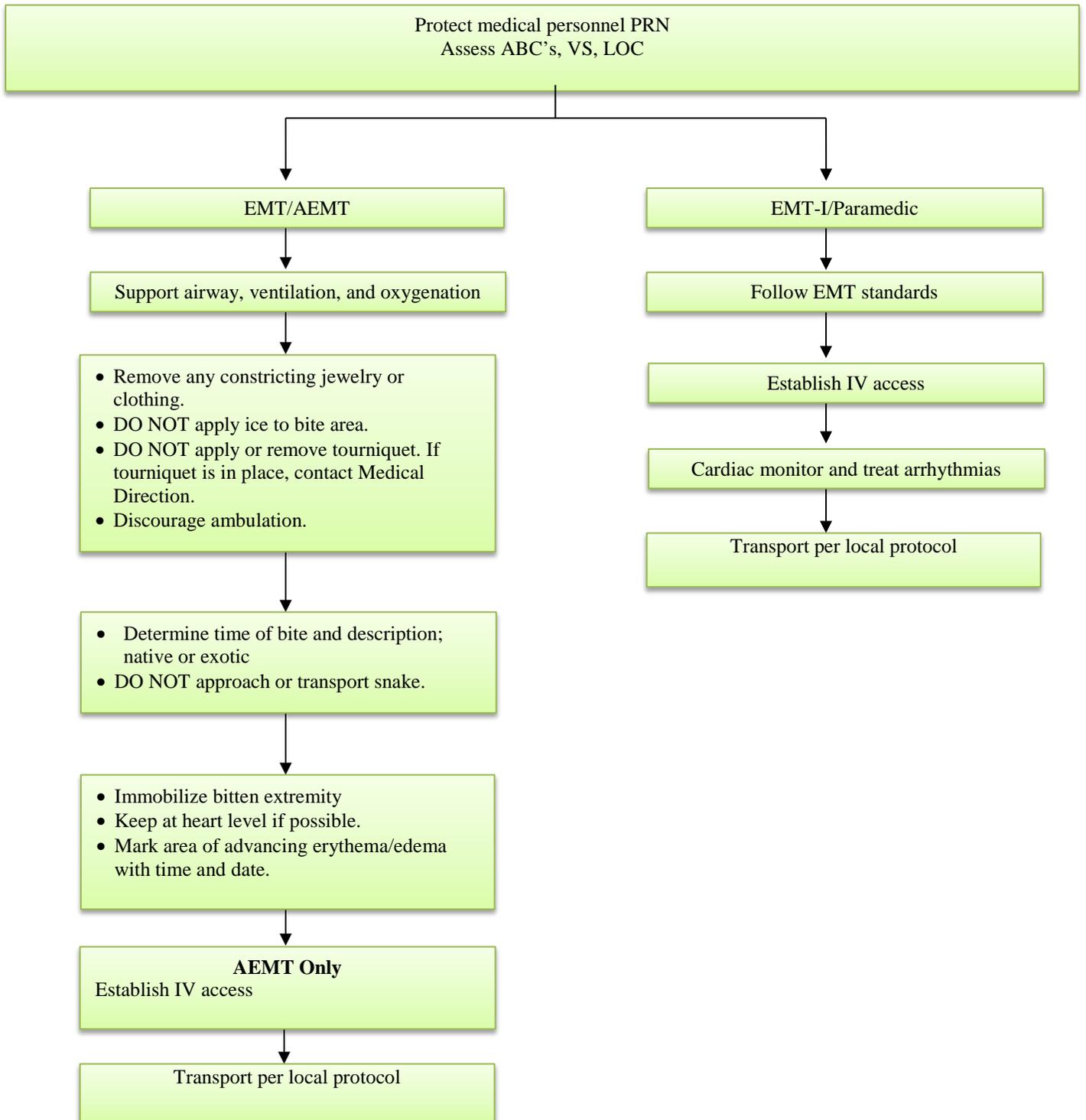
Poison Ingestion/Inhalation



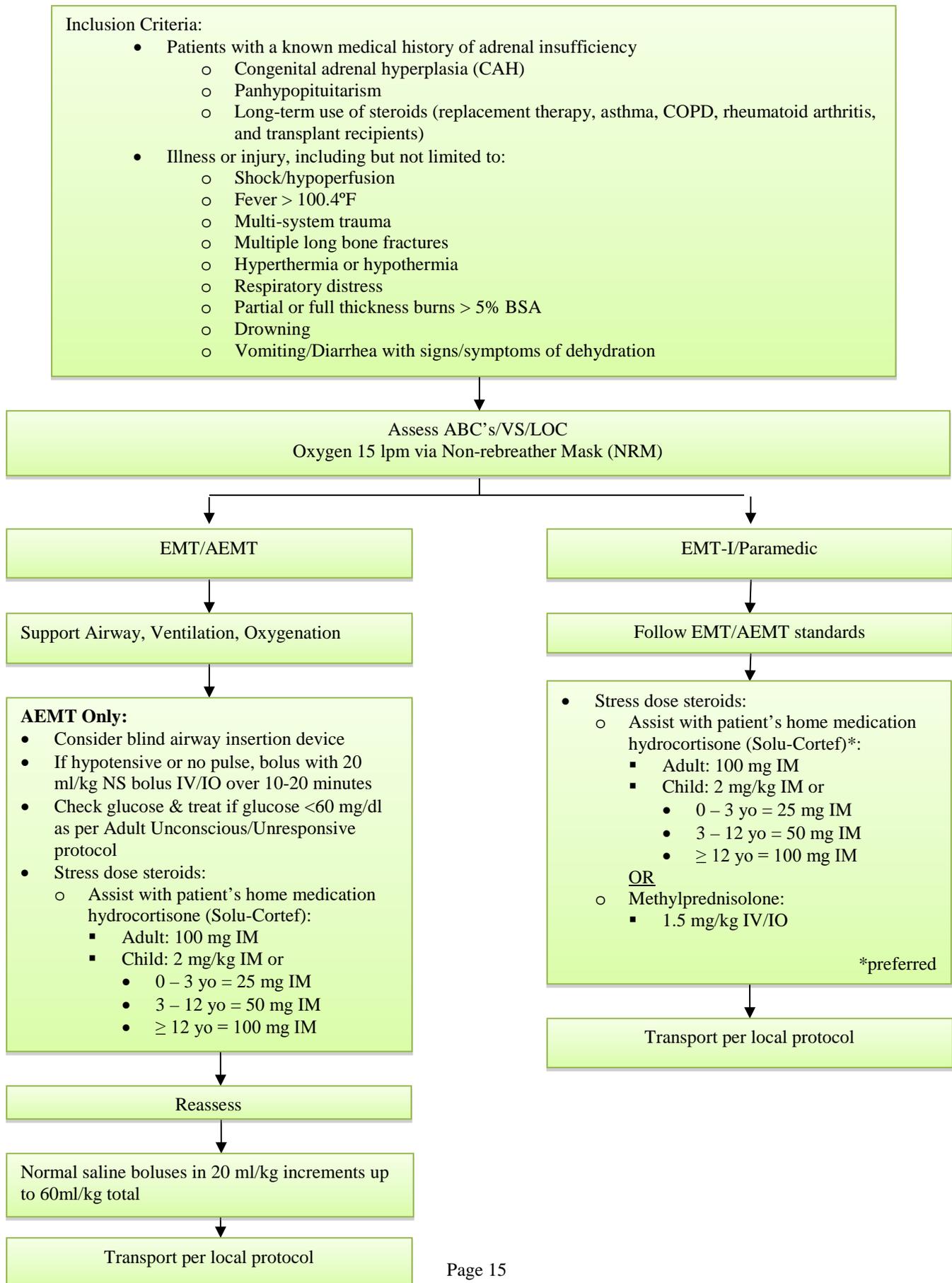
Adult Poison - Bites and Stings



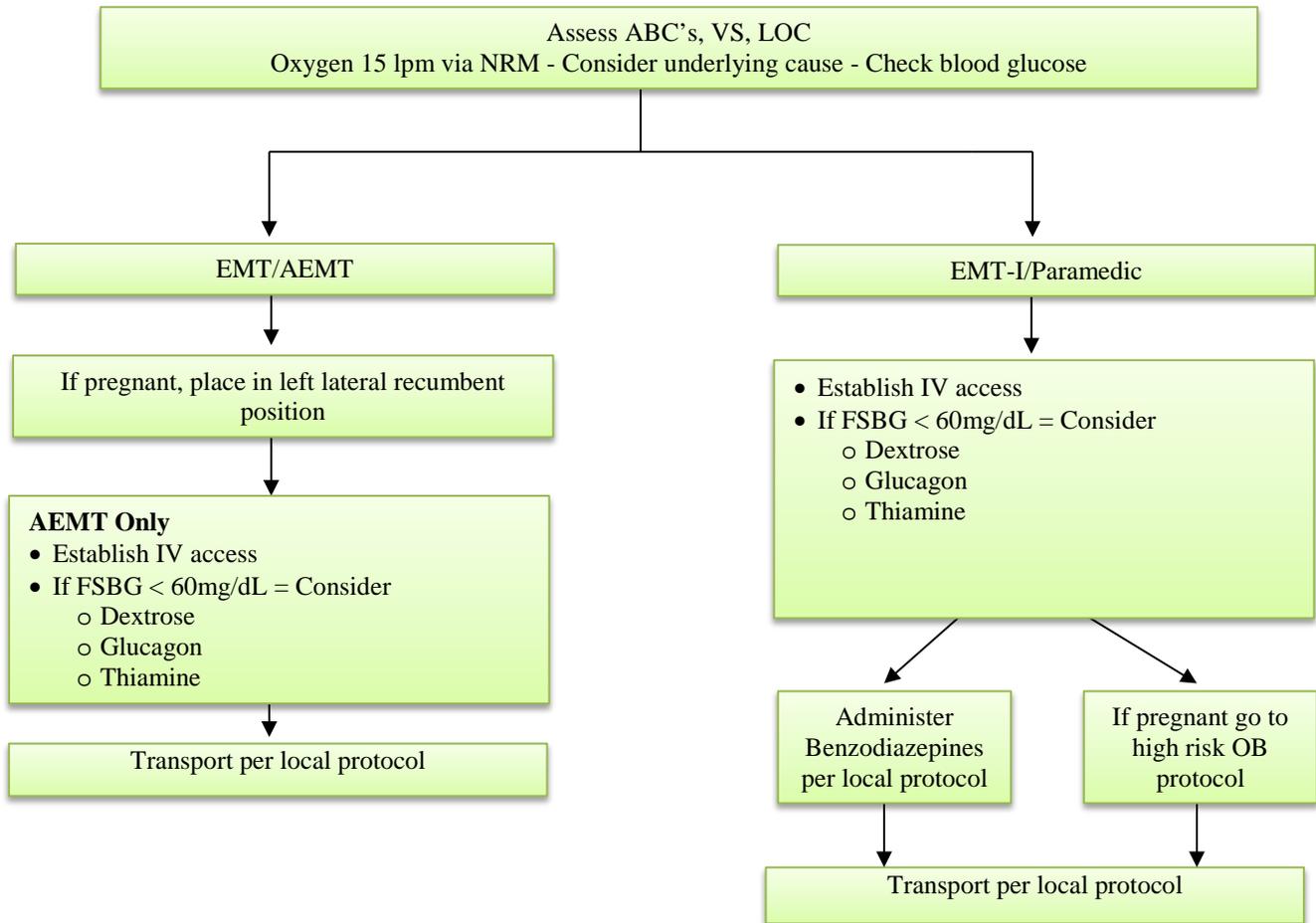
Poison – Snakebite



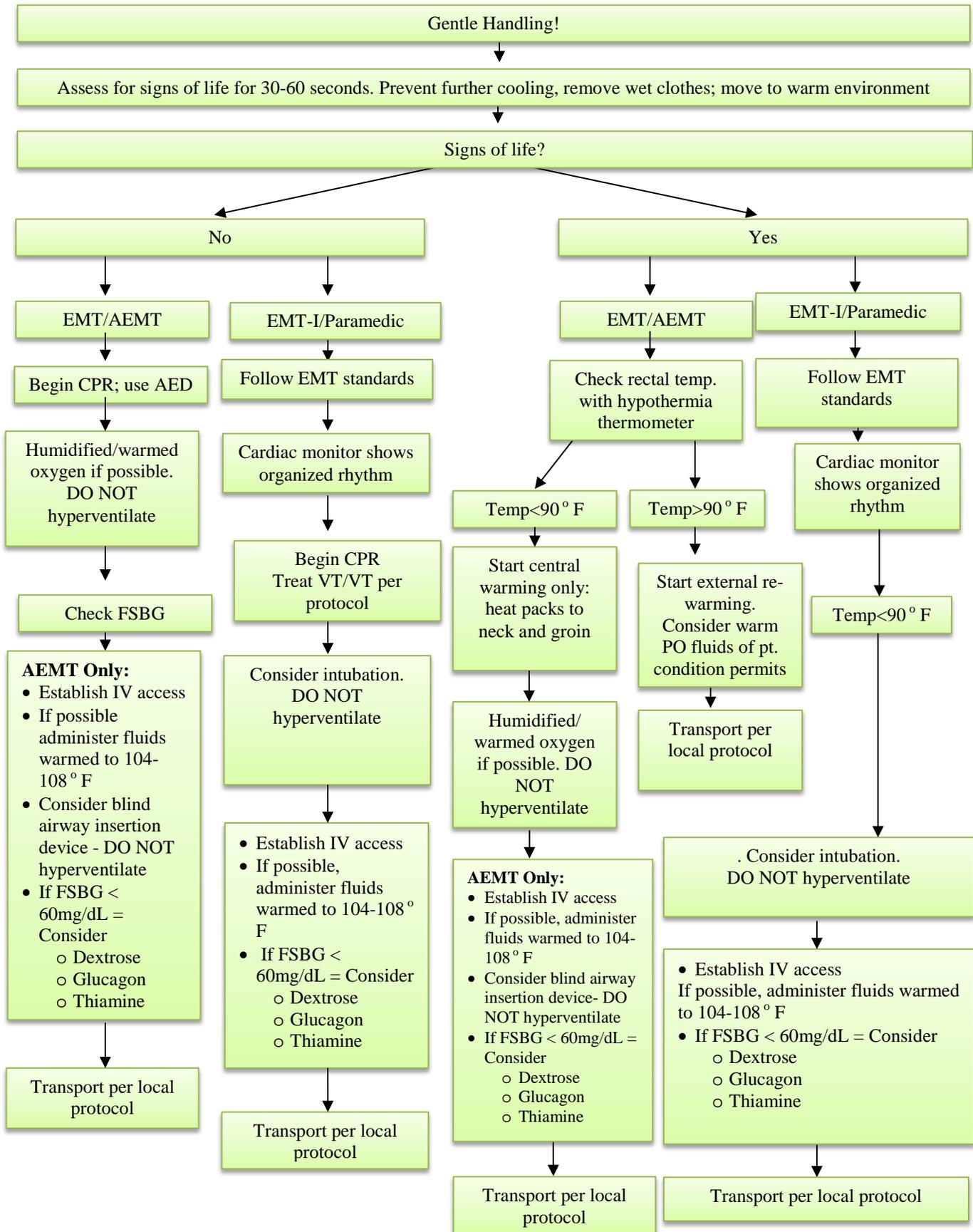
Adult Adrenal Insufficiency



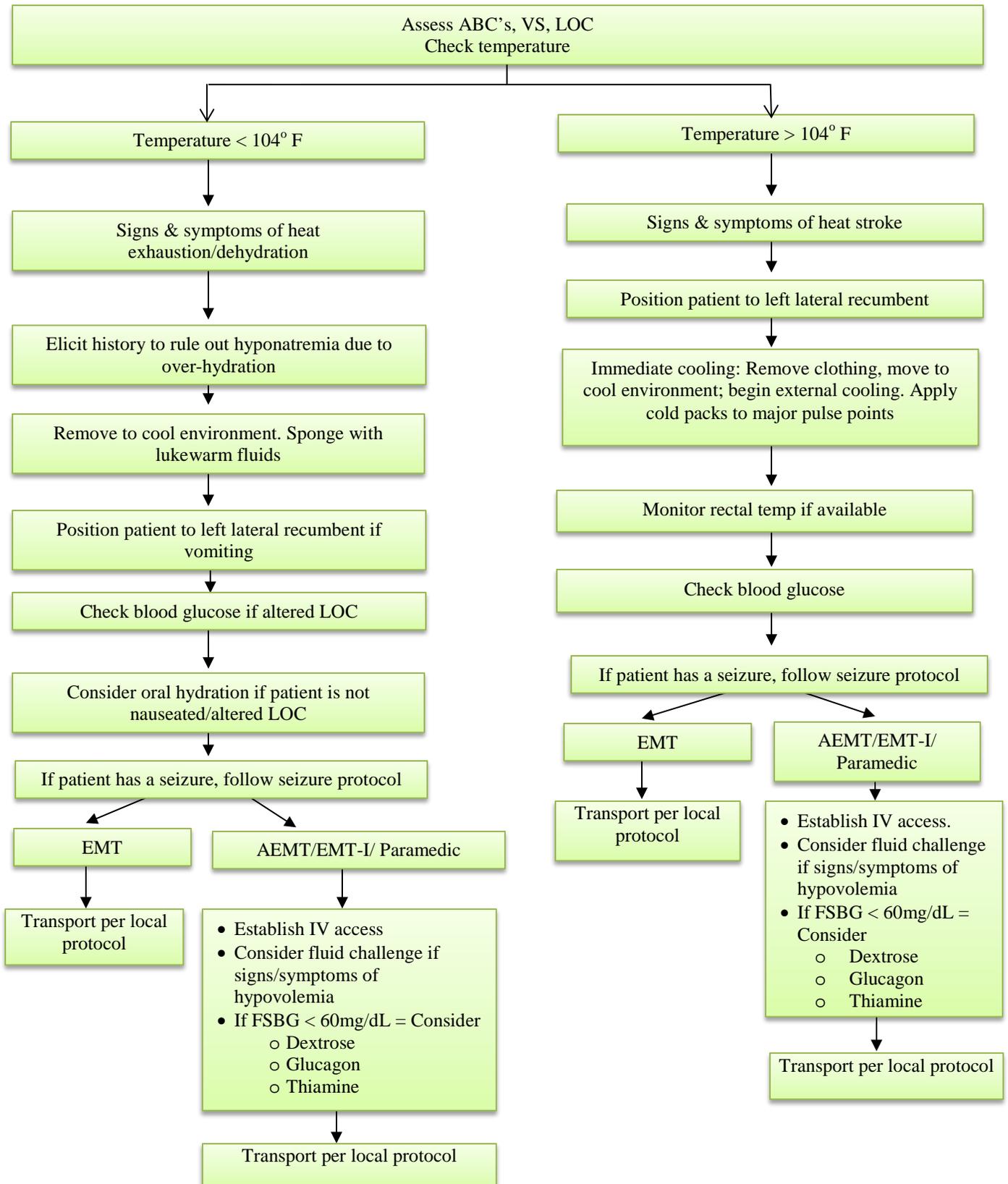
Adult Seizures



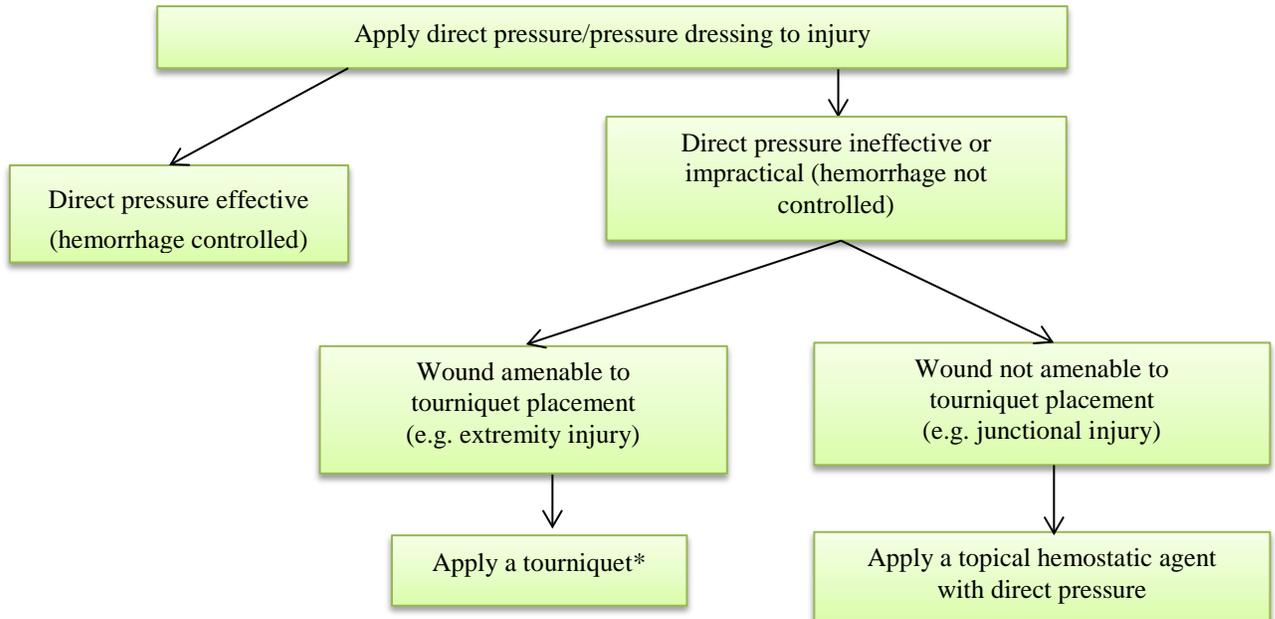
Hypothermia



Hyperthermia

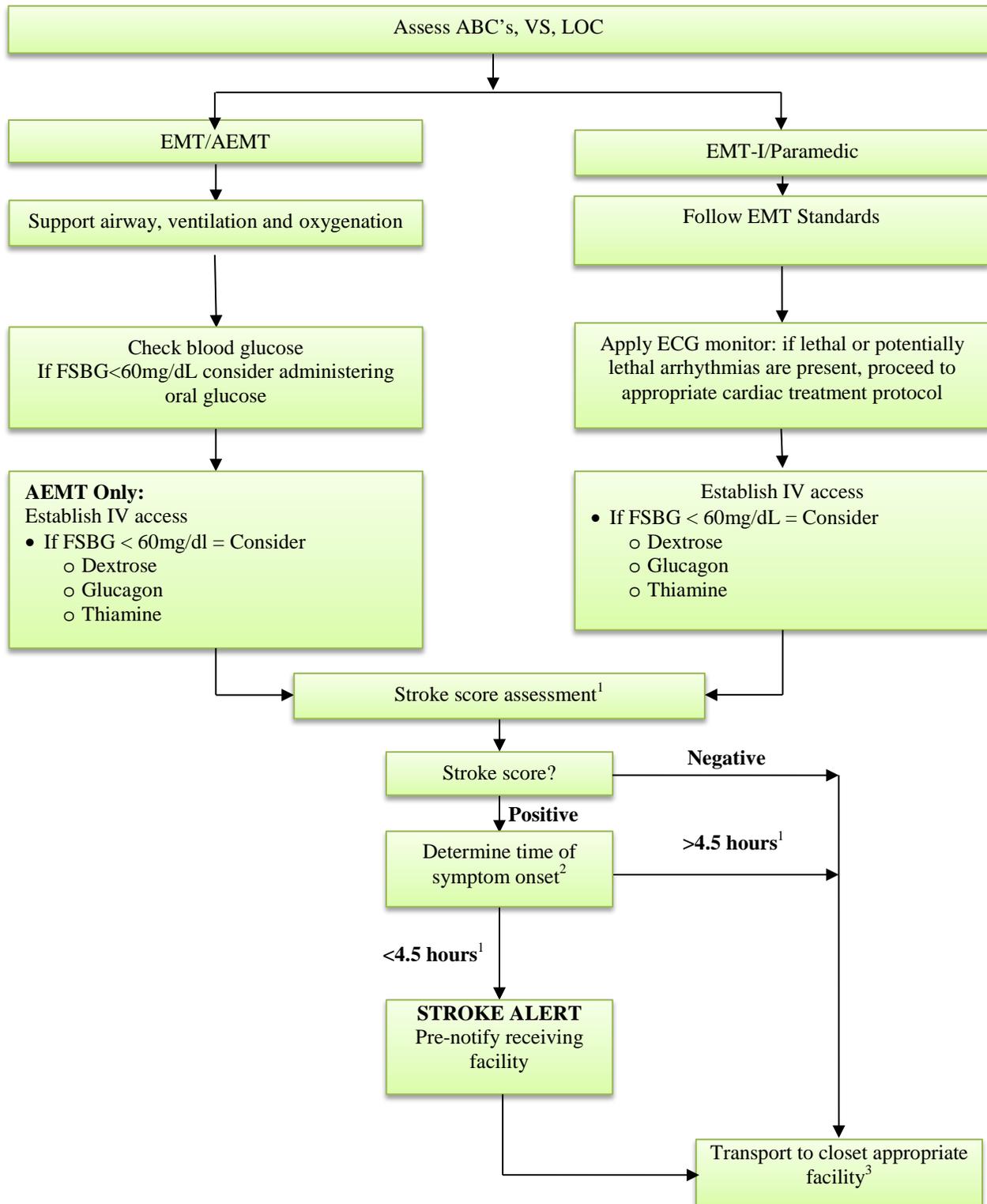


External Hemorrhage Control



*Use of tourniquet for extremity hemorrhage is strongly recommended if sustained direct pressure is ineffective or impractical; Use a commercially-produced, windlass, pneumatic, or ratcheting device, which has been demonstrated to occlude arterial flow and avoid narrow, elastic, or bungee-type devices; Utilize improvised tourniquets only if no commercial device is available ; Do not release a properly-applied tourniquet until the patient reaches definitive care #Apply a topical hemostatic agent, in combination with direct pressure, for wounds in anatomic areas where tourniquets cannot be applied and sustained direct pressure alone is ineffective or impractical; Only apply topical hemostatic agents in a gauze format that supports wound packing; Only utilize topical hemostatic agents which have been determined to be effective and safe in a standardized laboratory injury model.

Adult Suspected Stroke



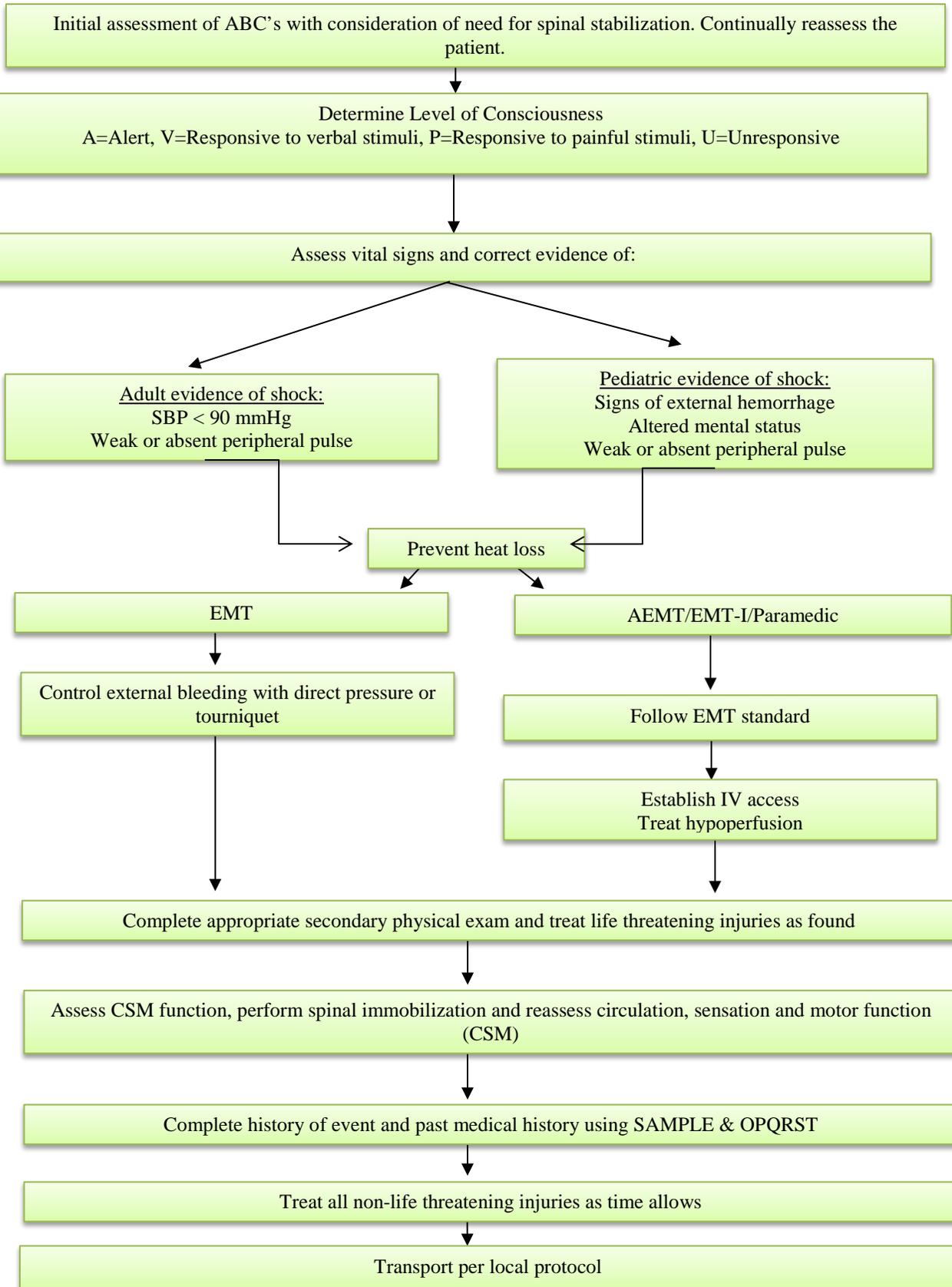
¹method determined by regional medical guidelines

²last normal if time of onset unknown

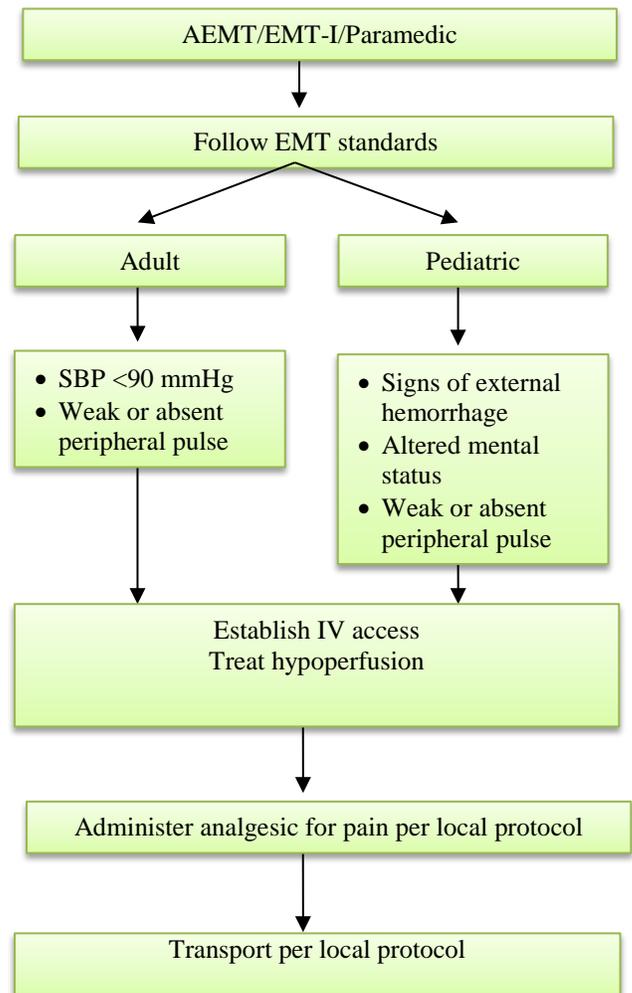
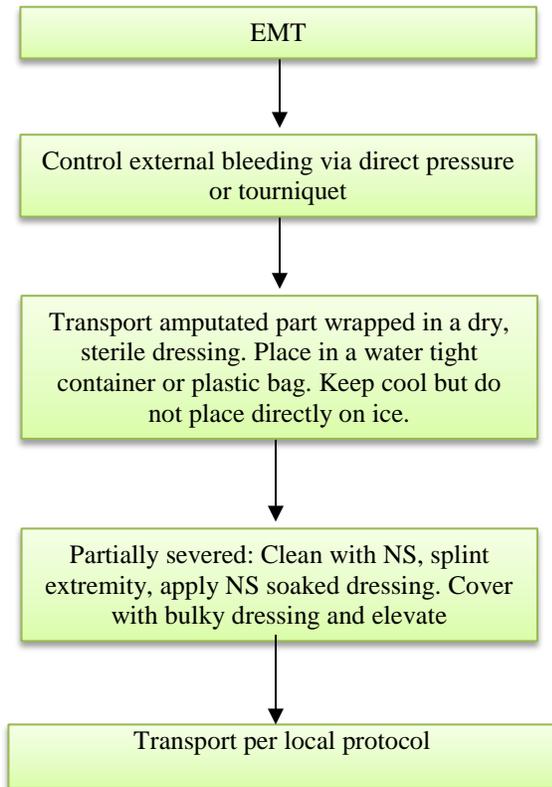
³as determined by local medical direction

Trauma - General Management

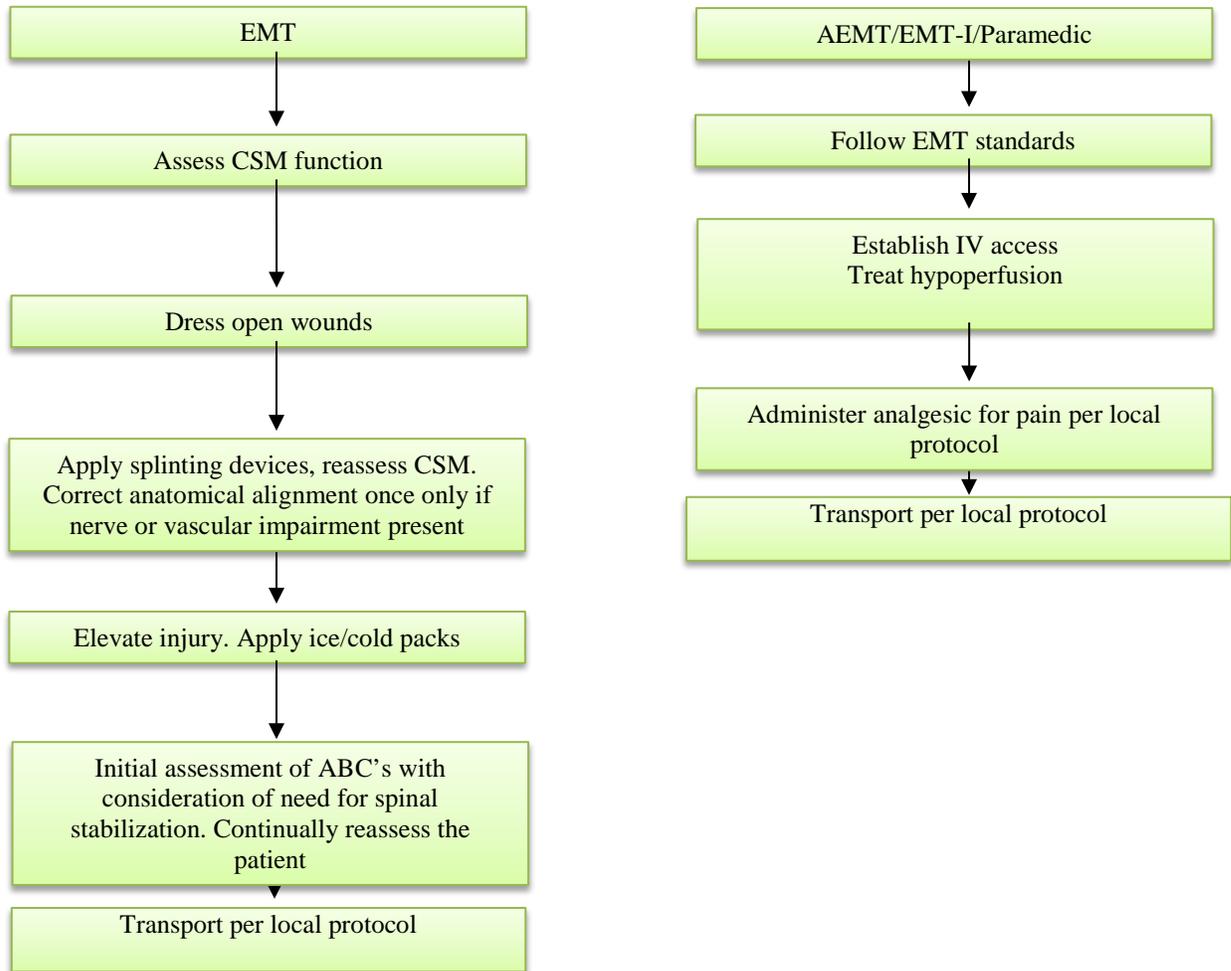
Determine and evaluate mechanism of injury



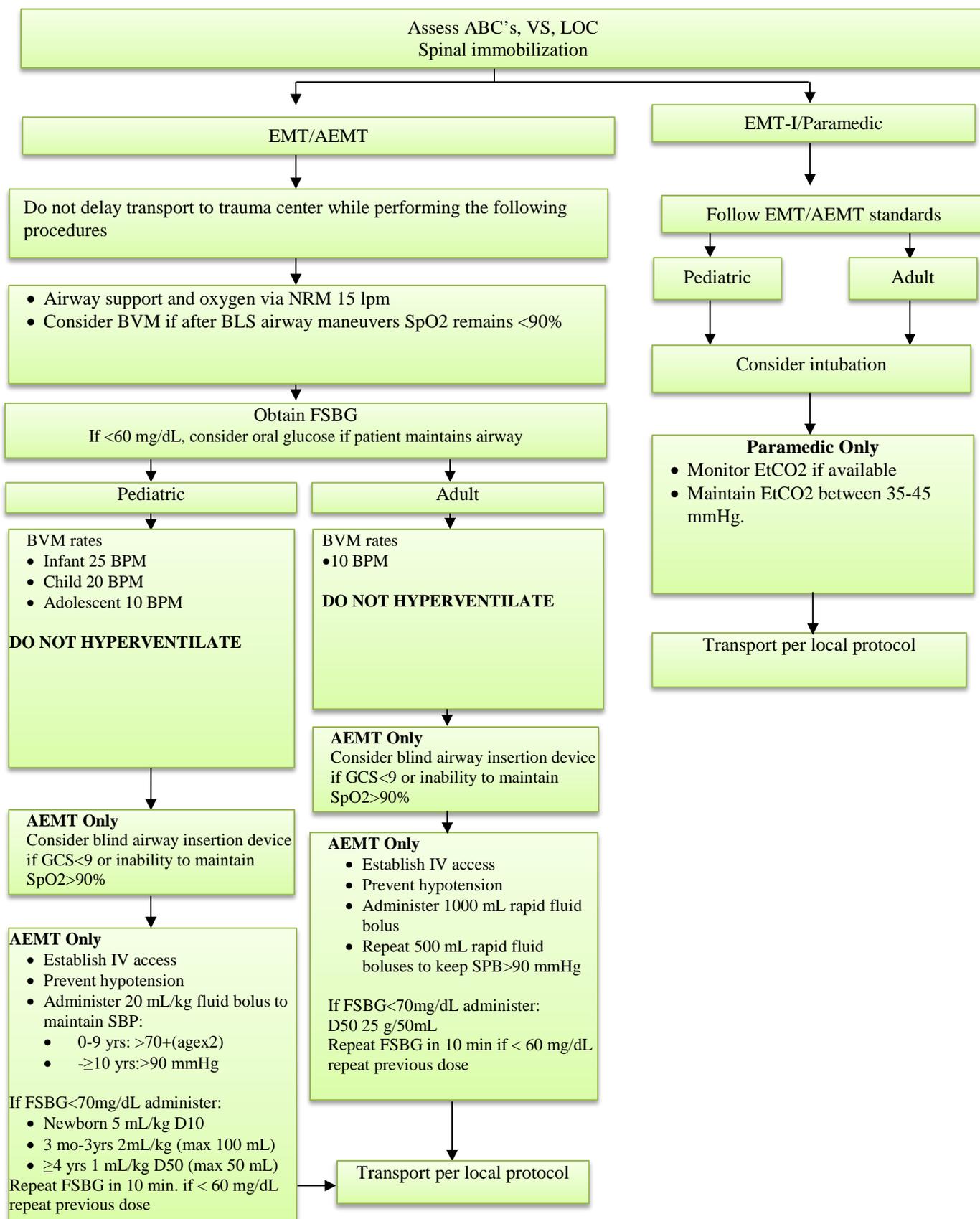
Trauma - Amputated Parts



Trauma - Extremity Fractures, Dislocation and Sprains



Trauma - Brain Injury



Management of Acute Traumatic Pain

This protocol excludes patients who are allergic to morphine or fentanyl and/or who have:

- Altered mentation (GCS < 15 or mentation not appropriate for age)
- Hypotension for age
- SpO₂ < 90%
- Hypoventilation

Assess pain as part of general patient care in children and adults.
Consider all patients as candidates for pain management, regardless of transport interval.

(Strong recommendation, low quality evidence)

Use an age-appropriate pain scale to assess pain:

- Age <4 yrs: Consider using an observational scale such as FLACC or CHEOPS
Age 4-12 yrs: Consider using a self-report scale such as FPS, FPS-revised, or Wong-Baker Faces
Age >12 yrs: Consider using a self-report scale such as NRS

(Weak recommendation, very low quality evidence for patients < 12 yrs, moderate quality evidence for patients > 12 yrs)

Use opioid analgesics to relieve moderate to severe pain.

Analgesics proven safe and effective are:

- Morphine IV (0.1 mg/kg/dose, not to exceed adult dose: 1-3 mg increments)
- Fentanyl IV or IN (1 mcg/kg/dose, not to exceed adult dose: 25-50mcg increments)

(Strong recommendation, moderate quality evidence)

Reassess pain every 5 minutes.

(Strong recommendation, moderate quality evidence)

Evidence of serious adverse effects should preclude further morphine or fentanyl administration.

Serious Adverse Effects

- GCS < 15
- Hypotension for age
- SpO₂ < 90%
- Hypoventilation
- Evidence of allergy

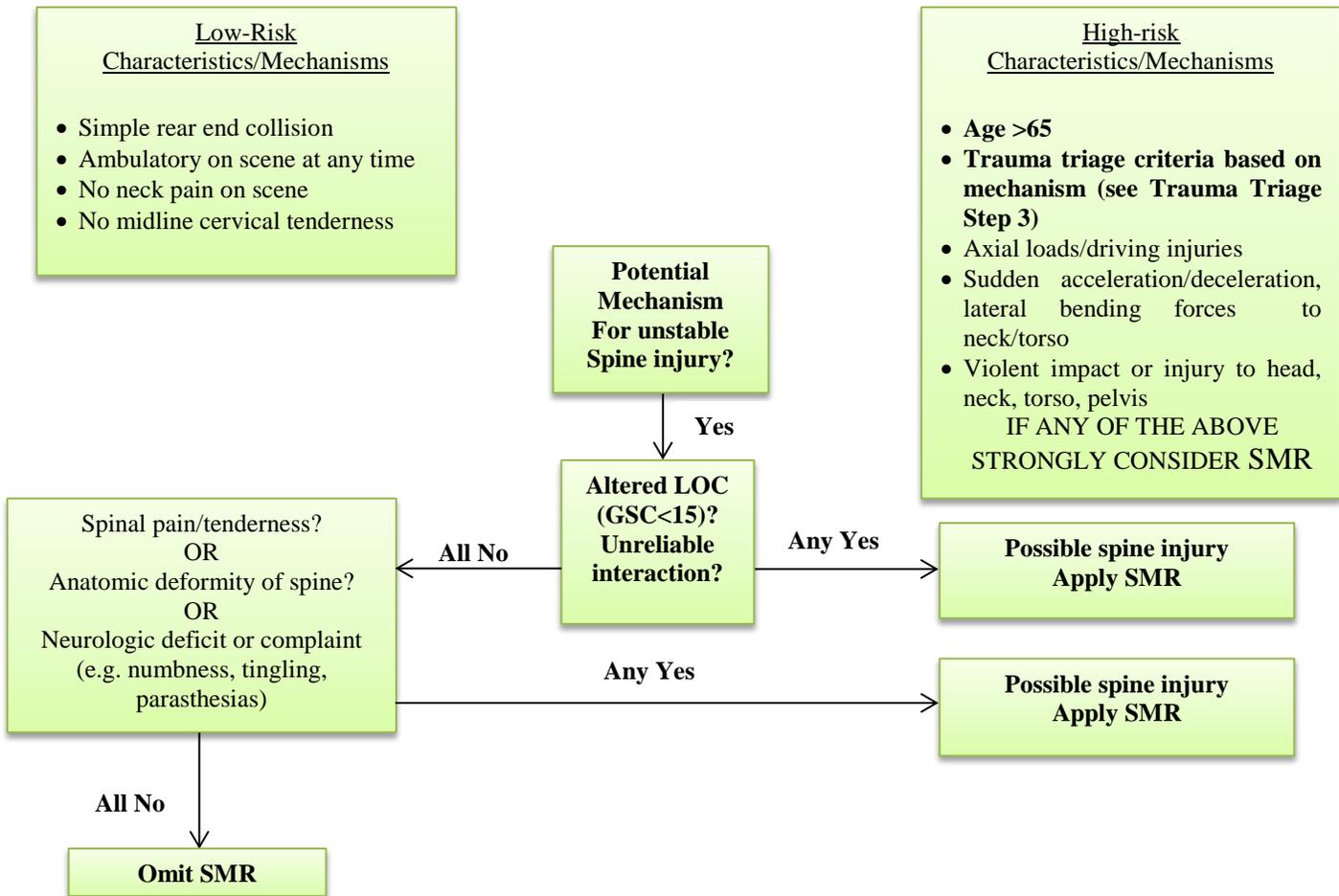
(Weak recommendation, very low quality evidence)

If still in significant pain, redose at half the original dose.

(Strong recommendation, low quality evidence for repeat doses. Weak recommendation, very low quality evidence for redosing at half the original dose)

Spinal Motion Restriction (SMR)

Adult (≥ 15 y/o) Blunt Trauma



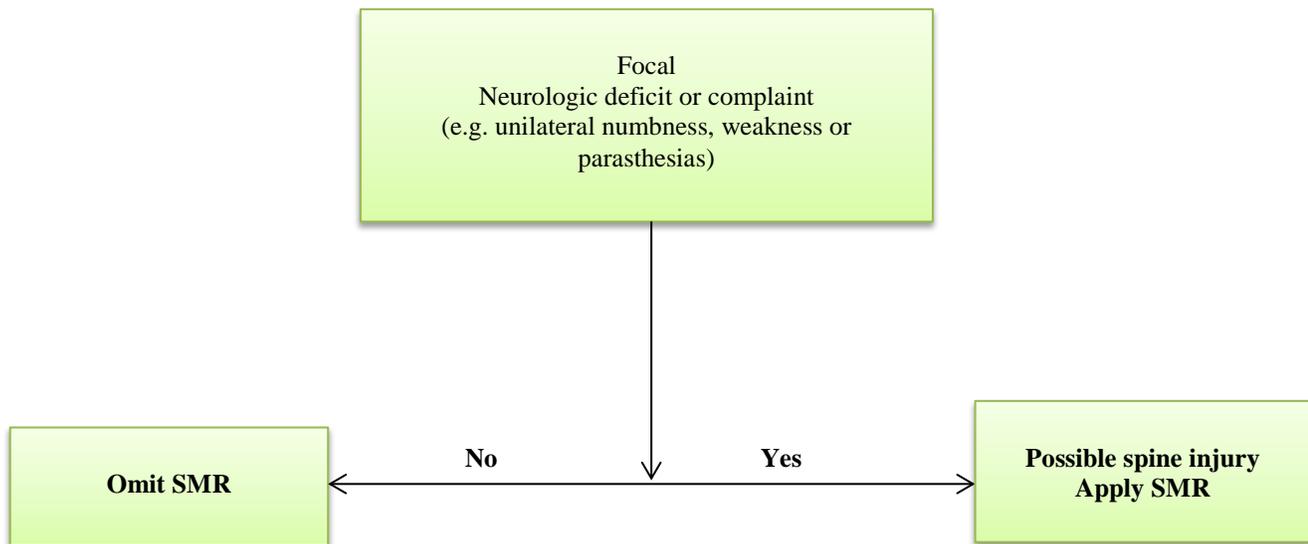
- Unreliable Patient Interactions**
- Language barriers; inability to communicate
 - Lack of cooperation during exam
 - Evidence of drug/alcohol intoxication
 - Painful distracting injury such as long-bone fracture

Spinal Motion Restriction (SMR)

Refer to SMR Procedures page for preferred packing methods and tools

- Motor/Sensory Exam**
- Wrist/hand extension bilaterally
 - Foot plantarflexion bilaterally
 - Foot dorsiflexion bilaterally
 - Gross sensation in all extremities
 - Check for parasthesias

Spinal Motion Restriction
Adult (≥ 15 y/o) Penetrating Trauma



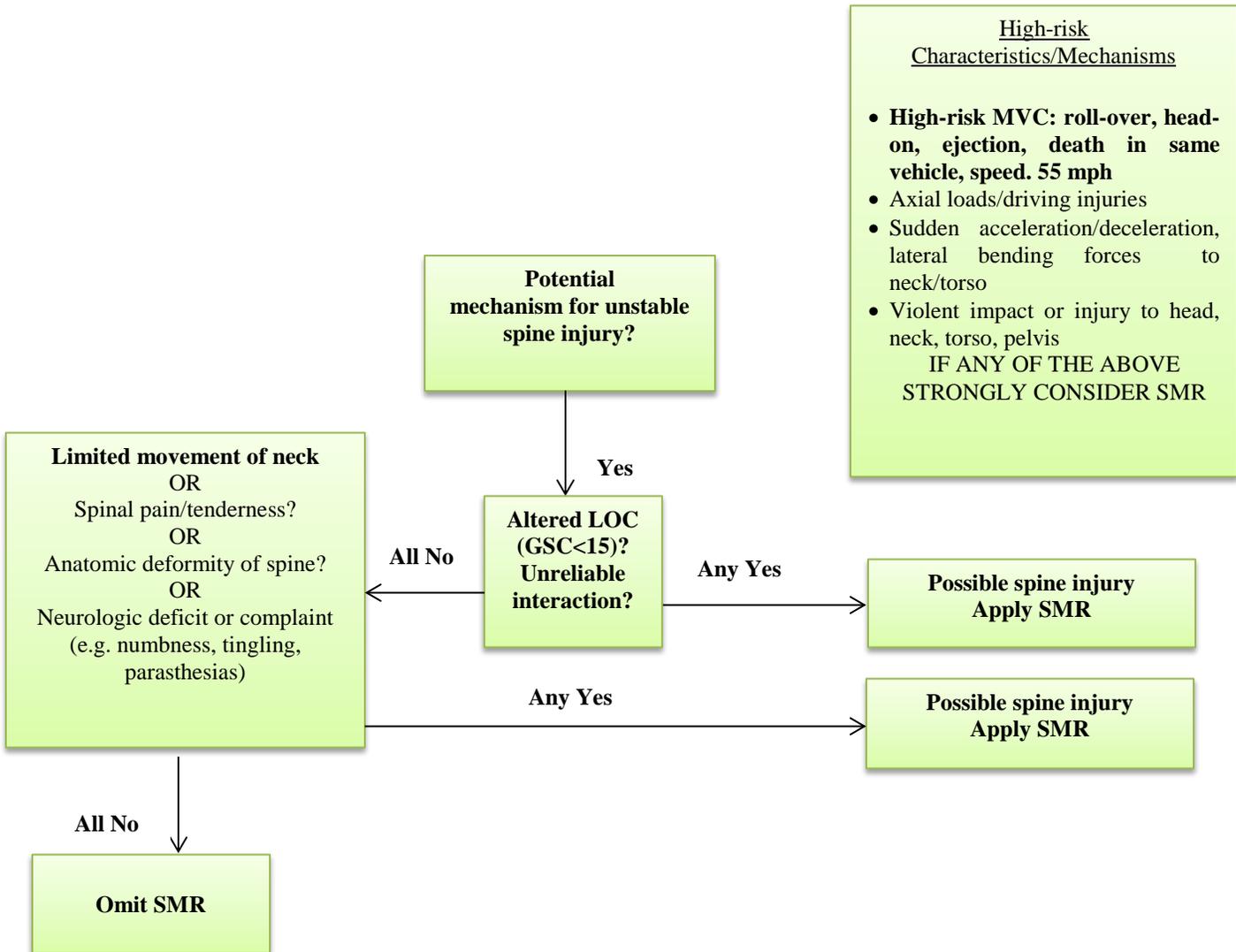
Notes

- Unstable spine fractures and spinal cord injury from penetrating head trauma are extremely rare
- Neuro deficits often present at moment of injury
- Life threatening conditions and evacuation from imminent threat take priority
- If history suggests combination penetrating AND blunt trauma, revert to Blunt Trauma SMR Algorithm
- Instructive information: Patients with global deficits do not require SMR (e.g. GCS 3, comatose)

Spinal Motion Restriction (SMR)

- Refer to SMR Procedures page for preferred packing methods and tools

Spinal Motion Restriction (SMR)
 Pediatric (≤ 14 y/o) Blunt Trauma



High-risk Characteristics/Mechanisms

- **High-risk MVC: roll-over, head-on, ejection, death in same vehicle, speed. 55 mph**
- Axial loads/driving injuries
- Sudden acceleration/deceleration, lateral bending forces to neck/torso
- Violent impact or injury to head, neck, torso, pelvis

IF ANY OF THE ABOVE STRONGLY CONSIDER SMR

Unreliable Patient Interactions

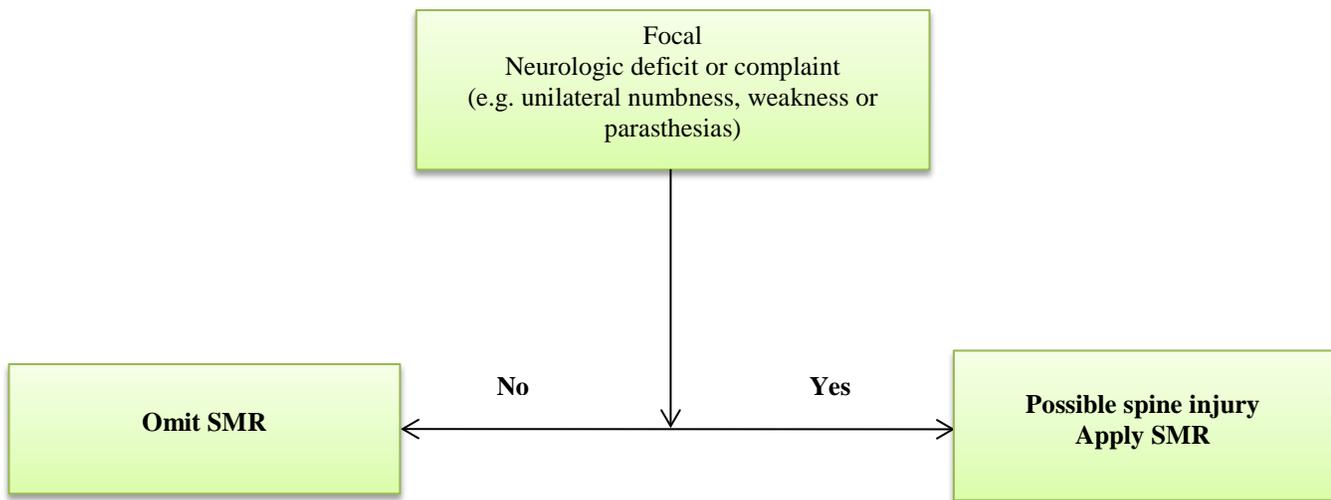
- Language barriers; inability to communicate; age < 2
- Lack of cooperation during exam
- Evidence of drug/alcohol intoxication
- Painful distracting injury such as long-bone fracture

Spinal Motion Restriction (SMR)
 Refer to SMR Procedures page for preferred packing methods and tools

Motor/Sensory Exam

- Wrist/hand extension bilaterally
- Foot plantarflexion bilaterally
- Foot dorsiflexion bilaterally
- Gross sensation in all extremities
- Check for paresthesias

Spinal Motion Restriction (SMR)
Pediatric (≤ 14 y/o) Penetrating Trauma



Notes

- Unstable spine fractures and spinal cord injury from penetrating head trauma are extremely rare
- Neuro deficits often present at moment of injury
- Life threatening conditions and evacuation from imminent threat take priority
- If history suggests combination penetrating AND blunt trauma, revert to Blunt Trauma SMR Algorithm
- Instructive information: Patients with global deficits do not require SMR (e.g. GCS 3, comatose)

Spinal Motion Restriction (SMR)

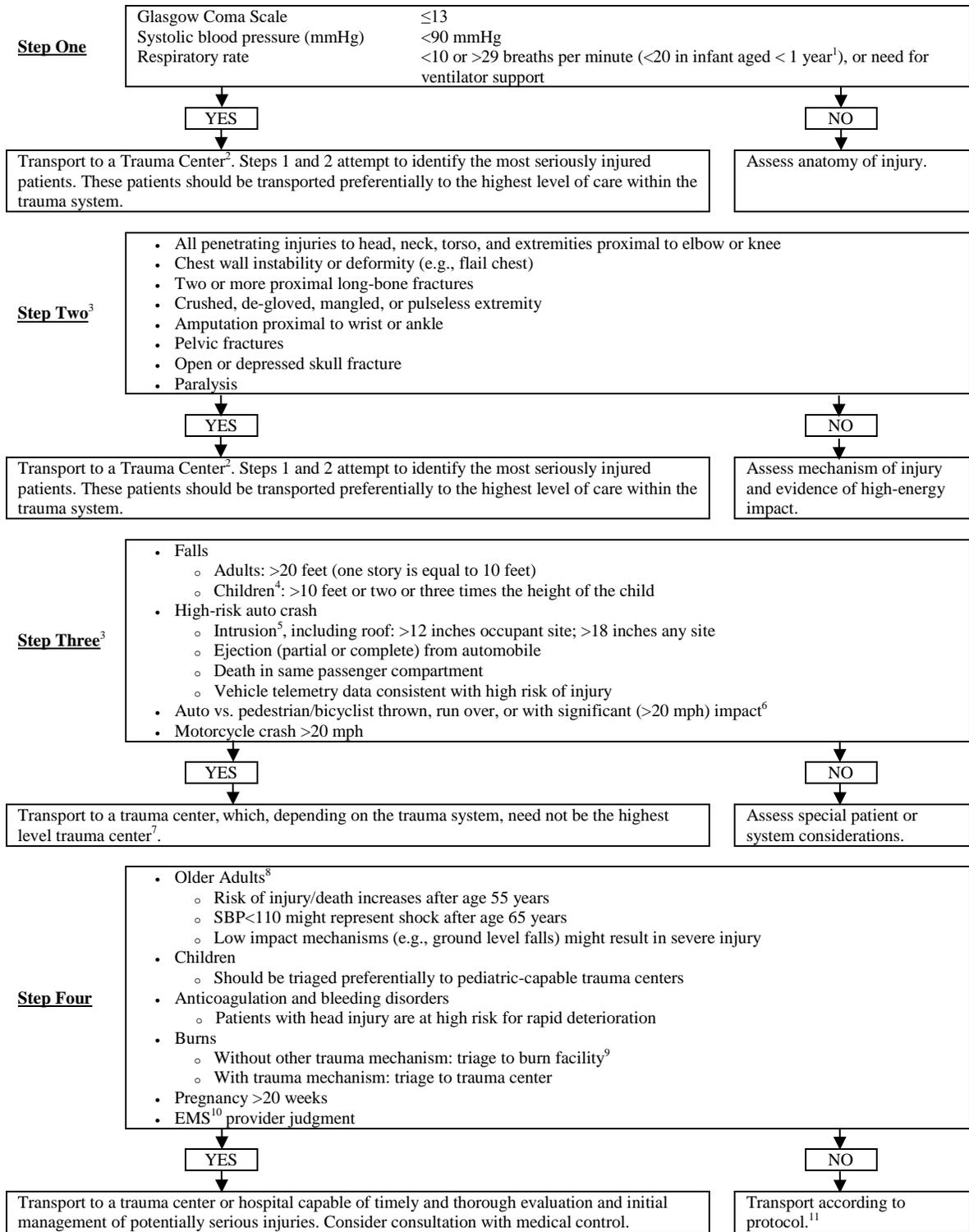
- Refer to SMR Procedures page for preferred packing methods and tools

Arizona Guidelines for Field Triage of Injured Patients

(Regional modifications are permissible)

FIELD TRIAGE DECISION SCHEME

Measure vital signs and level of consciousness



WHEN IN DOUBT, TRANSPORT TO A TRAUMA CENTER

FIELD TRIAGE SCHEME FOOTNOTES

¹ The upper limit of respiratory rate in infants is >29 breaths per minute to maintain a higher level of over-triage for infants.
² Trauma centers are designated Level I-IV. A Level I center has the greatest amount of resources and personnel for care of the injured patient and provides regional leadership in education, research, and prevention programs. A Level II facility offers similar resources to a Level I facility, possibly differing only in continuous availability of certain subspecialties or sufficient prevention, education, and research activities for Level I designation; Level II facilities are not required to be resident or fellow education centers. A Level III center is capable of assessment, resuscitation, and emergency surgery, with severely injured patients being transferred to a Level I or II facility. A Level IV trauma center is capable of providing 24-hour physician coverage, resuscitation, and stabilization to injured patients before transfer to a facility that provides a higher level of trauma care.
³ Any injury noted in Step Two or Step Three triggers a "YES" response.
⁴ Age <15 years.
⁵ Intrusion refers to interior compartment intrusion, as opposed to deformation which refers to exterior damage.
⁶ Includes pedestrians or bicyclists thrown or run over by a motor vehicle or those with estimated impact >20 mph with a motor vehicle.
⁷ Local or regional protocols should be used to determine the most appropriate level of trauma center; appropriate center need not be Level I.
⁸ Age >55 years.
⁹ Patients with both burns and concomitant trauma for whom the burn injury poses the greatest risk for morbidity and mortality should be transferred to a burn center. If the non-burn trauma presents a greater immediate risk, the patient may be stabilized in a trauma center and then transferred to a burn center.
¹⁰ Emergency medical services.
¹¹ Patients who do not meet any of the triage criteria in Steps One through Four should be transported to the most appropriate medical facility as outlined in local EMS protocols.

Revised: 6/2012

Arizona Ground and Air Ambulance Mode of Transport Guidelines

The decision for mode of transport for both field and inter-facility patients is based on the premise that the time to definitive care and quality of care are critical to achieving optimal outcomes. Factors of distance, injury/illness, road conditions, weather, and traffic patterns should be considered when choosing between air or ground transport. The skill level of the transport team(s) involved should also be considered.

Local and regional analysis of mode of transport decisions should be part of the normal, on-going quality improvement process. Mode of transport discussion should be incorporated into on-going pre-hospital and hospital educational opportunities. Although the examples provided below are not intended to cover all potential circumstances, consider the following assumptions:

- Air ambulance transport may be quicker.
- There are no weather or road issues that would make air transport preferable to ground transport or ground transport preferable to air transport.
- Patients in cardiac arrest and receiving CPR should never be transported by air ambulance.

Transports from one hospital to another for a higher level of care typically fall into one of two broad types: Those in which a quicker form of transport may make a difference in treatment/outcome; and, those in which a quicker form of transport may not make a difference in treatment/outcome. As a general rule, the potential benefit to the patient should outweigh the risk associated with Air Ambulance transport.

MODE OF TRANSPORT EXAMPLES (examples not intended to cover all potential circumstances)	
Quicker Form of Transport <u>May</u> Make a Difference in Outcome	Quicker Form of Transport May <u>Not</u> Make a Difference in Outcome
Patient with a suspected aortic injury as seen on chest X-ray or CT scan.	Patient with 2 broken ribs, no pneumothorax and who is breathing fine.
Patient with an open book pelvic fracture.	Patient with a minor pelvic fracture and hemodynamically stable.
Patient with stab wound to the abdomen near the upper right quadrant.	Patient with gun-shot wound to the thigh with excellent pulses, no expanding thigh, and no significant on-going blood loss.
Patient with a gunshot wound to the thigh with decreased pulses.	Stab wound to the arm with decreased sensation but normal pulses, no “tightness”, and no significant on-going blood loss.
Patient with Glasgow Coma Scale (GCS) less than 12 and the GCS is decreasing.	Patient with a concussion and normal CT scan of the brain; or if no CT, then a GCS of 15.
Patient with a time-sensitive illness (such as STEMI, stroke, sepsis, burn victims, etc.) that would benefit from proven intervention or treatment that is only available at the specific receiving institution.	Patients with medical conditions that are not eligible for or will not receive time sensitive interventions.
Geriatric, pediatric or peri-natal patients with unexplained and worsening illness.	Special populations whose vital signs are stable and indications for acute changes are unlikely.

When considering air transport, the amount of time saved should be significant enough to allow a potentially beneficial intervention to take place at the receiving facility. Time considerations should take into account arranging for air transport, patient packaging, transport to the aircraft and transport for the patient from the helipad or airport to the receiving facility. The referring physician should collaborate with the receiving physician (this is not limited to transfers initiated in the ED), and transport service providers to determine the appropriate mode of transport based on the patient’s condition, best practices, and the above mentioned factors.

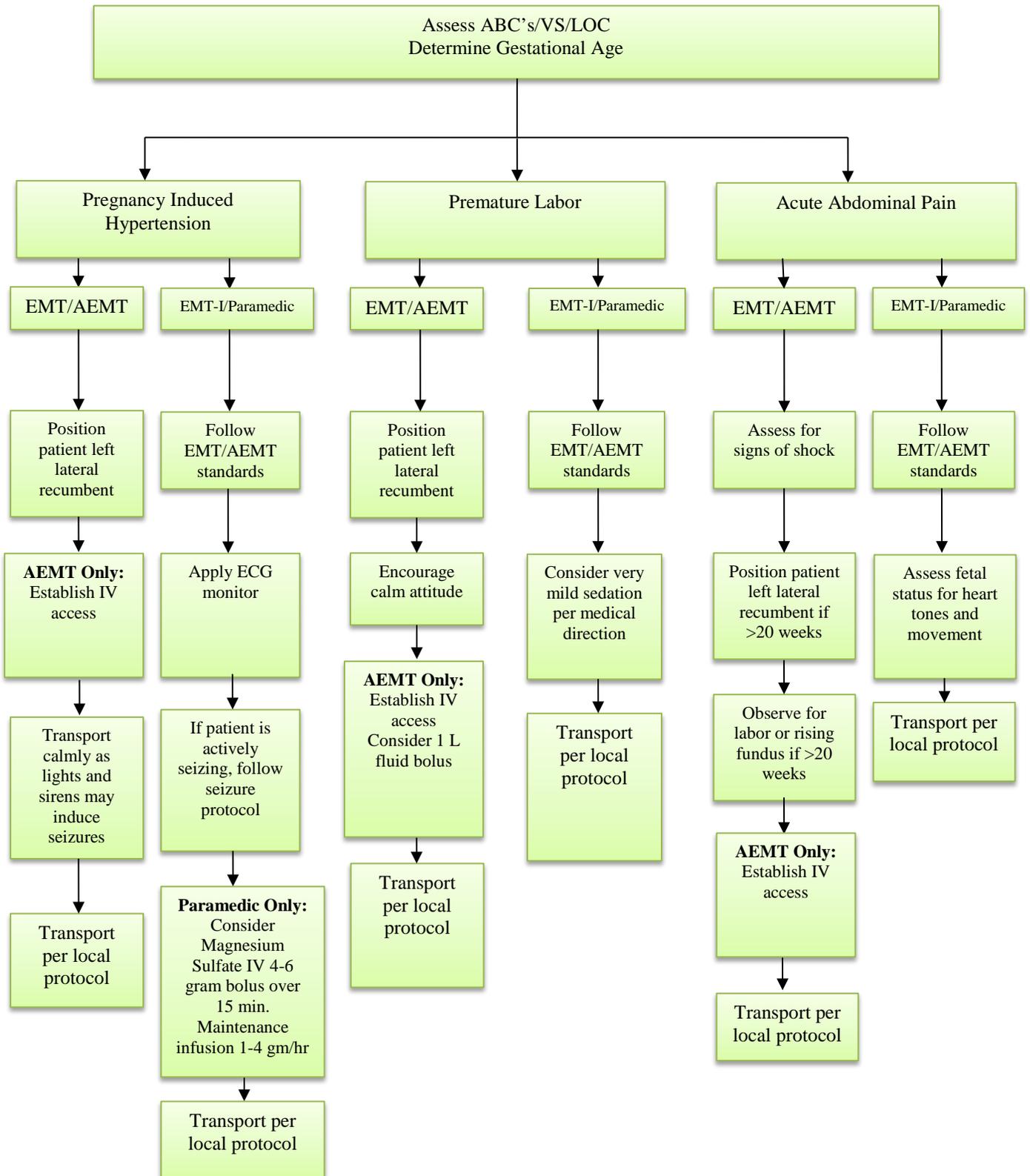
References:

American College of Emergency Physicians. 2011. Appropriate utilization of air medical transport in the out-of-hospital setting (<http://www.acep.org/Content.aspx?id=29116>)

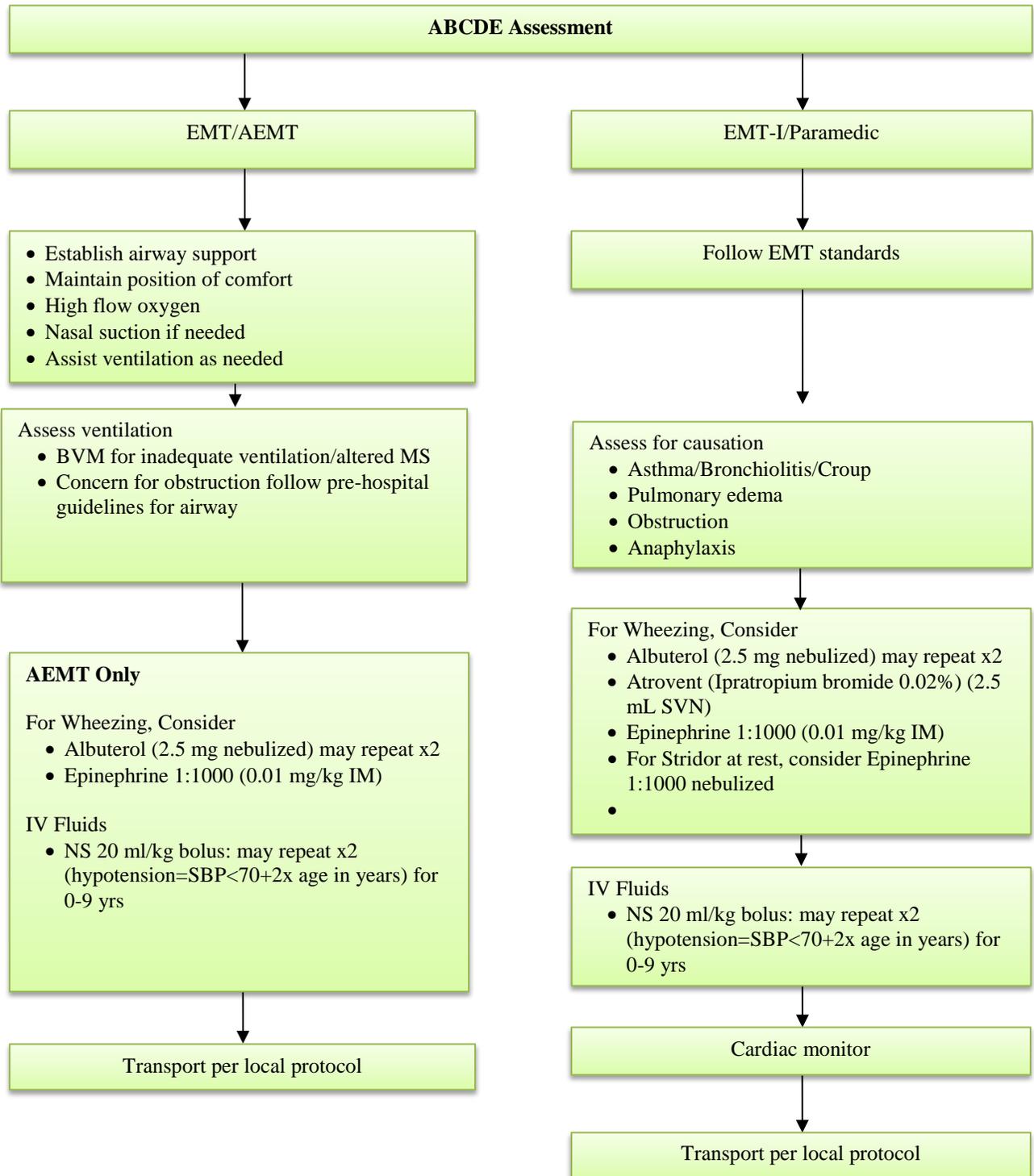
National Association of EMS Physicians. Guidelines for air medical dispatch. Prehospital emergency care. April/June 2003. Volume 7, number 2 (<http://www.naemsp.org/pdf/AirMedicalDispatch.pdf>)

Added to TTTG: 6/2012

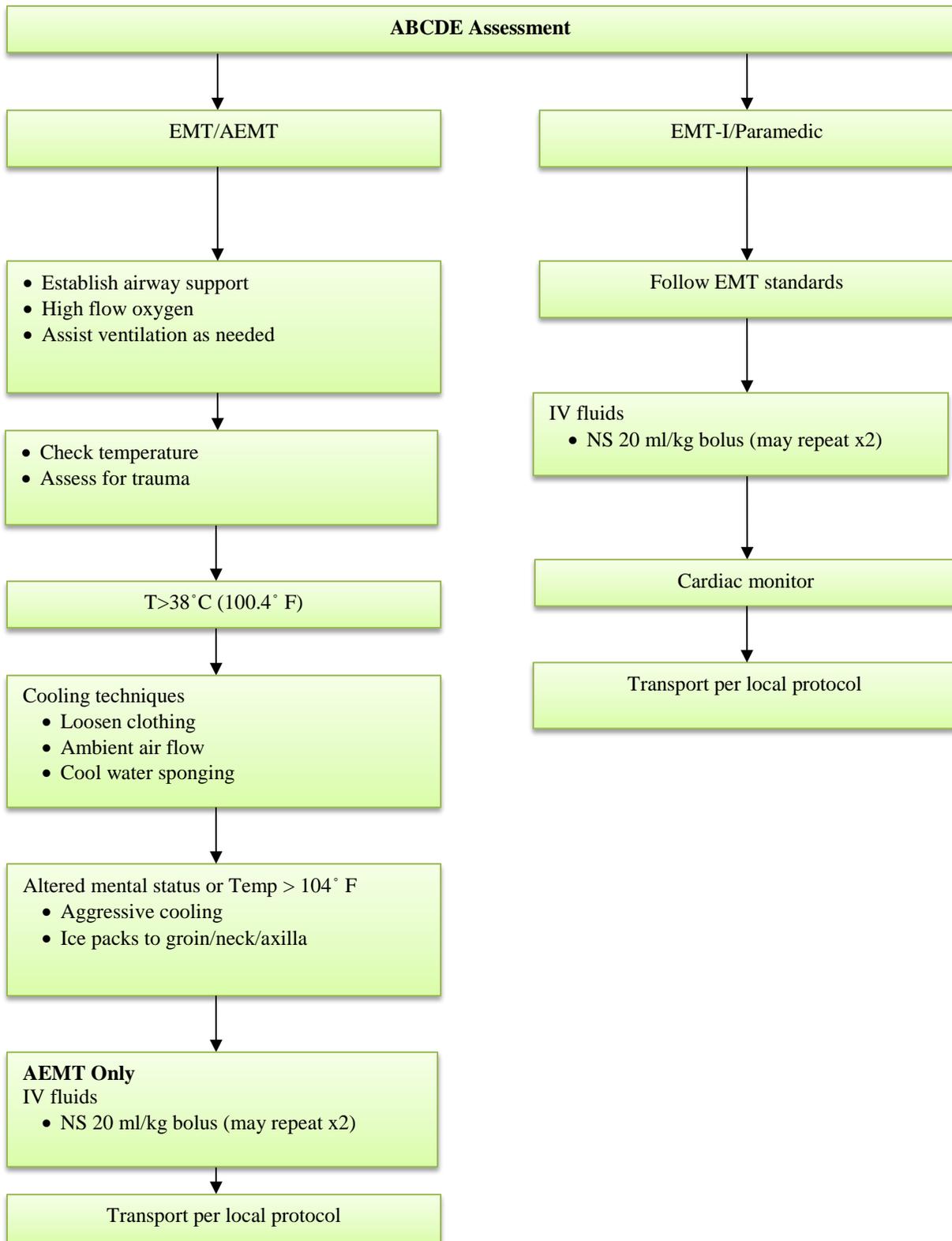
Adult High Risk OB (HROB)



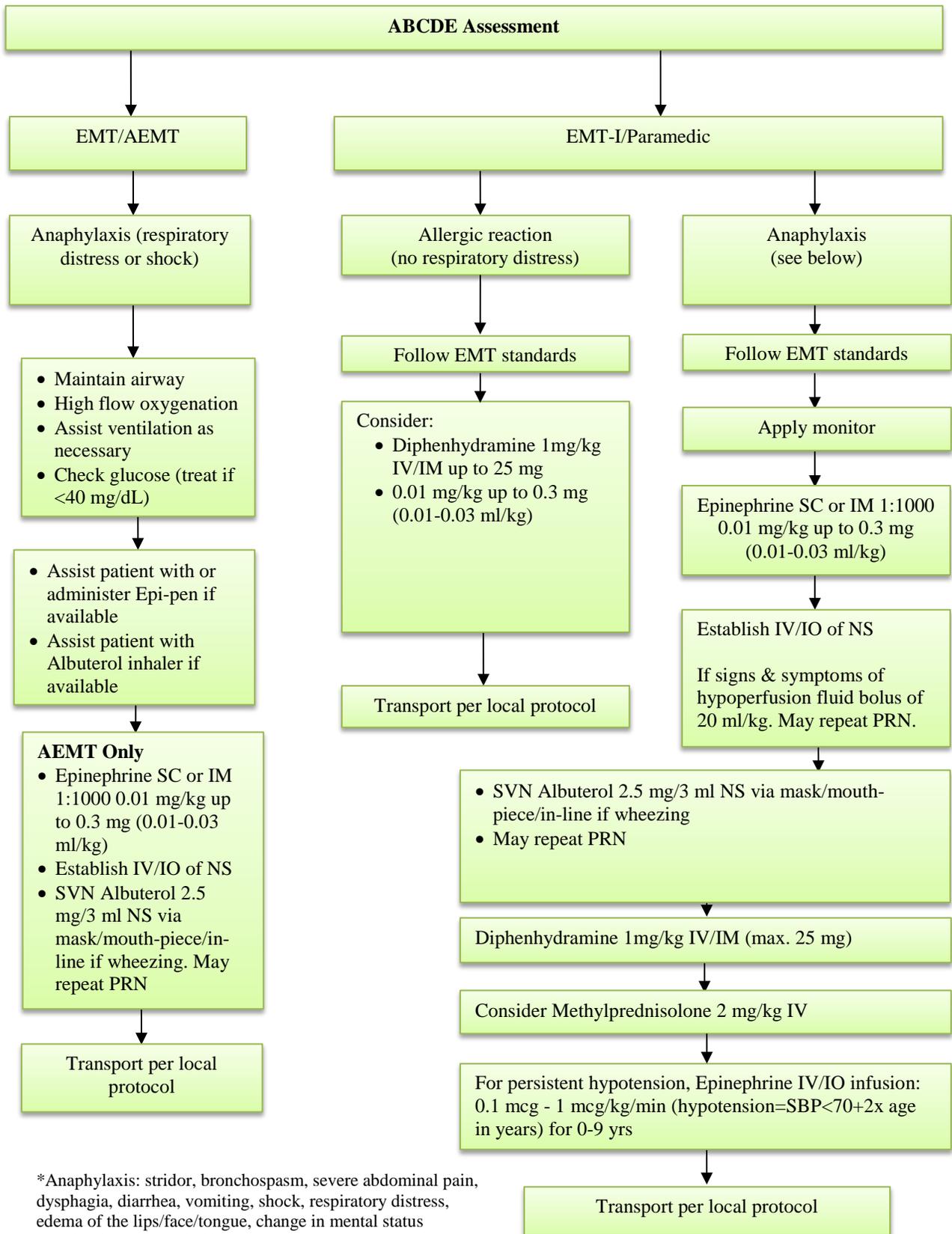
Pediatric Shortness of Breath



Pediatric Heat Exposure

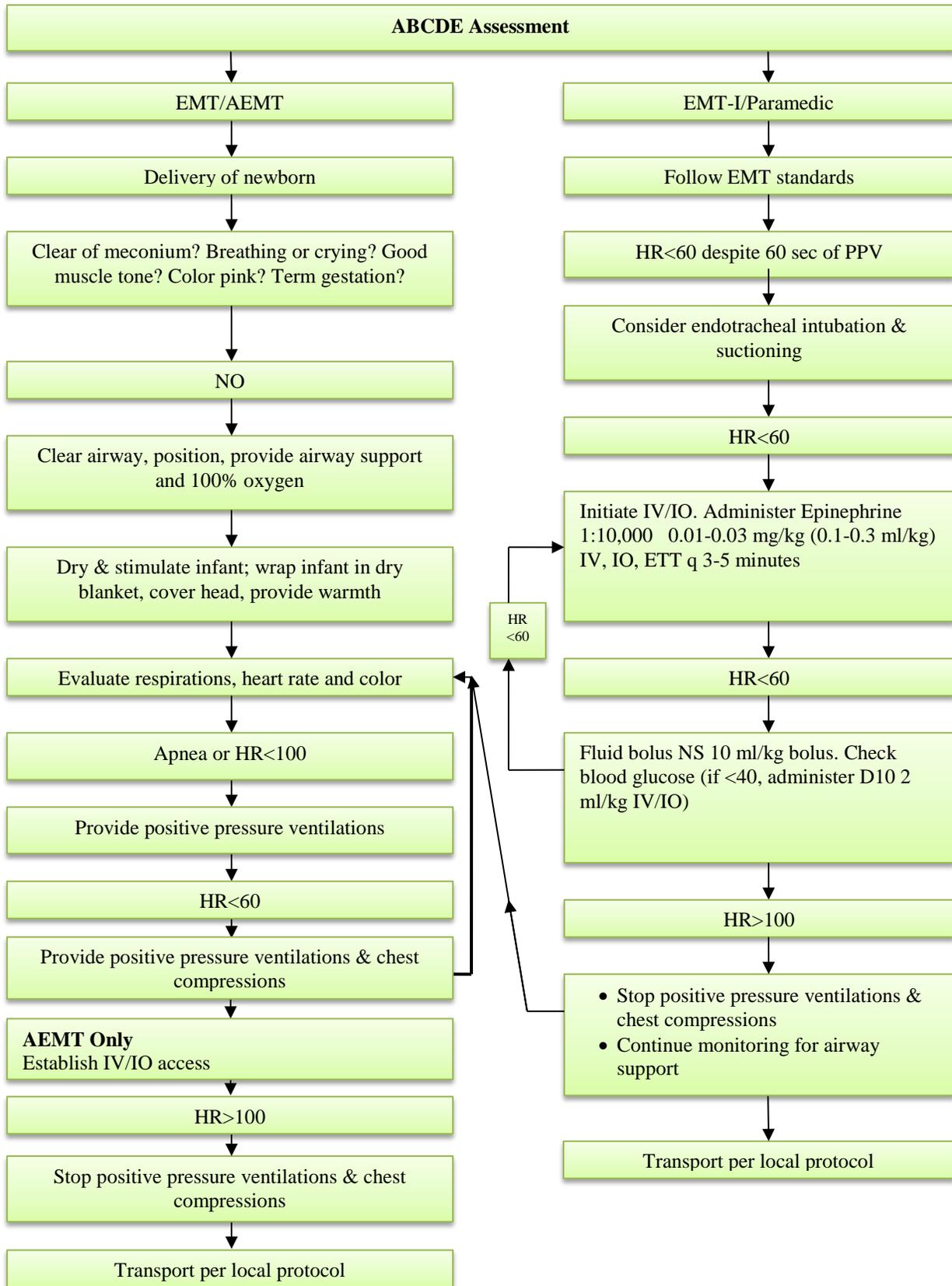


Pediatric *Anaphylaxis/**Allergic Reaction

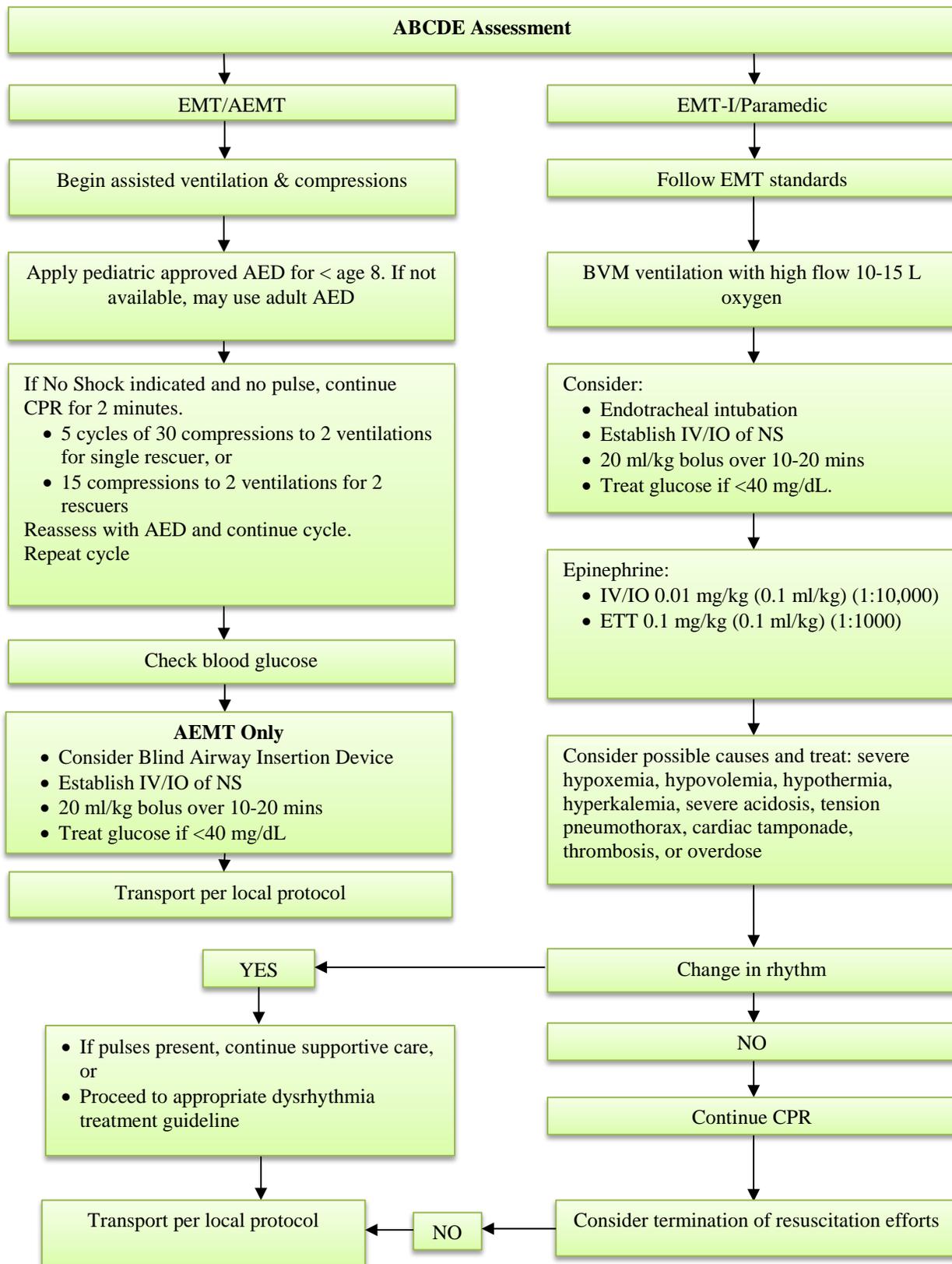


*Anaphylaxis: stridor, bronchospasm, severe abdominal pain, dysphagia, diarrhea, vomiting, shock, respiratory distress, edema of the lips/face/tongue, change in mental status
 **Allergic reaction: itching, urticaria, nausea

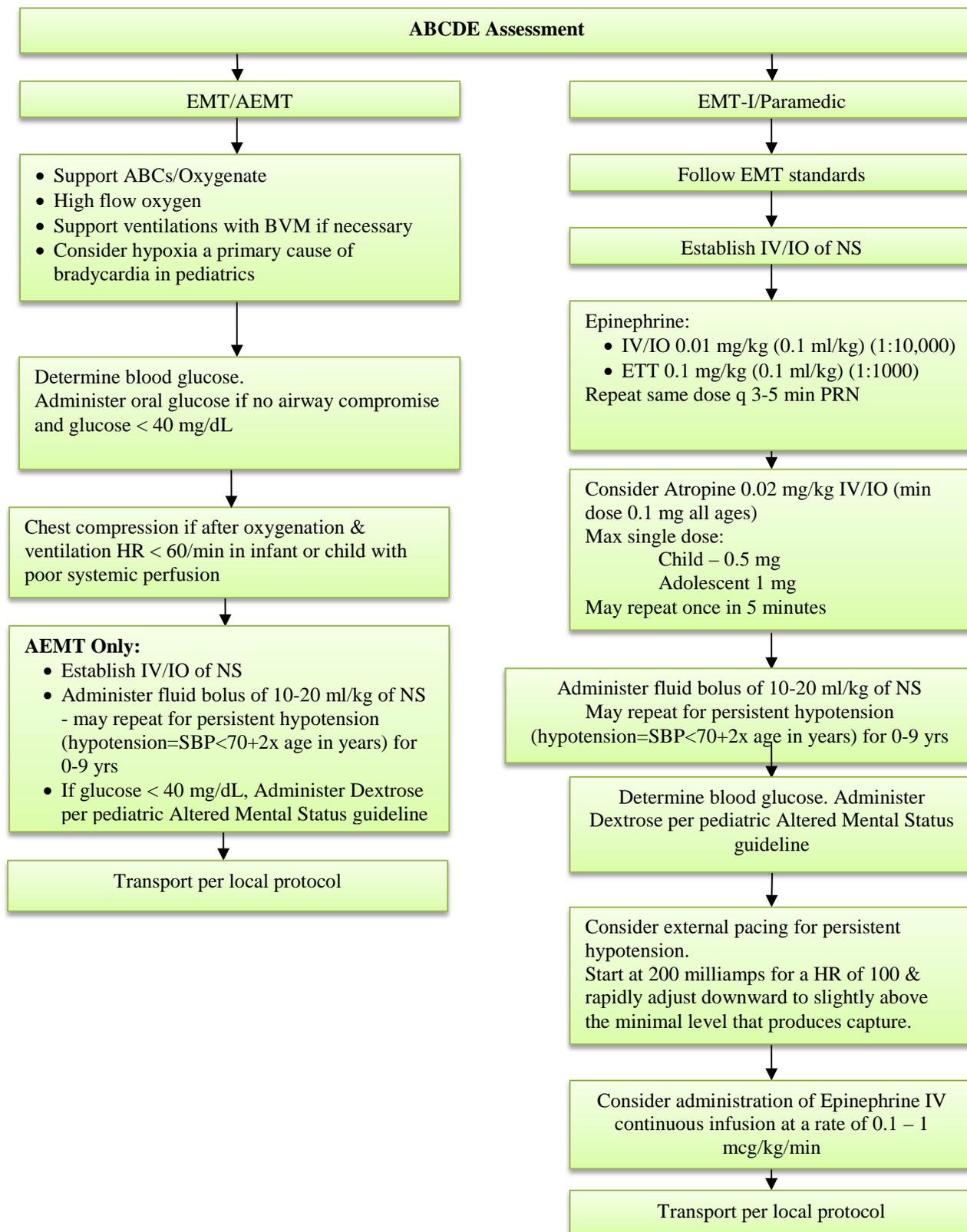
Newborn Resuscitation



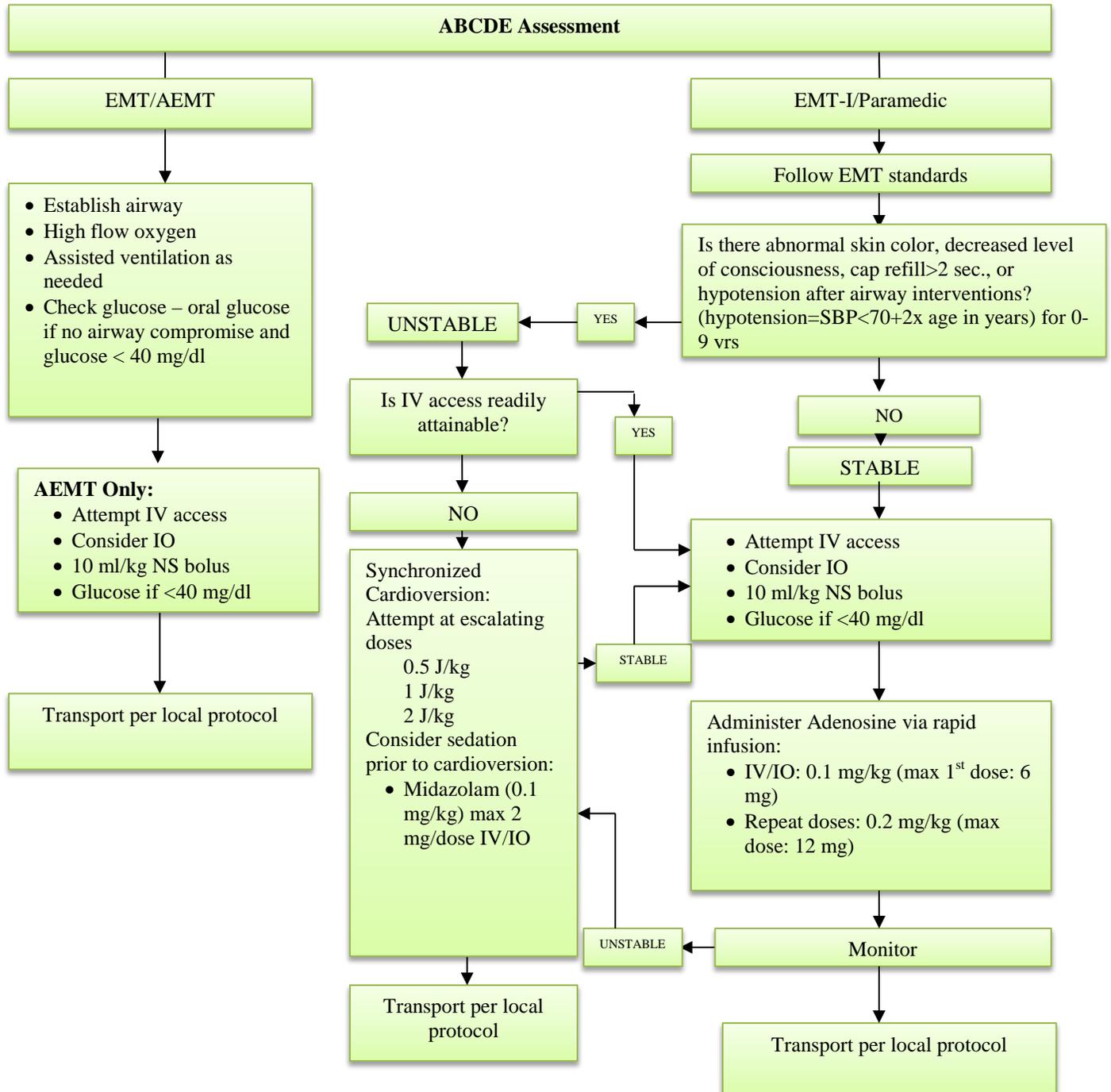
Pediatric Pulseless Electrical Activity (PEA)/Asystole



Pediatric Bradycardia, Unstable

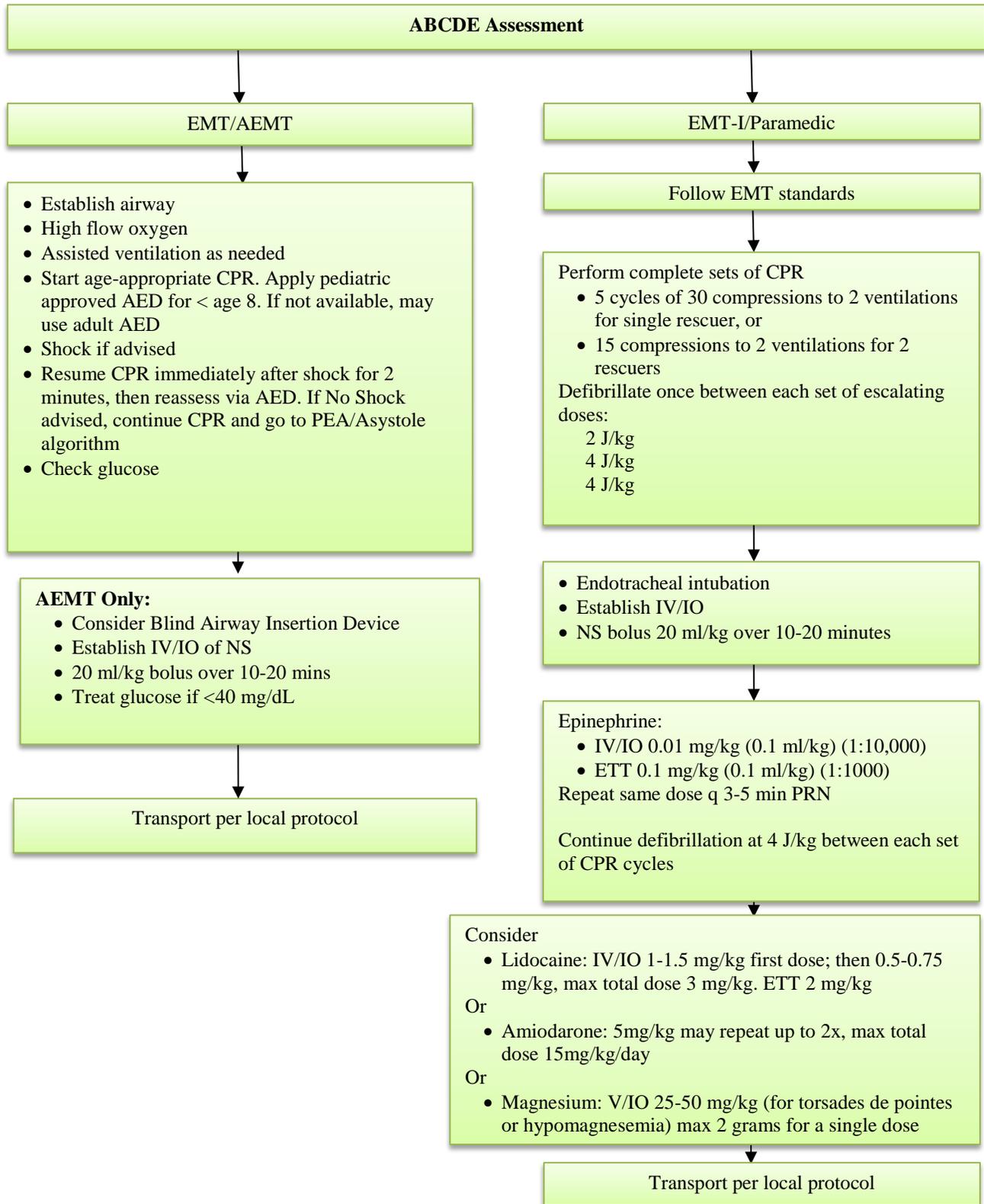


Pediatric Supraventricular Tachycardia

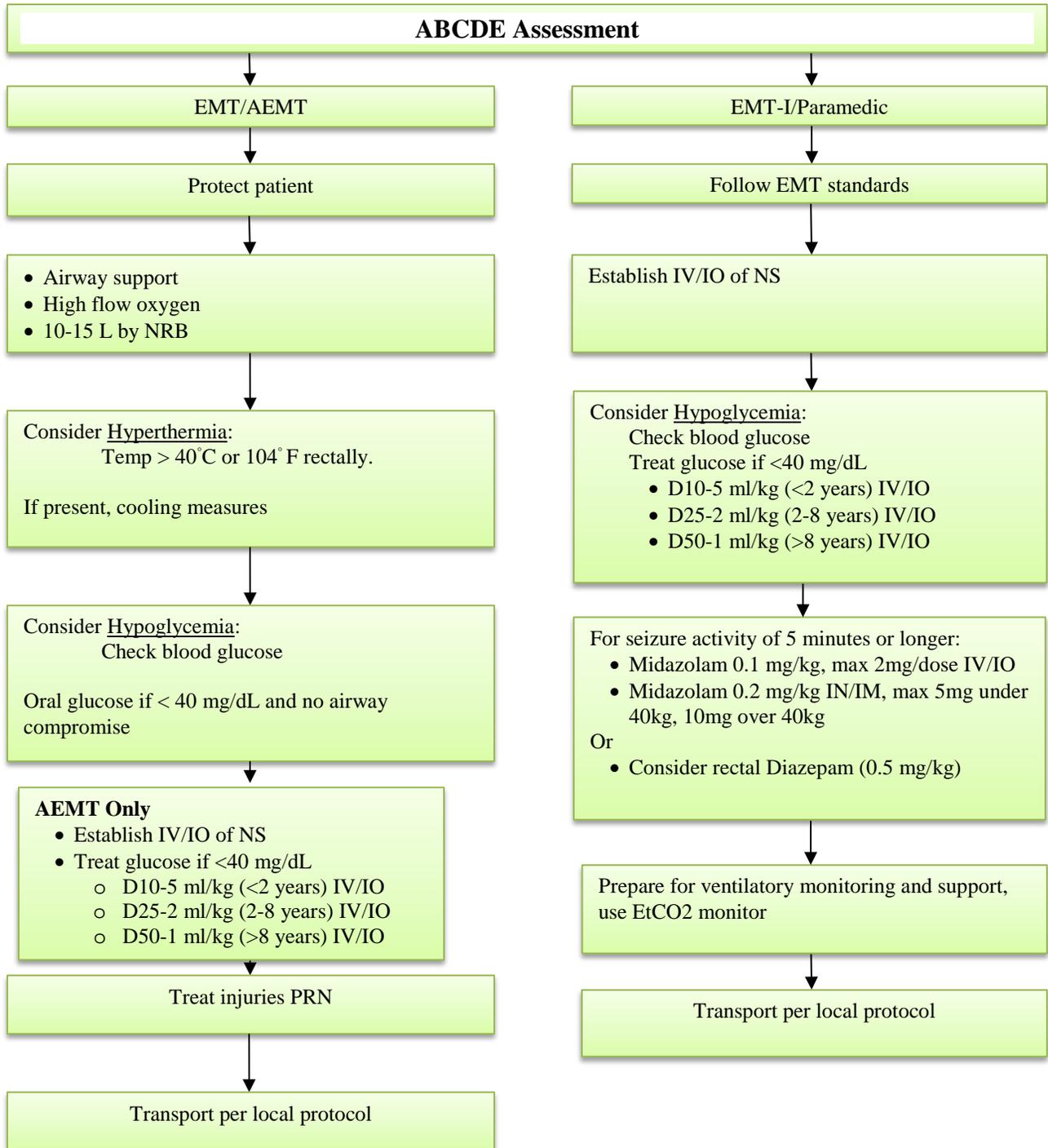


*Monitor rate in children < 2 years is >220 BPM
Biphasic energy settings may be different*

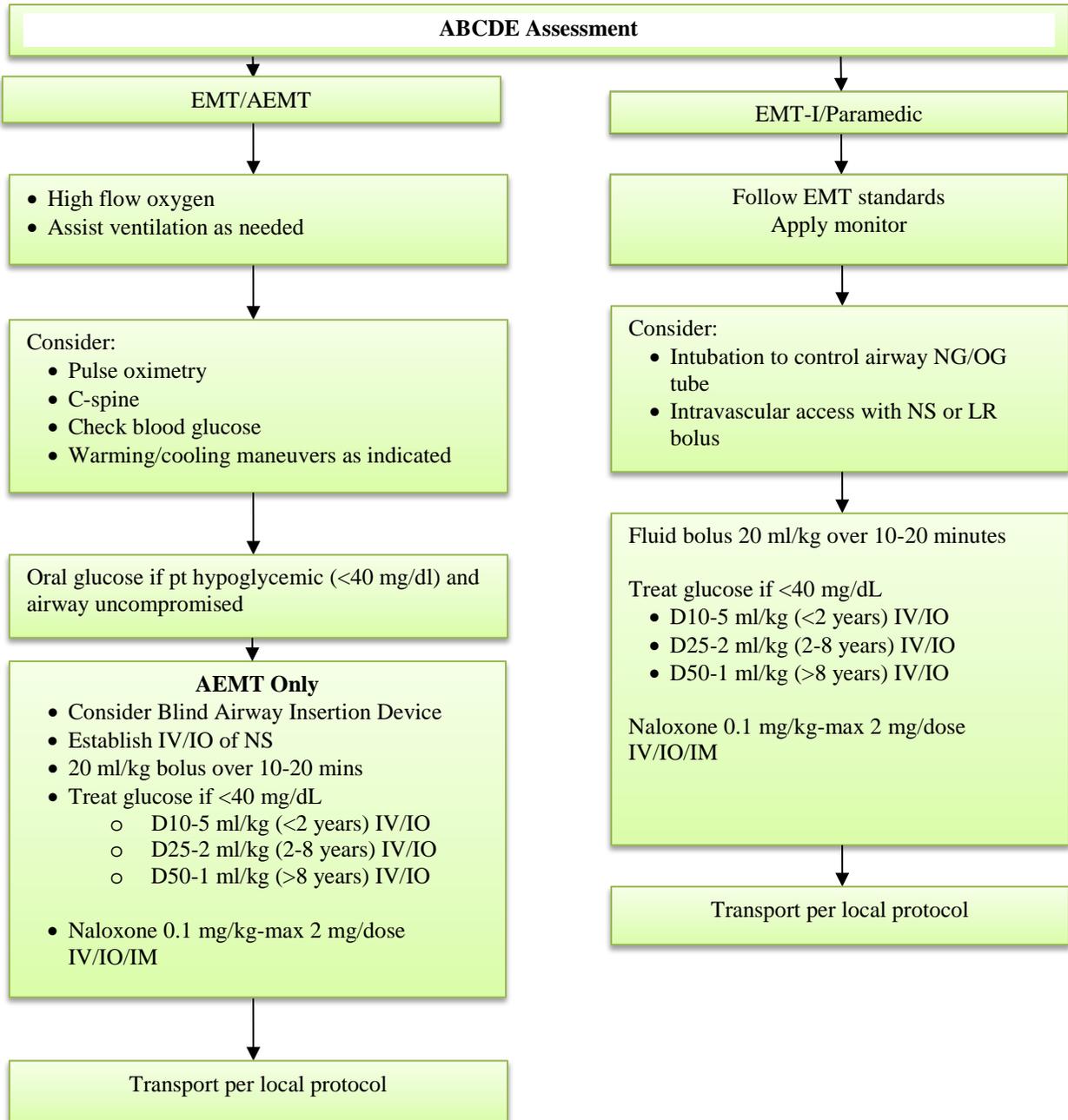
Pediatric Ventricular Fibrillation/Pulseless Ventricular Tachycardia



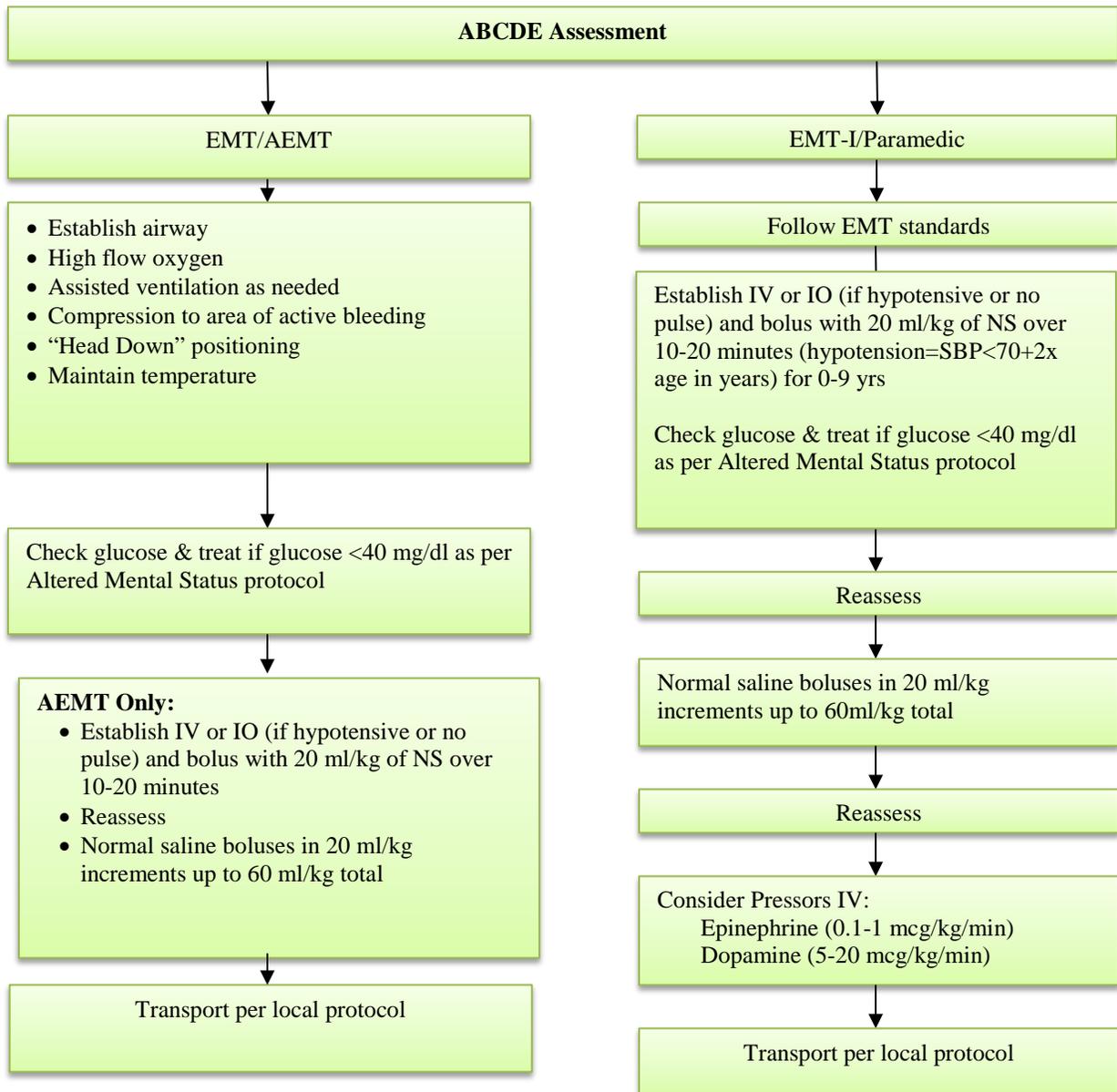
Pediatric Seizures



Pediatric Altered Mental Status



Pediatric Shock



Pediatric Shock

[Including use of Sodium Succinate]

ABCDE Assessment

The pediatric patient may present hemodynamically unstable or with hypoperfusion evidenced by:

- **Tachycardia** out of proportion to temperature or degree of pain
- **Altered mental status**
- Delayed **capillary refill greater than 2 seconds**
- Pallor
- Peripheral cyanosis
- **Hypotension (systolic blood pressure less than 70 + [2 x years])**

EMT/AEMT

- Support Airway
- High flow oxygen
- Assisted ventilation as needed
- Compression to area of active bleeding as needed
- “Head Down” positioning
- Maintain temperature

EMT-I/Paramedic

Follow EMT/AEMT standards

- If history of Adrenal Insufficiency (congenital adrenal hyperplasia, daily steroid use)
 - Stress dose steroids as per Adrenal Insufficiency guideline (see below)

Reassess

Consider Pressors IV:
Epinephrine (0.1-1 mcg/kg/min)
Dopamine (5-20 mcg/kg/min)

Transport per local protocol

AEMT Only:

- Establish IV (or IO if hypotensive or no pulse)
- **Bolus with 20 ml/kg of NS over 10-20 minutes**
- Check glucose
 - Treat glucose if <40 mg/dL
 - D10-5 ml/kg (<2 years) IV/IO
 - D25-2 ml/kg (2-8 years) IV/IO
 - D50-1 ml/kg (>8 years) IV/IO
- If history of Adrenal Insufficiency (congenital adrenal hyperplasia, daily steroid use) consider adrenal insufficiency guideline

Reassess

Normal saline boluses in 20 ml/kg increments, up to 60ml/kg total (until vital signs/perfusion normal OR rales or hepatomegaly on exam)

- Exception: volume-sensitive conditions, 10 ml/kg increments: neonates (0-28 days), congenital heart disease, chronic lung disease, chronic renal failure

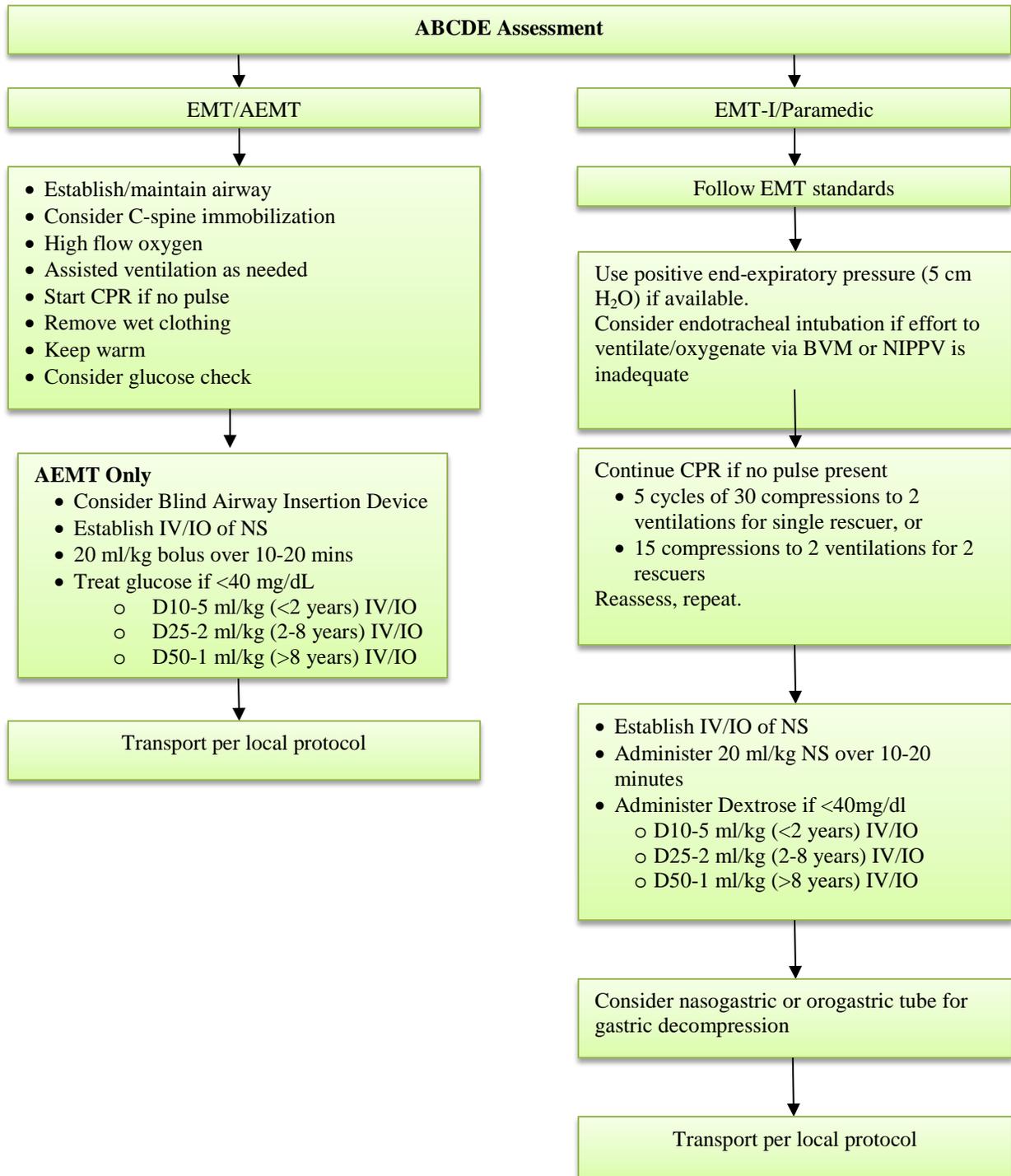
Transport per local protocol

Adrenal Insufficiency Guideline

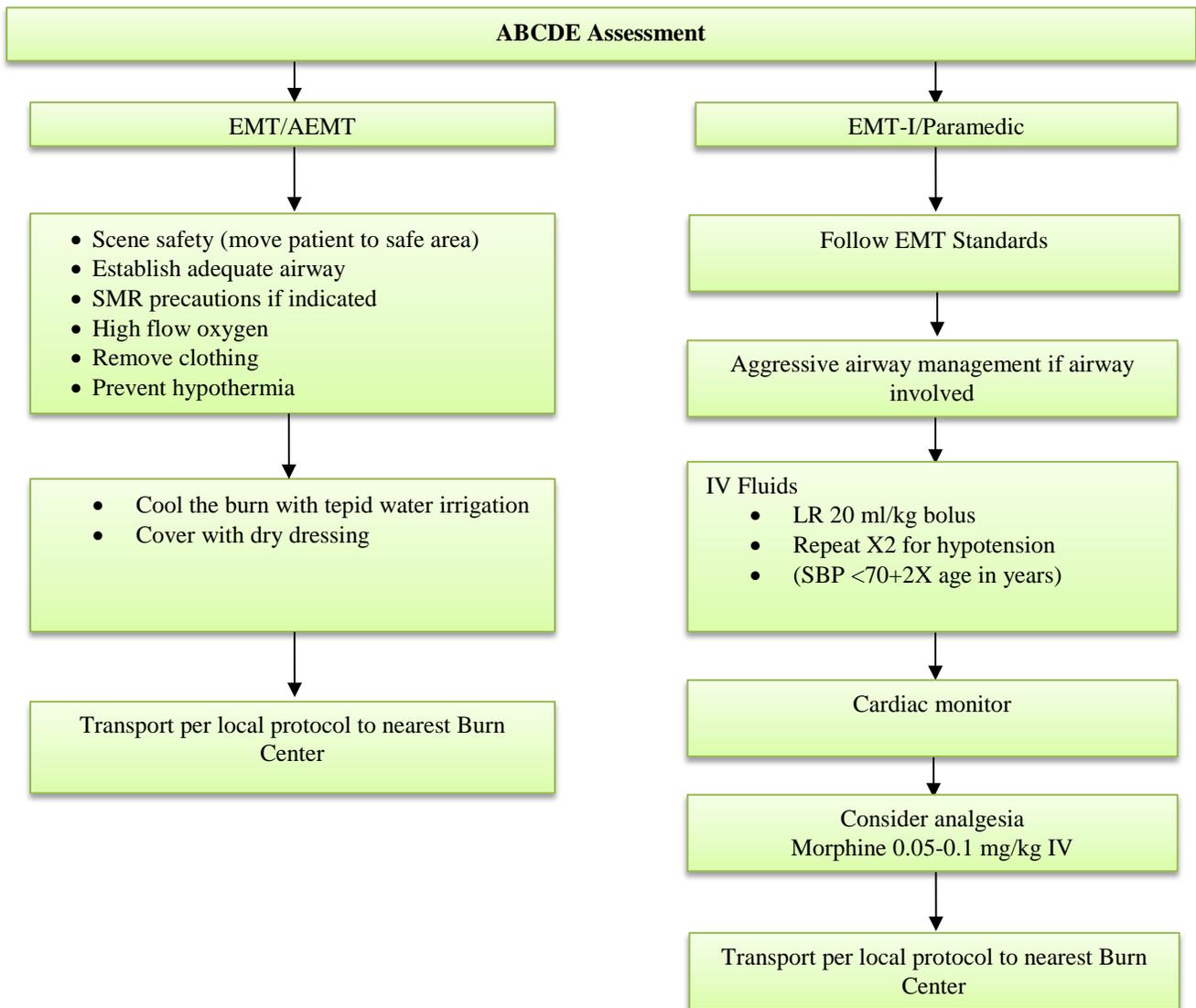
- Stress dose steroids:
 - Assist with patient’s home medication hydrocortisone (Solu-Cortef)*:
 - Adult: 100 mg IM
 - Child: 2 mg/kg IM or
 - 0 – 3 yo = 25 mg IM
 - 3 – 12 yo = 50 mg IM
 - ≥ 12 yo = 100 mg IM
 - OR
 - Methylprednisolone:
 - 1.5 mg/kg IV/IO

*preferred

Pediatric Submersion Injury



Pediatric Burn Injury



Pediatric Withholding of Resuscitation Efforts

