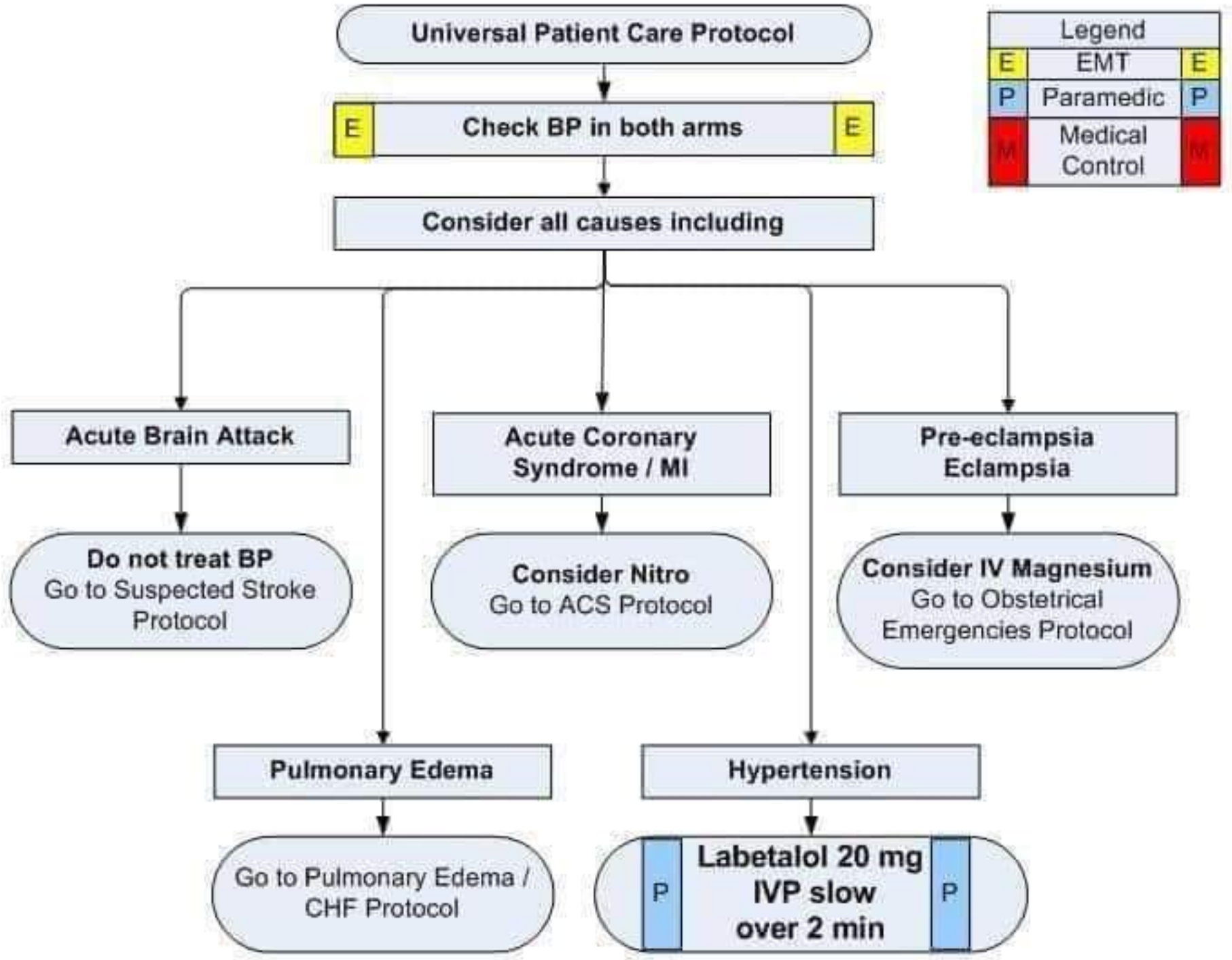
Hypertension

History:	Signs and Symptoms	Differential:
• Documented hypertension • Related diseases: diabetes, CVA • renal failure, cardiac • Medications (compliance ?) • **Viagra, Levitra, Cialis** • Pregnancy	**One of these:** • Systolic BP ≥220 • Diastolic BP ≥120 **AND at least one of these:** • Headache • Nosebleed • Blurred vision • Dizziness	• **Hypertensive encephalopathy** • **Primary CNS Injury** • **(Cushing's response =bradycardia with hypertension)** • **Myocardial infarction** • **Aortic dissection (aneurysm)** • **Pre-ecampsia / Eclampsia**

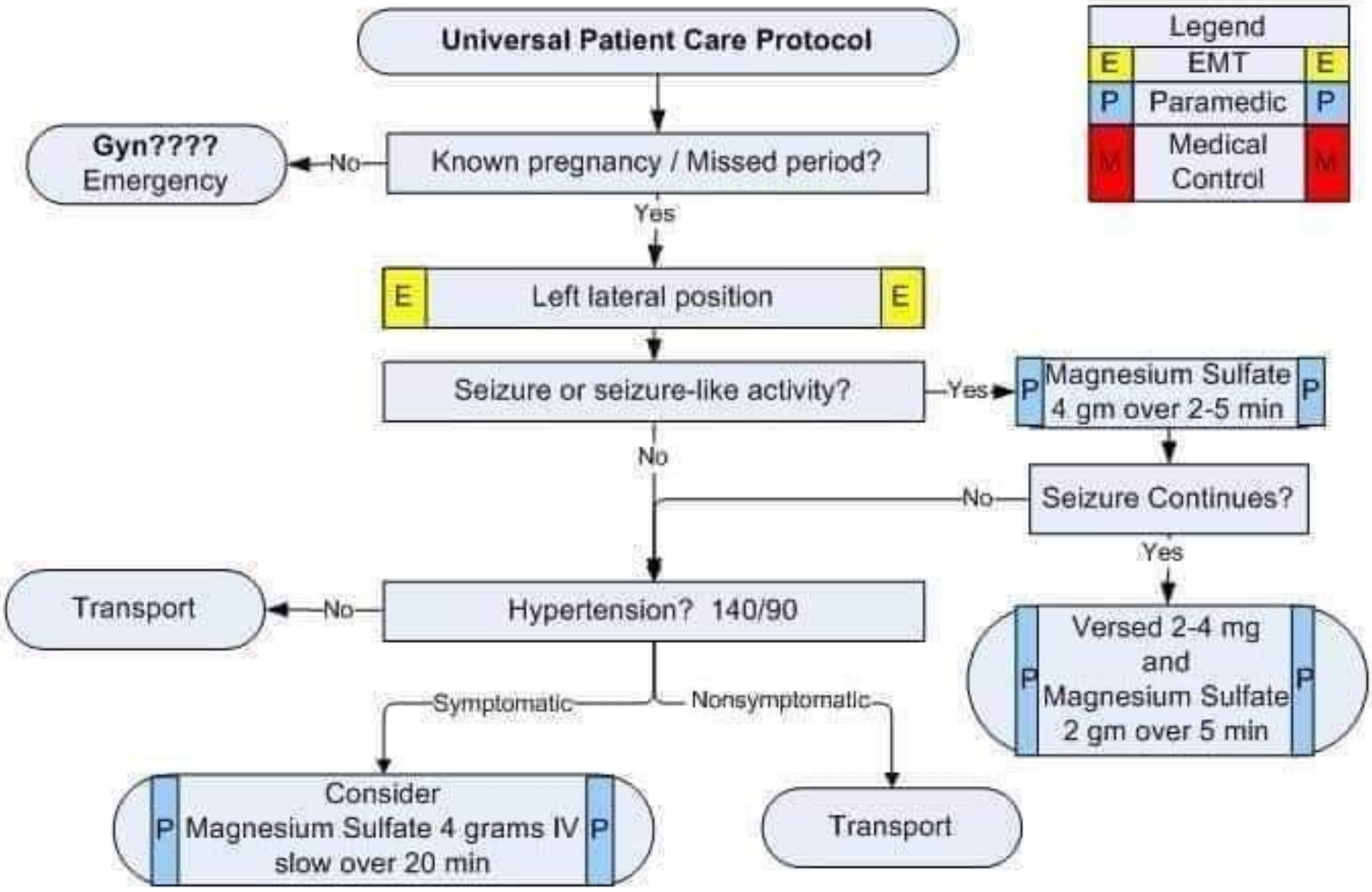


Pearls:

- Personnel will obtain two manual pressures to measure against auto BP.
- Never treat elevated blood pressure based on one set of vital signs.
- All symptomatic patients with hypertension should be transported with their head elevated.
- Consider BP cuff size based on patient size.
- Consider 1 inch of nitro paste in patient with Coronary Artery Disease

Obstetrical Emergency

History:	Signs and Symptoms	Differential:
• Past medical history • Hypertension meds • Prenatal care • Prior pregnancies / births • Gravida / Para • LMP • Protein in urine (History of)	• Vaginal bleeding • Abdominal pain • Seizures • Hypertension • Severe headache • Visual changes • Edema of hands and face	• **Pre-eclampsia / Eclampsia** • **Placenta previa** • **Placenta abruptio** • **Spontaneous abortion** • **Ectopic pregnancy**

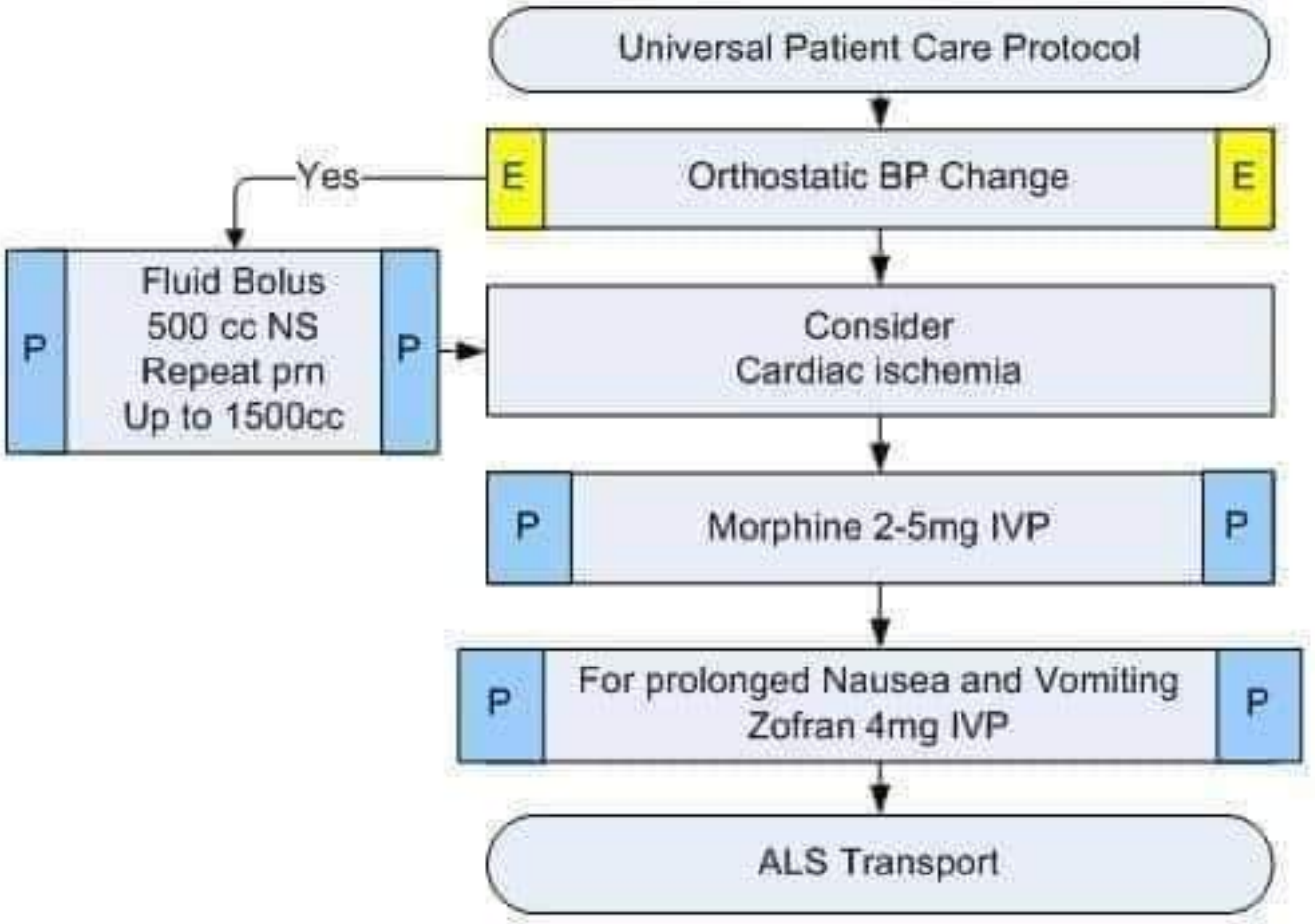


Pearls:

- Monitor Blood Glucose
- Severe headache, vision changes, hypertension, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic or greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Maintain patient in a left lateral position to minimize risk of supine hypotensive syndrome.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- Magnesium may cause hypotension and decreased respiratory drive with pain and flushing at IV site . Use with caution.

Abdominal Pain

History:	Signs and Symptoms	Differential:
• Age • Past medical / surgical history • Medications • Onset • Palliation / Provocation • Quality (cramping, constant, sharp, dull, etc.) • Region / Radiation / Referred • Severity (1-10) • Time (duration / repetition) • Fever • Last meal eaten • Last bowel movement / emesis • Menstrual history (pregnancy) • OPQRRRST	• Pain (location / migration) • Tenderness • Nausea • Vomiting • Diarrhea • Dysuria • Constipation • Vaginal bleeding / discharge • Pregnancy	• Pneumonia or Pulmonary embolus • Liver (hepatitis, CHF) • Peptic ulcer disease / Gastri tis • Gallbladder • Myocardial infarction • Pancreatitis • Kidney stone • Abdominal aneurysm • Appendicitis • Bladder / Prostate disorder • Pelvic (PID, Ectopic pregnancy, • Ovarian cyst) • Spleen enlargement • Diverticulitis • Bowel obstruction • Gastroenteritis (infectious)



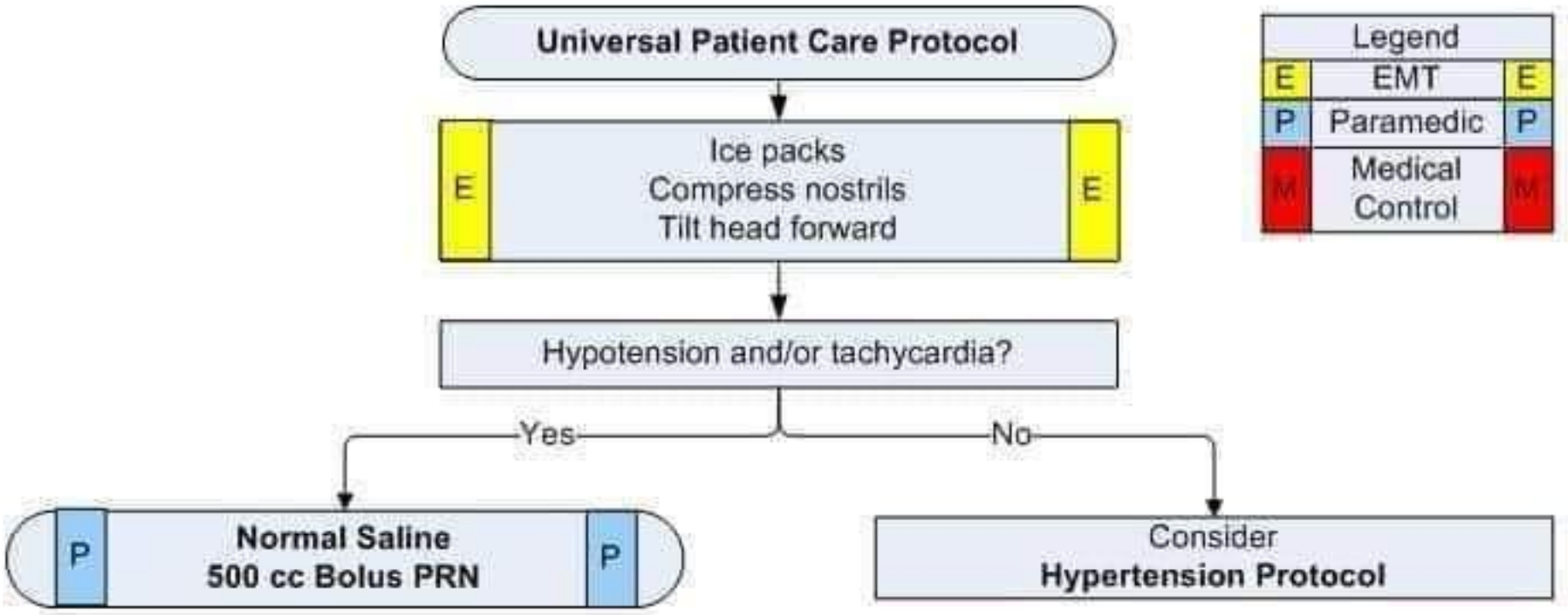
Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **Orthostatic vital signs: supine to sitting BP then to standing BP, drop of SBP of > 20 mm hg or increase HR > 20 bpm at any time.**
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- NPO for any Pt with abdominal pain.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Appendicitis presents with vague, peri-umbilical pain which migrates to the RLQ over time.
- Repeat vital signs after each bolus. May give fluid bolus PRN based on vitals and patient condition.
- Consider Hypotension Protocol for SBP <90
- Nitrous Oxide can be used as an option prior to administration of Morphine

Epistaxis

History:	Signs and Symptoms	Differential:
• Age • Past medical history • Medications (HTN, anticoagulants) • Previous episodes of epistaxis • Trauma • Duration of bleeding • Quantity of bleeding	• Bleeding from nasal passage • Pain • Nausea • Vomiting	• **Trauma** • **Infection (viral URI or Sinusitis)** • **Allergic rhinitis** • **Lesions (polyps, ulcers)** • **Hypertension**



Pearls:

- **Avoid Afrin in patients who have a blood pressure of greater than 110 diastolic or known coronary artery disease.**
- Medications that may lead to bleeding include: aspirin, coumadin, non-steroidal anti-inflammatory medications (ibuprofen), and many over the counter headache relief powders (BC powder).

Bradycardia

History:	Signs and Symptoms	Differential:
• Medications Beta-Blockers (Toprol, Atenolol) Calcium channel blockers (Verapamil, Calan) Clonidine Digitalis • Pacemaker	• HR < 60/min • Chest pain • Respiratory distress • Hypotension or shock • Altered mental status • Syncope	• Acute myocardial infarction • Hypoxia • Hypothermia • Sinus bradycardia • Athletes • Head injury (elevated ICP) or Stroke • Spinal cord lesion • Sick sinus syndrome • AV blocks (1°, 2°, or 3°) • Overdose

Universal Patient Care Protocol

Hypotension / Blood pressure <90 systolic and/or symptomatic

P | Atropine 0.5-1 mg IV/IO
Repeat q5 min up to 3 mg | P

No Response

P | External Transcutaneous Pacing
Consider sedation with Etomidate
0.3 mg/kg max 30mg
or Versed 2-4mg IV/IO | P

No Response

P | Consider Dopamine
5-20 mcg/kg/min | P

No Response

P | Consider Epinepherine Infusion
2-10 mcg/min | P

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- Pharmacological treatment of Bradycardia is based upon the presence or absence of symptoms
- If symptomatic, treat. If asymptomatic, monitor only
- **Remember: The use of Atropine for PVC's in the presence of any MI may worsen heart damage**
- Atropine can be skipped in a high degree heart block
- Consider treatable causes for bradycardia (Beta blocker OD, Calcium channel blocker OD, etc.)
- **All Patients get a 12 Lead (V4R recommended)**
- Consider **versed** for long term pacing with successful electrical and mechanical capture
- All medication that can be given IV/IVP can also be given intraosseous

Burns

History:	Signs and Symptoms	Differential:
• Type of exposure (heat, gas, chemical) • Inhalation injury • Time of injury • Past medical history • Medications • Other trauma • Loss of consciousness • Tetanus/Immunization status	• Burns, pain, swelling • Dizziness • Loss of consciousness • Hypotension / shock • Airway compromise / distress • Singed facial or nasal hair • Hoarseness / wheezing	• **Superficial (1st)** red and painful • **Partial thickness (2nd)** blistering • **Full thickness (3rd)** painless and charred or leathery skin • **Chemical** • **Thermal** • **Electrical** • **Radiation**

Universal Patient Care Protocol

Legend	
E	EMT
P	Paramedic
M	Medical Control

E — Remove rings, bracelets, and other constricting items — E

Thermal / Chemical

E — If burn is <20% of 2nd Degree or <5% of 3rd degree (using rule of nines)
Cool down the wound with Normal Saline and
Consider Burn Gel (if available) — E

E — >20% of 2nd degree or >5% of 3rd degree
Cover burn with a **Dry** sterile sheet or dressings — E

P — For pain control
Morphine 5 mg IV q 5-10 min up to 30 mg
or
Fentanyl 1mcg/kg IV-IO slowly - may give second dose after 5 min.
For Nausea, Zofran 4 mg IV — P

Consider Transport Directly to a Trauma Center

E — Remove clothing or expose area
Brush off any visible dry chemicals or powder — E

E — Eye involvement ?
Continuous saline flush in affected eye(s) — E

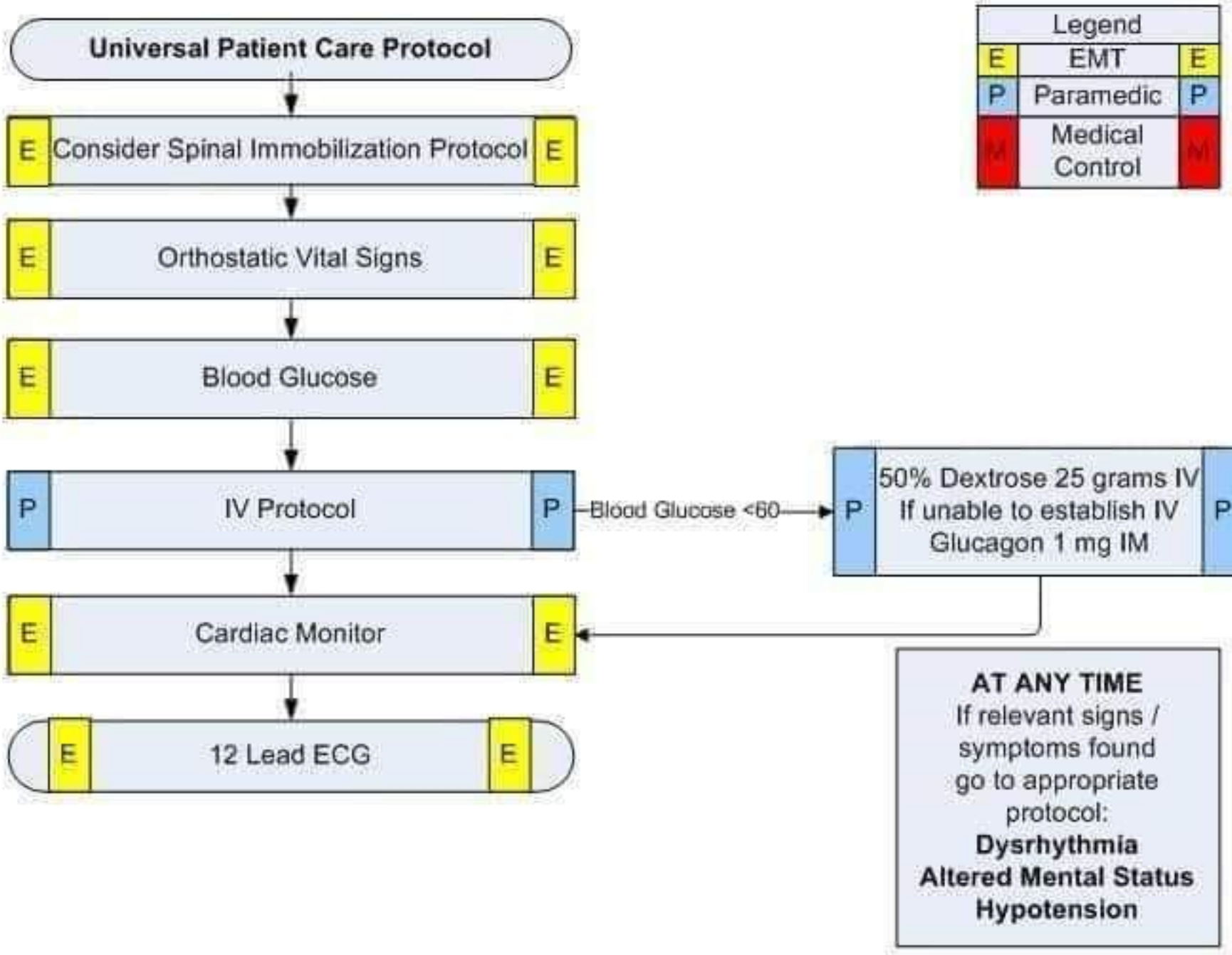
E — Flush area with water or Normal Saline for 10-15 minutes — E

Pearls:

- **Fentanyl 100mcg increments every 3-5 minutes to a maximum of 200mcg IN, IM. Second dose of Fentanyl if needed, not to exceed a maximum total dose of 200mcg IV, IN, IO, IM. Continuous monitoring of patient is mandatory.**
- **Critical Burns:** >25% body surface area (BSA); 3° burns >10% BSA; 2° and 3° burns to face, eyes, hands or feet; electrical burns; respiratory burns; deep chemical burns; burns with extremes of age or chronic disease; and burns with associated major traumatic injury. These burns may require hospital admission or transfer to a burn center.
- Early intubation is required in significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen.
- Circumferential burns to extremities are dangerous due to potential vascular compromise due to soft tissue swelling.
- Burn patients are prone to hypothermia - Never apply ice or cool burns that involve >10% body surface area.
- Do not overlook the possibility of multiple system trauma.
- Do not overlook the possibility for child abuse with children and burn injuries.

Syncope

History:	Signs and Symptoms	Differential:
• Cardiac history, stroke, seizure • Occult blood loss (GI, ectopic) • Females: LMP, vaginal bleeding • Fluid loss: nausea, vomiting, diarrhea • Past medical history • Medications	• Loss of consciousness with recovery • Lightheadedness, dizziness • Palpitations, slow or rapid pulse • Pulse irregularity • Decreased blood pressure	• Vasovagal • Orthostatic hypotension • Cardiac syncope • Micturation / Defecation syncope • Psychiatric • Stroke • Hypoglycemia • Seizure • Shock (see Shock Protocol) • Toxicologic (Alcohol) • Medication effect (hypertension)



Pearls:

- **Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Back, Extremi ties, Neuro**
- Assess for signs and symptoms of trauma if associated or questionable f all with syncope.
- Consider dysrhythmias, GI bleed, ectopic pregnancy, and seizure as possible causes of syncope.
- These patients should be transported.
- More than 25% of geriatric syncope is cardiac d ysrhythmia based.
- Thiamine may be omited in patients who do not ap pear malnourished.

Post Resuscitation

History:	Signs and Symptoms	Differential:
• Respiratory arrest • Cardiac arrest	• Return of pulse	• **Continue to address specific differentials associated with the original dysrhythmia**

Legend	
E	EMT
P	Paramedic
M	Medical Control

E **Repeat Primary Assessment** E

Monitor SpO2 (ideal more than 94% -99%) and ETCO2 (ideal > 35-45 mmHg) with RR 8-10 breaths per min.
DO NOT HYPERVENTILATE.

No

P Monitor ECG and perform 12 Lead P

E Vital Signs E

Non Traumatic Hypotension

Significant Ectopy

Bradycardia

Non Traumatic Hypotension Protocol

Go to Appropriate Protocol

Treat per Bradycardia Protocol

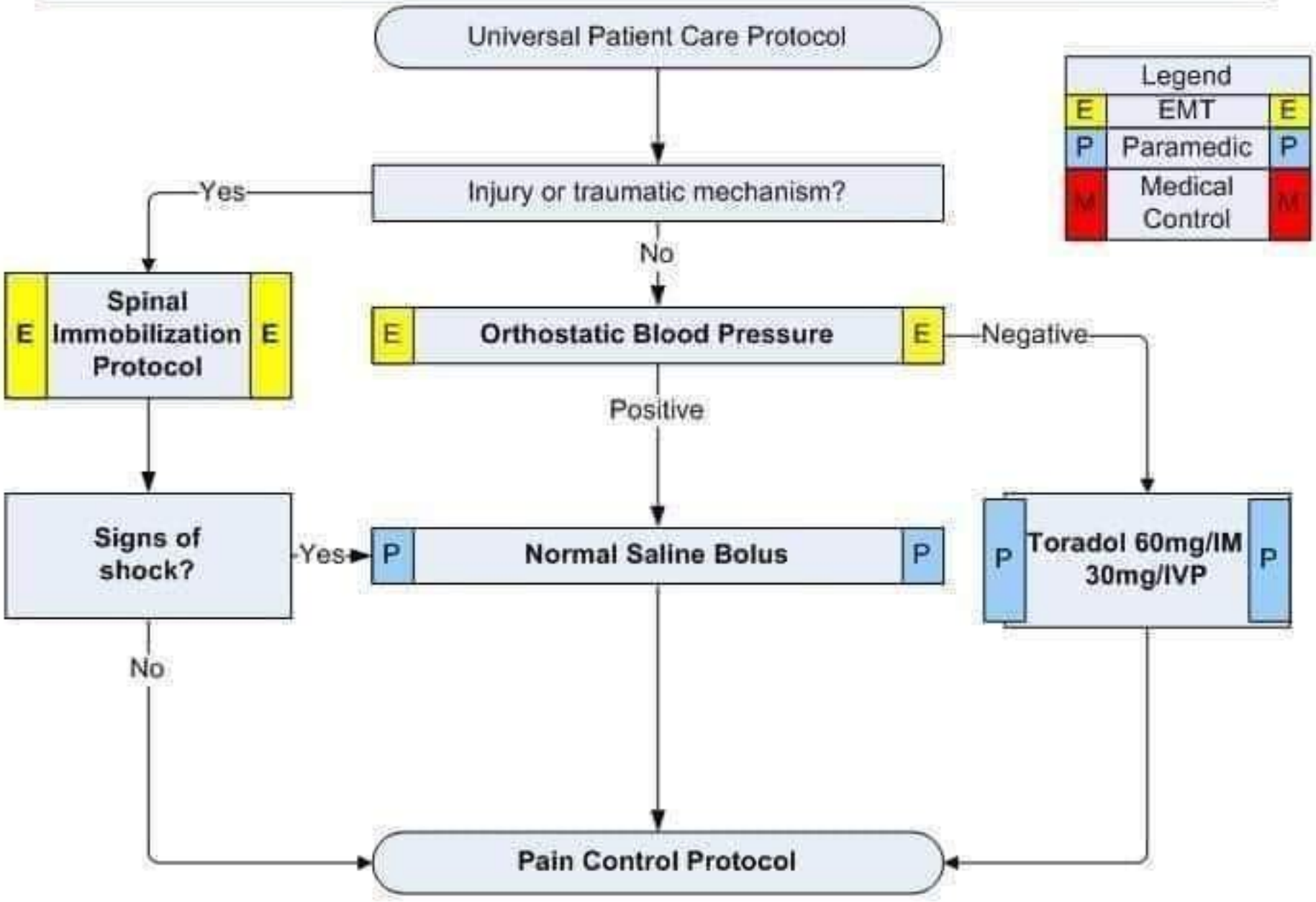
If arrest re-occurs, revert to appropriate protocol and/or initial successful treatment

Pearls:

- Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.
- Most patients immediately post resuscitation will require ventilatory assistance.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring.
- Appropriate post-resuscitation management may be planned in consultation with medical control, consider STEMI and Alert Cath Team.
- Common causes of post-resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.
- Titrate Dopamine to maintain BP systolic >90. Ensure adequate fluid resuscitation is ongoing.
- Consider anti-dysrhythmia medication only after vitals have stabilized. No drip is needed if conversion after amiodarone is given

Back Pain

History:	Signs and Symptoms	Differential:
• Age • Past medical and surgical history • Previous back injury • Traumatic mechanism • Location of pain • Improvement or worsening with activity • OPQRRRST	• Pain (paraspinous, spinous process) • Swelling • Pain with range of motion • Extremity weakness • Extremity numbness • Shooting pain into an extremity • Bowel / bladder dysfunction	• **Muscle spasm / strain** • **Herniated disc with nerve compression** • **Sciatica** • **Spine fracture** • **Kidney stone** • **Pyelonephritis (Kidney infection)** • **Aneurysm** • **Pneumonia** • **Cardiac related**



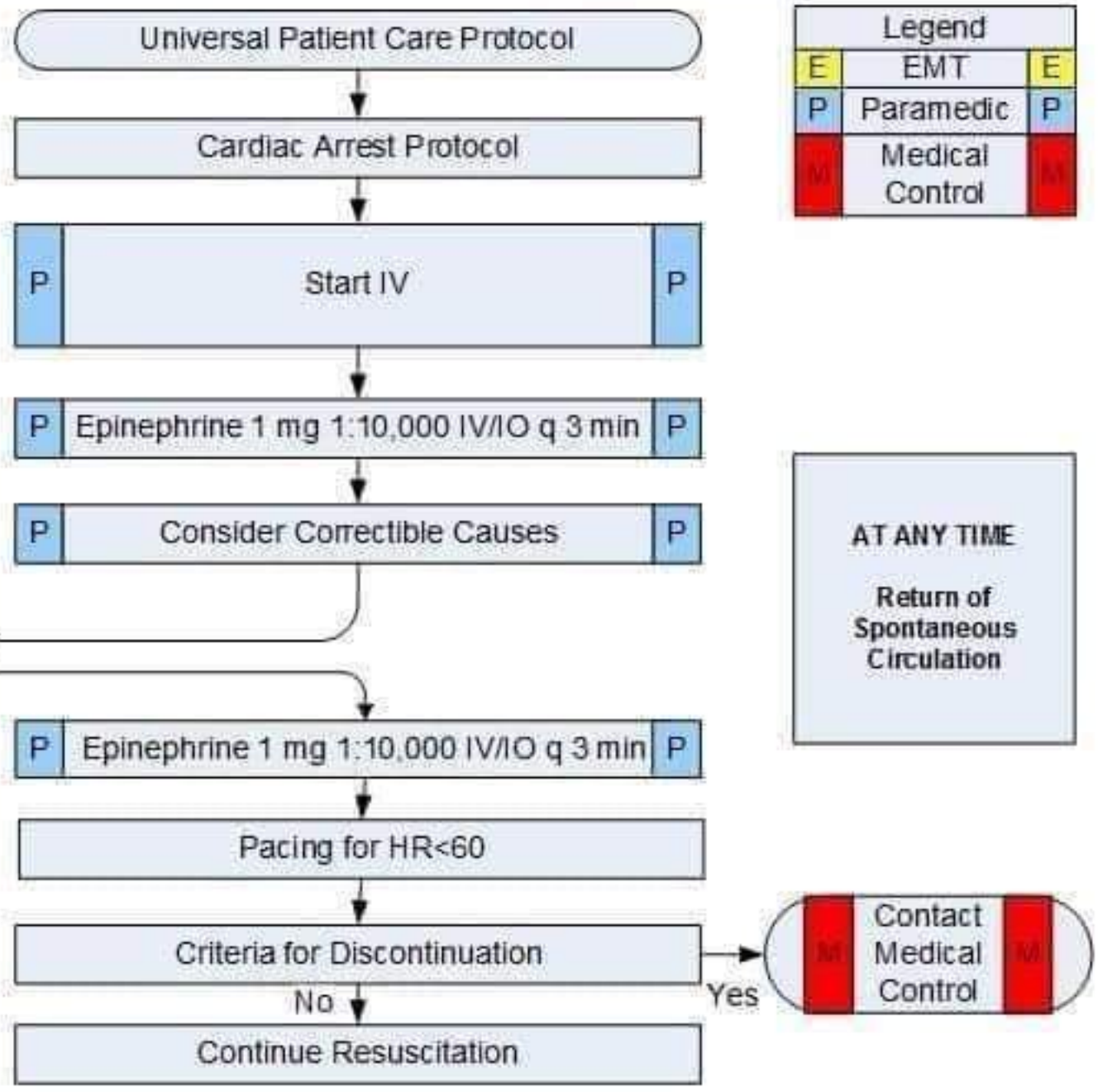
Pearls:

- Abdominal aneurysms are a concern in patients over the age of 50
- Kidney stones typically present with an acute onset of flank pain which ra diates around to the groin area.
- Patients with midline pain over the spinous processes should be spinally immobilized.

Pulseless Electrical Activity (PEA)

History:	Signs and Symptoms	Differential/Correctible Causes

• Past medical history
• Medications
• Events leading to arrest
• End stage renal disease
• Estimated downtime
• Suspected hypothermia
• Suspected overdose
  Tricydics
  Digitalis
  Beta blockers
  Calcium channel blockers
• DNR
	• Pulseless
	• Apenic
	• Electrical activity on ECG
		• Hypovolemia
		• Hypoxia
		• Hydrogen Ion (acidosis)
		• Hypo- /Hyperkalemia
		• Hypoglycemia
		• Hypothermia
		• Toxins
		• Tamponade
		• Tension Pneumo
		• Thrombosis
		• Trauma
		• Death

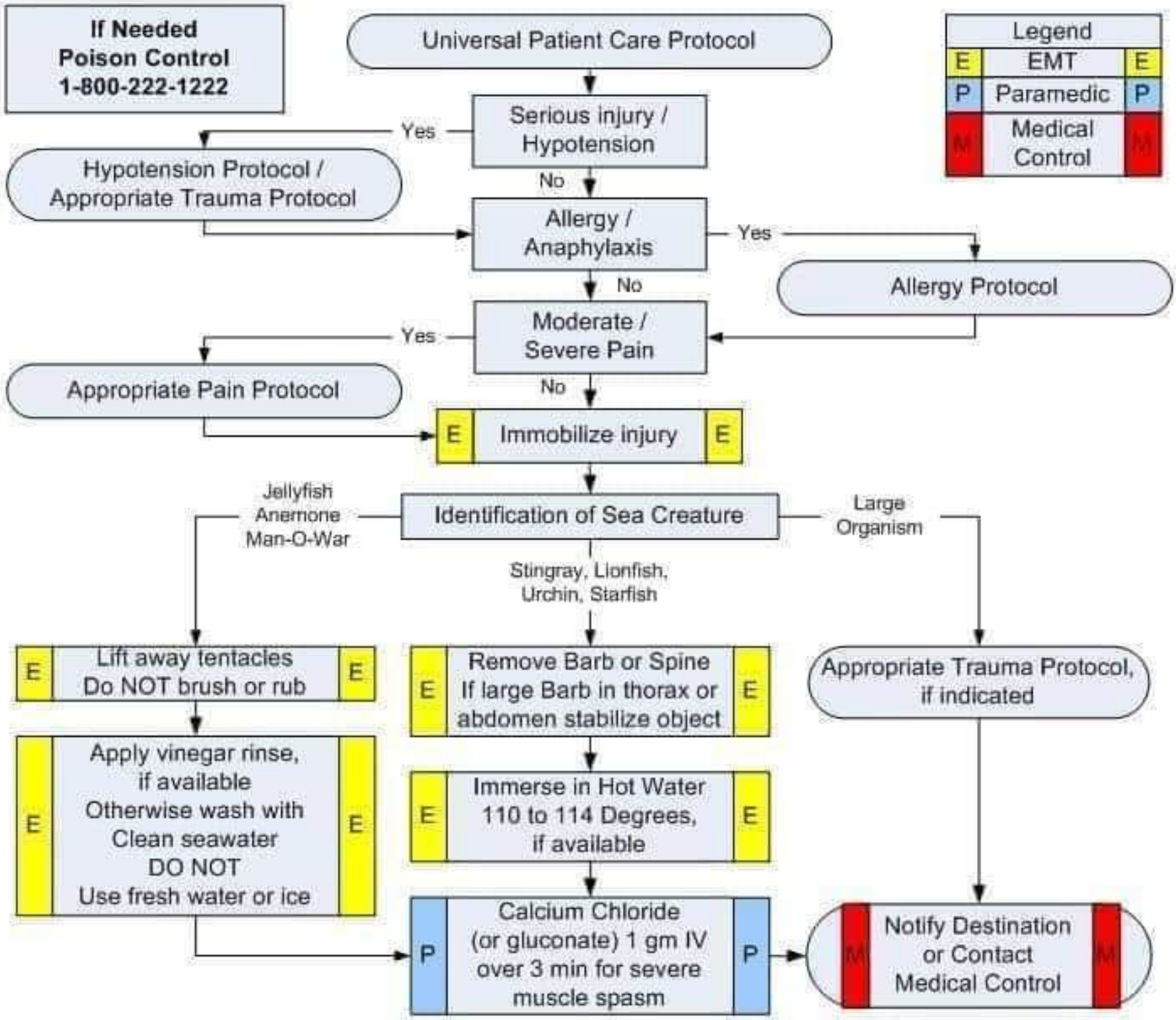


Pearls:

- 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.
- The 8 different signs of tension pneumothorax are: SpO2 < 94%, tachycardia, cyanosis, decreased lung compliance, hypotension, decreased breath sounds, decreased cap. refill, and tracheal deviation.
- All medication that can be given IV/IVP can also be given intraosseous

Marine Envenomations / Injury

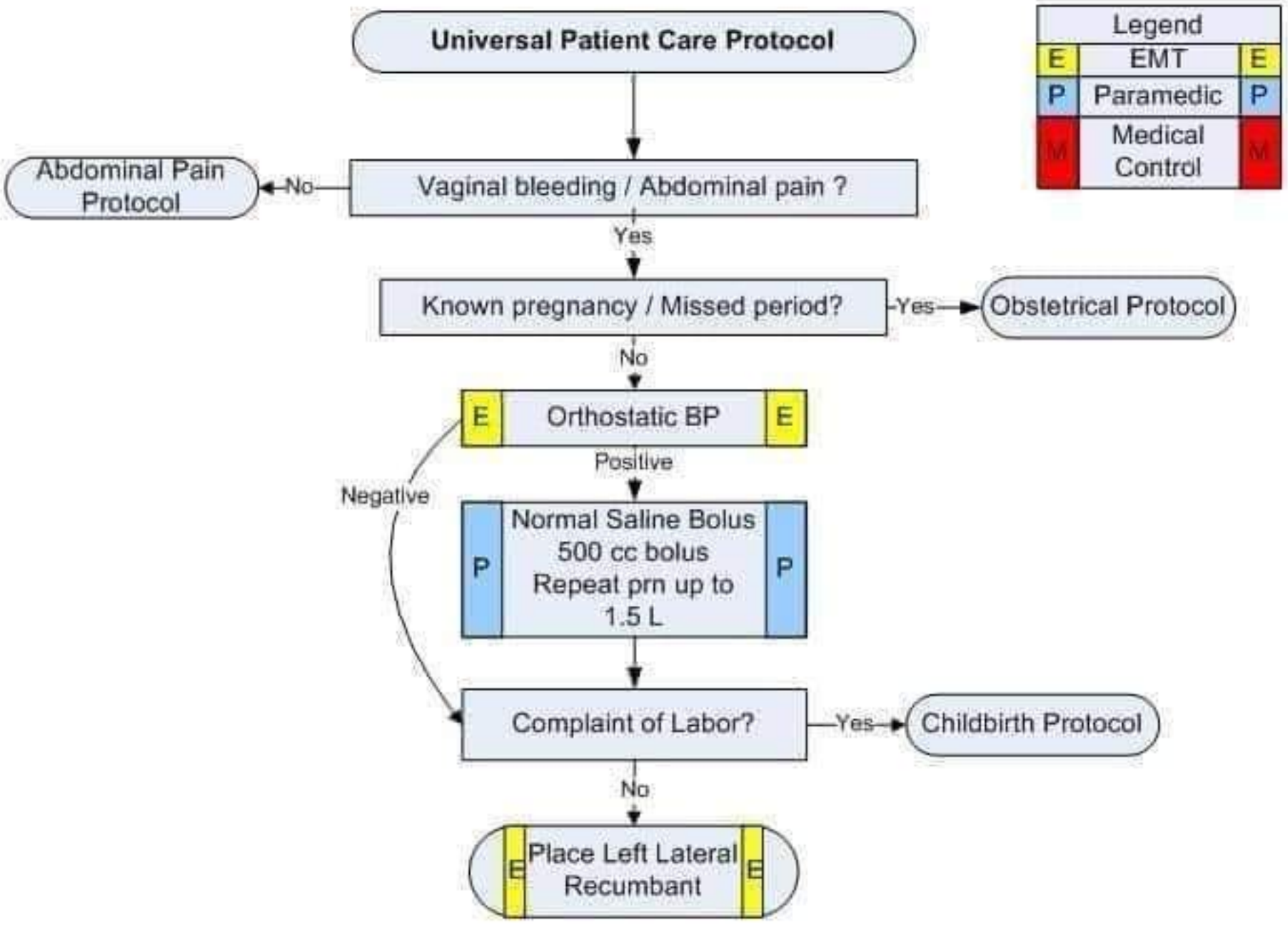
History:	Signs and Symptoms	Differential:
• Type of bite / sting • Identification of organism • Previous reaction to marine organism • Immunocompromised • Household pet	• Intense localized pain • Increased oral secretions • Nausea / vomiting • Abdominal cramping • Allergic reaction / anaphylaxis	• Jellyfish sting • Sea Urchin barb • Stingray barb • Coral sting • Swimmer's itch • Cone Shell sting • Fish bite • Lionfish sting



Pearls:
- Consider the use of a Benzocaine based spray for pain relief
- Consider Tylenol 15 mg/kg for Pediatrics experiencing pain

Gynecological Emergency

History:	Signs and Symptoms	Differential:
• Past medical history • Hypertension meds • Prenatal care • Prior pregnancies / births • Gravida / Para • LMP • Protein in urine	• Vaginal bleeding • Abdominal pain • Seizures • Hypertension • Severe headache • Visual changes • Edema of hands and face	• **Pre-eclampsia / Eclampsia** • **Placenta previa** • **Placenta abruptio** • **Spontaneous abortion** • **Ectopic pregnancy**

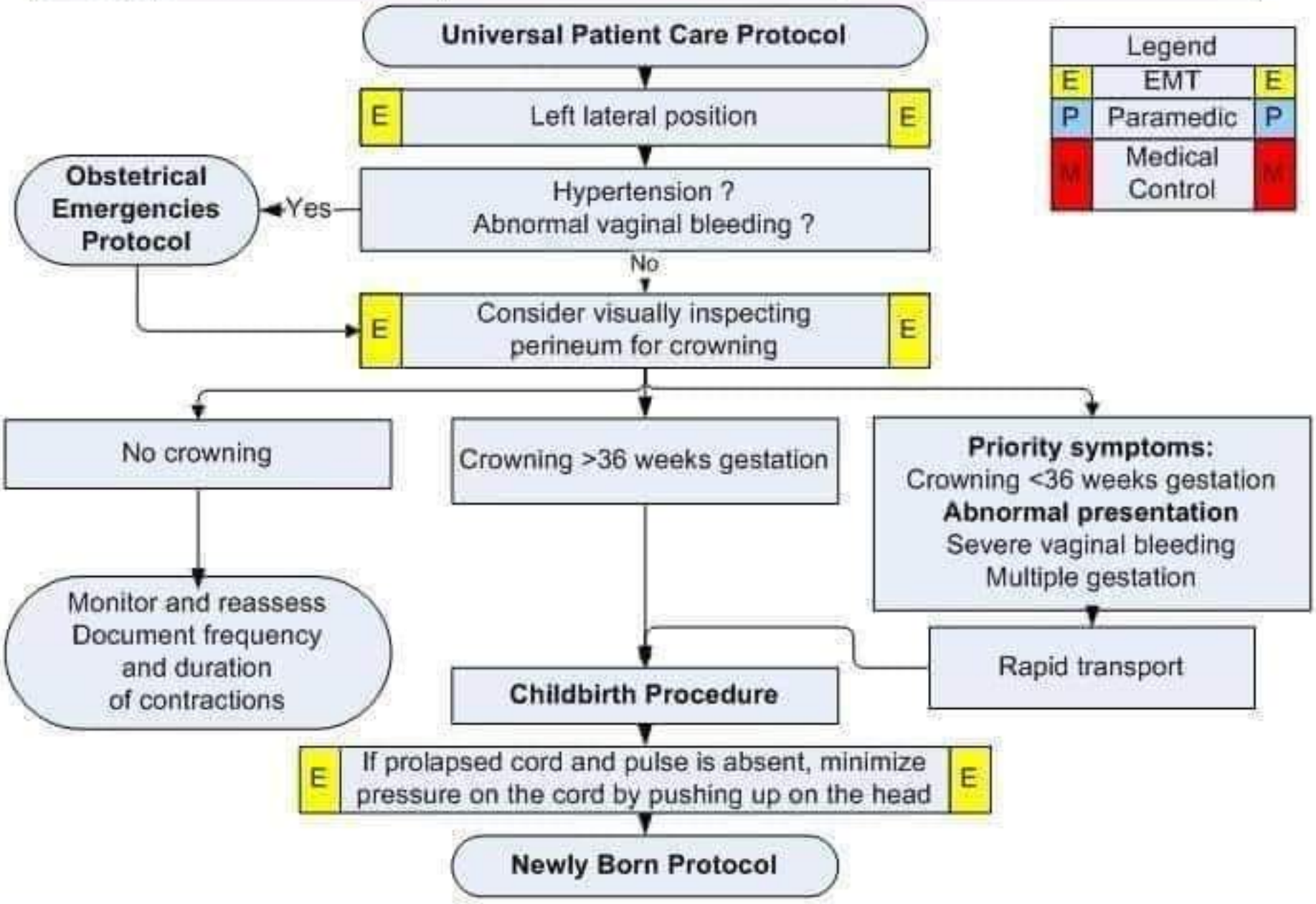


Pearls:

- Ask patient to quantify bleeding - number of pads used per hour.
- If SBP <90 attempt fluid challenge while closely monitoring patient

Childbirth / Labor

History:	Signs and Symptoms	Differential:
• Due date / LMP • Gravida/Para status • High Risk pregnancy • Time contractions started / how often • Rupture of membranes / water break • Time / amount of any vaginal bleeding • Sensation of fetal activity • Past medical and deliver y history • Medications / prenatal • Drug use	• Spasmotic pain • Vaginal discharge or bleeding • Crowning or urge to push • Meconium • Feeling of bowel movement • Lowering of fetus in birth canal	• **Abnormal presentation** **Buttock** **Foot** **Hand** • **Prolapsed cord** • **Placenta previa** • **Abruptio placenta**

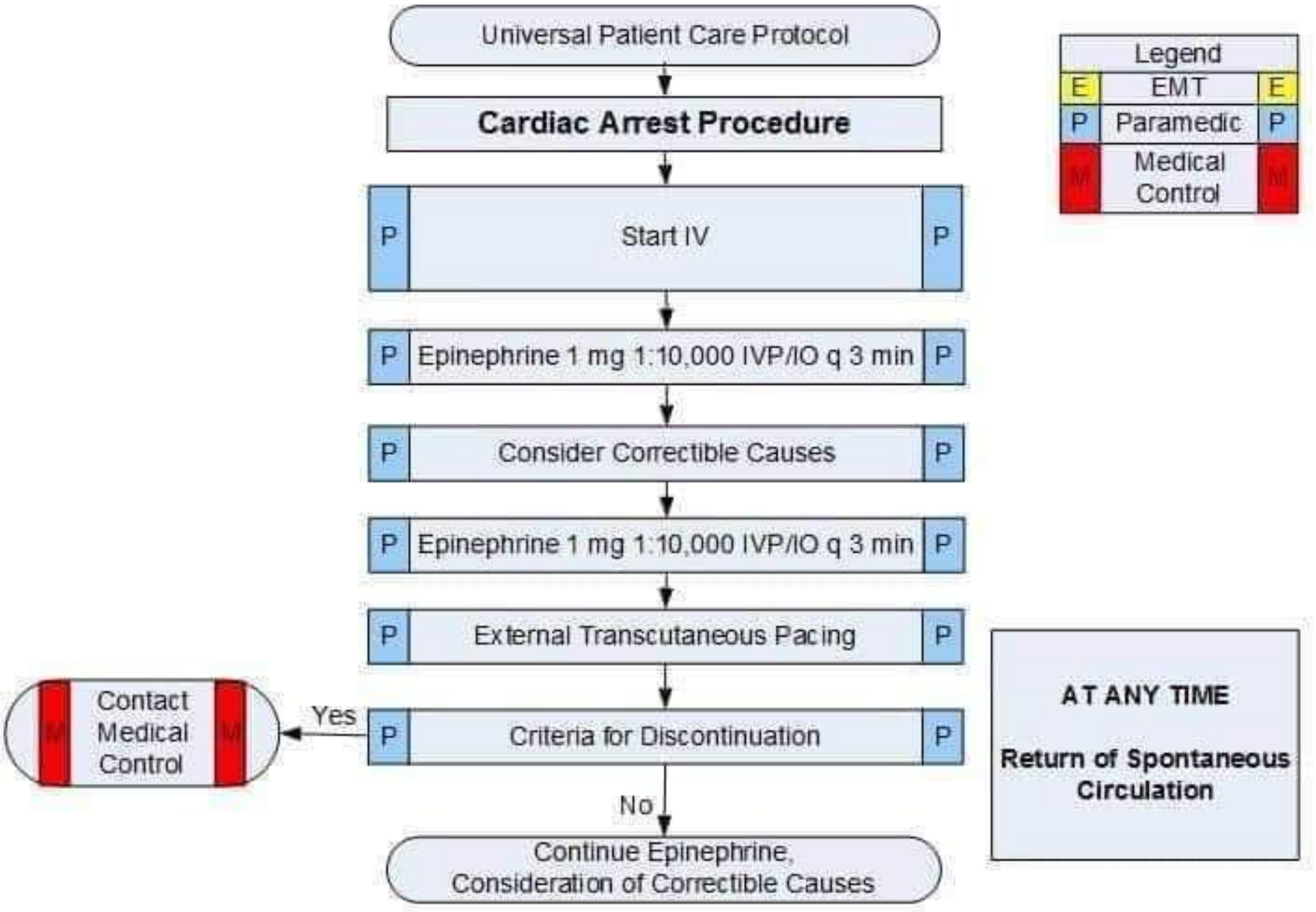


Pearls:

- 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 and help to control 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.
- No digital vaginal exam
- If contractions are < 2 min apart lasting more than 90 sec childbirth is imminent

Asystole

History:	Signs and Symptoms	Differential/ Correctible Causes:
• Past medical history • Medications • Events leading to arrest • End stage renal disease • Estimated downtime • Suspected hypothermia • Suspected overdose • DNR	• Pulseless • Apenic • No electrical activity on ECG • No auscultated heart tones • Fixed and dialated pupils	• Hypoxia • Hypovolemia • Hypoglycemia • Hydrogen Ion • Hyperthermia • Hypo-Hyperkalemia • Toxins/tablets • Tension Pneumo • Tamponade • Trauma • Death

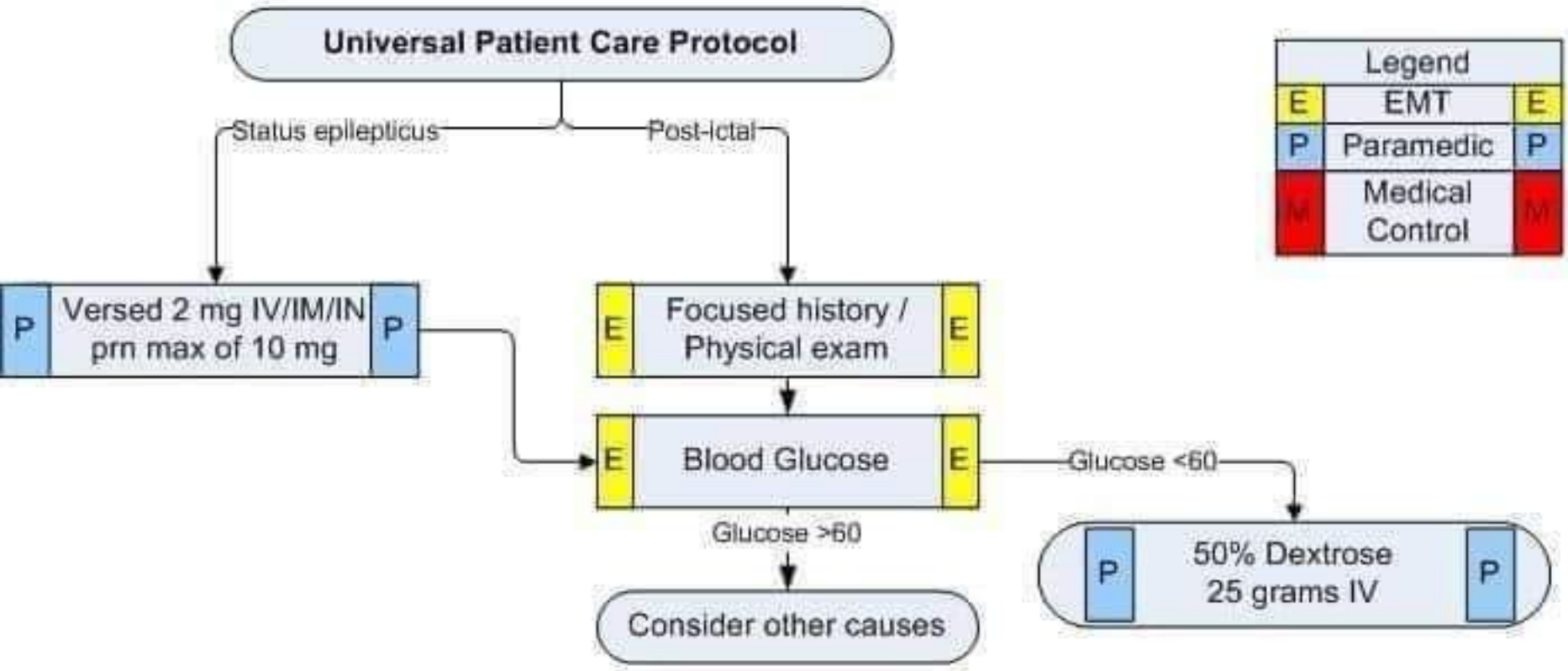


Pearls:

- Always confirm asystole in more than one lead.
- Correctable causes must be addressed.
- All medication that can be given IV/IVP can also be given intraosseous

Seizure

History:	Signs and Symptoms	Differential:
• Reported / witnessed seizure activity • Medical alert tag information • Seizure medications • History of trauma? Diabetes? Pregnancy? Previous seizures?	• Decreased mental status • Sleepiness • Incontinence • Observed seizure activity Focal Motor? Grand Mal? Jacksonian? • Evidence of trauma • Unconscious	• CNS (Head) trauma • Tumor • Metabolic, Hepatic, or Renal failure • Hypoxia • Electrolyte abnormality (Na, Ca, Mg) • Drugs, Medications, Non-compliance • Infection / Fever • Alcohol withdrawal • Eclampsia • Stroke • Hyperthermia • Hypoglycemia

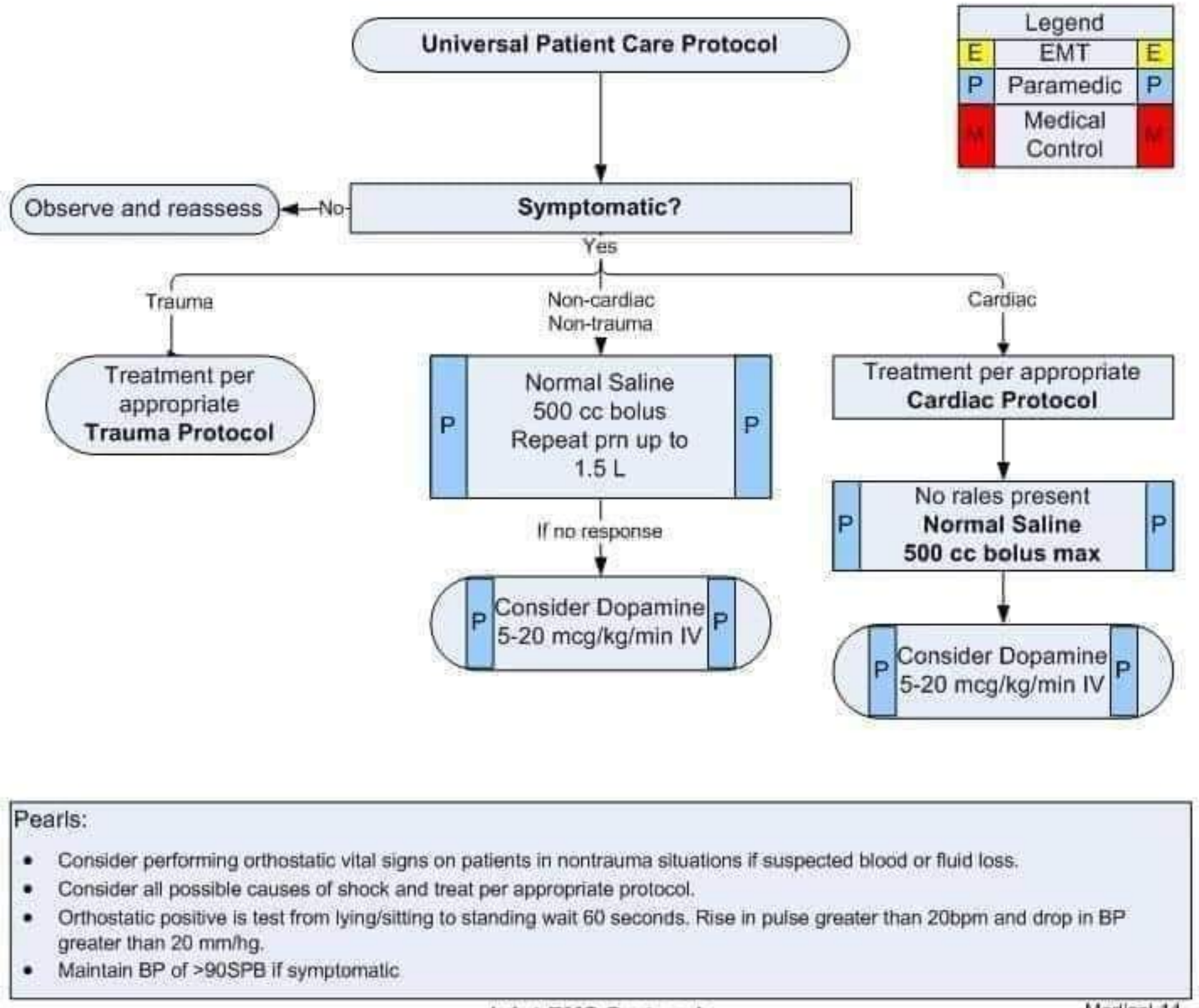


Pearls:

- 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.
- For any seizure in a pregnant patient, follow the OB Emergencies Protocol.

Hypotension Shock (nontrauma)

History:	Signs and Symptoms	Differential:
• Blood loss - vaginal or gastrointestinal bleeding, AAA, ectopic • Fluid loss - vomiting, diarrhea, fever • Infection • Cardiac ischemia (MI, CHF) • Medications • Allergic reaction • Pregnancy • History of poor oral intake	• Systolic BP ≤90 • Restlessness, confusion • Weakness, dizziness • Weak, rapid pulse • Pale, cool, clammy skin • Delayed capillary refill • Coffee-ground emesis • Tarry stools	• **Shock** **Hypovolemic** **Cardiogenic** **Septic** **Neurogenic** **Anaphylactic** • **Ectopic pregnacy** • **Dysrhythmias** • **Pulmonary embolus** • **Tension pneumothorax** • **Medication effect / overdose** • **Vasovagal** • **Physiologic (pregnancy)**

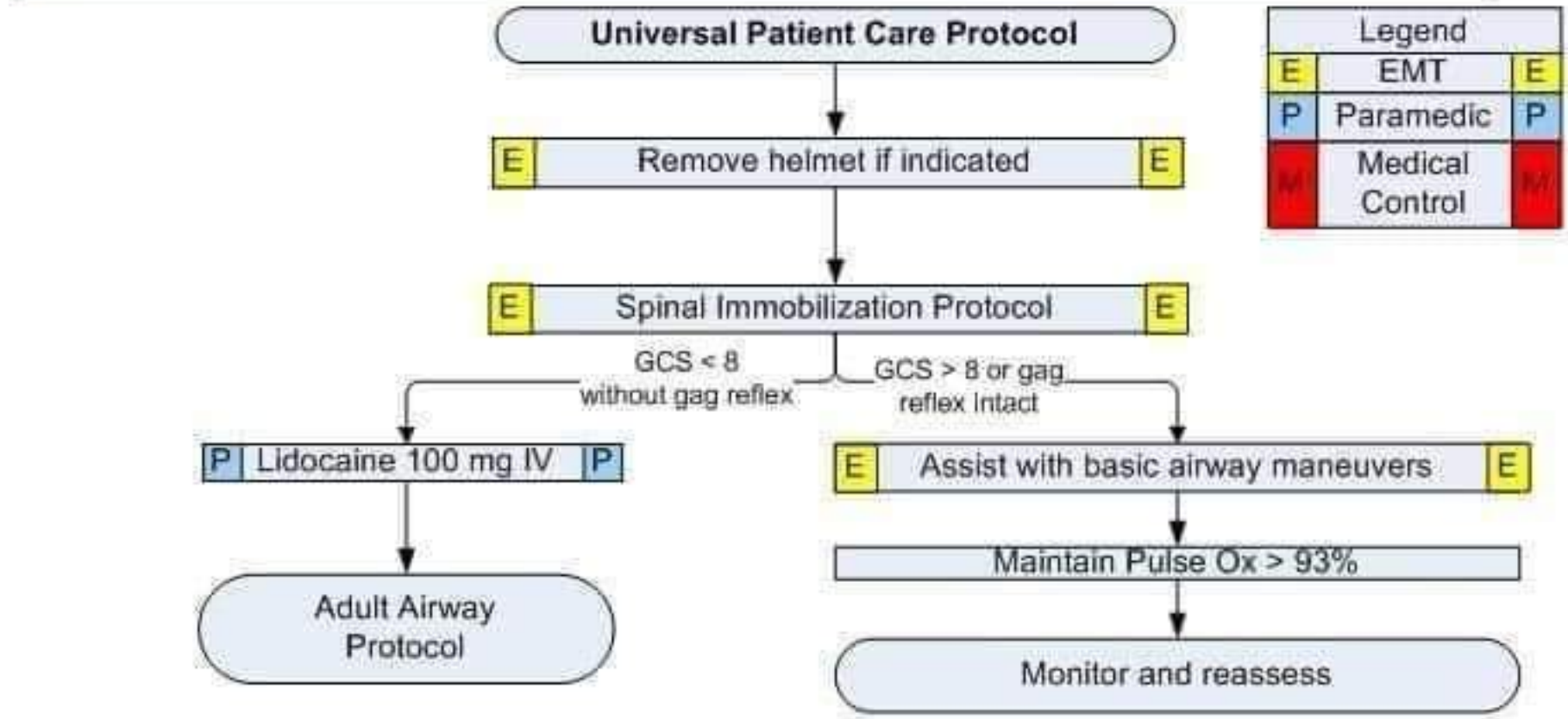


Pearls:

- Consider performing orthostatic vital signs on patients in nontrauma situations if suspected blood or fluid loss.
- Consider all possible causes of shock and treat per appropriate protocol.
- Orthostatic positive is test from lying/sitting to standing wait 60 seconds. Rise in pulse greater than 20bpm and drop in BP greater than 20 mm/hg.
- Maintain BP of >90SPB if symptomatic

Head Trauma

History:	Signs and Symptoms	Differential:
• Time of injury • Mechanism: blunt / penetrating • Loss of consciousness • Bleeding • Medical history • Medications • Evidence of multi -trauma • Helmet use or damage to helmet	• Pain, swelling, bleeding • Altered mental status • Unconscious • Respiratory distress / failure • Vomiting • Significant mechanism of injury	• **Skull fracture** • **Brain injury (concussion, contusion,** • **hemorrhage, or laceration)** • **Epidural hematoma** • **Subdural hematoma** • **Subarachnoid hemorrhage** • **Spinal injury** • **Abuse**



Pearls:

- Remove helmet if it is obstructing the airway or to gain access to the airway
- In absence of capnometer, hyperventilate the patient (adult: 20 breaths / min, child: 30, infant: 35) only if ongoing evidence of brain herniation (blown pupil, decorticate or decerebrate posturing, or bradycardia).
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be agressively treated.
- The most important item to monitor and document is a change in the level of consciousness and GCS.
- Consider **Restraints** if necessary for patient's and/or personnel's protection per the Res traint Procedure.
- 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.

Hyperthermia

History:	Signs and Symptoms	Differential:
• Age • Exposure to increased • temperatures and / or humidity • Past medical history / med ications • Extreme exertion • Time and length of exposure • Poor PO intake • Fatigue and / or muscle cramping	• Altered mental status or unconsciousness • Hot, dry or sweaty skin • Hypotension or shock • Seizures • Nausea	• **Fever (Infection)** • **Dehydration** • **Medications** • **Hyperthyroidism (Storm)** • **Delirium tremens (DT's)** • **Heat cramps** • **Heat exhaustion** • **Heat stroke** • **CNS lesions or tumors**

Universal Patient Care Protocol

E	Document patient temperature	E
E	Remove from heat source Remove clothing	E
E	Apply room temperature water to skin and increase air flow around patient	E
P	Normal Saline 500 cc Bolus Repeat prn 1.5 L max	P
E	Monitor and reassess	E

Appropriate Protocol
Based on patient symptoms

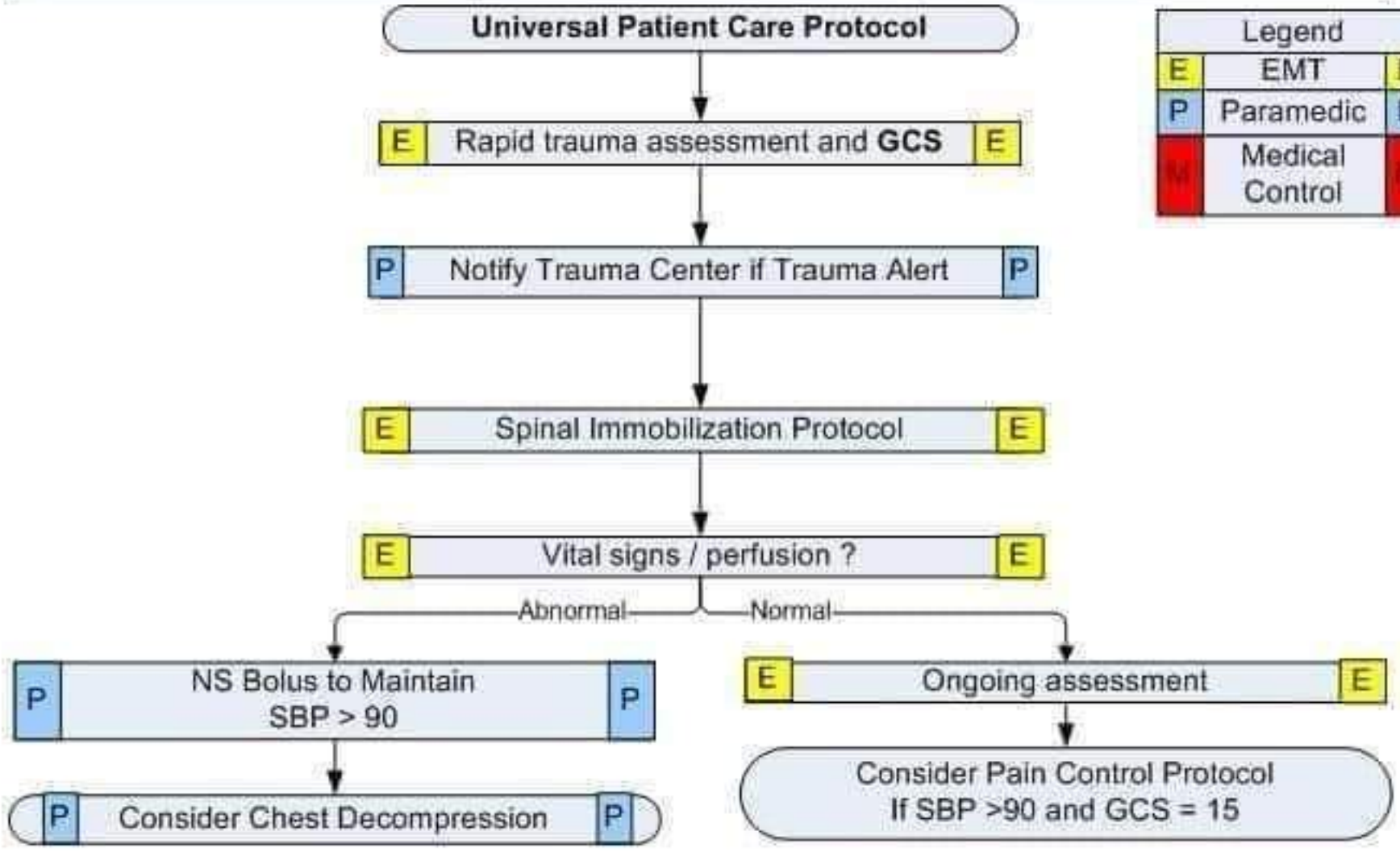
Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- Predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinerg ic medications, and alcohol. Cocaine, Amphetamines, and Salicylates
- Sweating generally disappears as body temperature rises above 104˚ F (40˚ C).
- Avoid shivering

Multiple Trauma

History:	Signs and Symptoms	Differential:
• Time and mechanism of injury • Damage to structure or vehicle • Location in structure or vehicle • Others injured or dead • Speed and details of MVC • Restraints / protective equipment • Past medical history • Medications	• Pain, swelling • Deformity, lesions, bleeding • Altered mental status or unconscious • Hypotension or shock • Arrest	• Chest Tension pneumothorax Flail chest Pericardial tamponade Open chest wound Hemothorax • Intra-abdominal bleeding • Pelvis / Femur fracture • Spine fracture / Cord injury • Head injury (see Head Trauma) • Extremity fracture / Dislocation • HEENT (Airway obstruction) • Hypothermia



Pearls:

- **In prolonged extrications/serious trauma consider air transport for transport speed and the ability to give blood.**
- **Severe bleeding from an extremity not rapidly controlled may necessitate the application of a tourniquet**
- **See Trauma Procedure for criteria when notifying the ED of Trauma Alert.**

Behavioral / Agitated Delirium

History:	Signs and Symptoms	Differential:
• Situational crisis • Psychiatric illness/medications • Injury to self or threats to others • Medic alert tag • Substance abuse / overdose • Diabetes	• Anxiety, agitation, confusion • Affect change, hallucinations • Delusional thoughts, bizarre • Behavior • Combative violent • Expression of suicidal / • Homicidal thoughts	• **See Altered Mental Status differential** • **Hypoxia** • **Alcohol Intoxication** • **Medication effect / overdose** • **Withdrawal syndromes** • **Depression** • **Bipolar (manic-depressive)** • **Schizophrenia, anxiety disorders, etc**

Scene Safety

Verbal Tactics

Remove Pt from stressful environment

Universal Patient Care Protocol

E **Restraint Procedure if needed** E
supine only

Pt uncooperative clothed and communicating

Pt combative or unclothed not responding to verbal commands Super Human Strength

P Chemical Sedation P
Haldol 5 mg IM/IN
Benadryl 50 mg IM
2-4 mg Versed IV/IM/IN

E Monitor Temperature E
>102 implement cooling

E Monitor Glucose E

Reassess and Transport

P Chemical Sedation P
Versed 2-4 mg IM/IN
Haldol 5 mg IM/IN
Benadryl 50 mg IM

E Monitor Temperature E
>102 implement cooling

P Add 50 meq Bicarb in 100 mls NACL P
Infuse during transport
over 15 minutes

E Consider fluid bolus of 30ml/kg E

Reassess and Transport

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

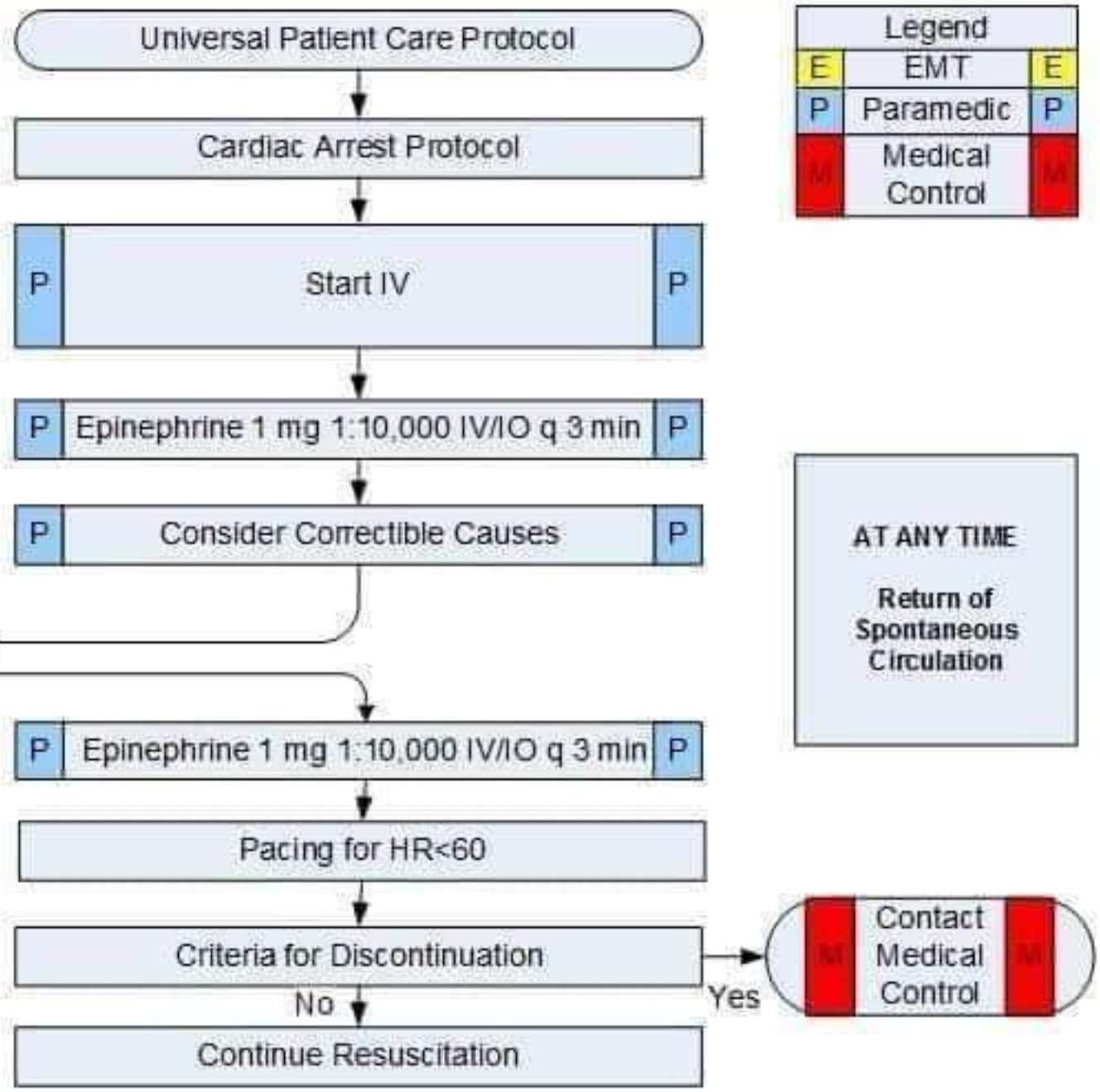
Pearls:

- **Consider Haldol for patients with history of psychosis, Versed for patients with presumed substance abuse**
- Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, over dose, substance abuse, hypoxia, head injury, etc.)
- Do not overlook the possibility of associated domestic violence or child abuse.
- If patient in agitated delirium suffers cardiac arrest, consider fluid bolus and sodium bicarbonate early.
- **All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon their arrival.**
- **Transport supine only. Never Prone.**

Pulseless Electrical Activity (PEA)

History:	Signs and Symptoms	Differential/Correctible Causes

• Past medical history
• Medications
• Events leading to arrest
• End stage renal disease
• Estimated downtime
• Suspected hypothermia
• Suspected overdose
  Tricydics
  Digitalis
  Beta blockers
  Calcium channel blockers
• DNR
	• Pulseless
	• Apenic
	• Electrical activity on ECG
		• Hypovolemia
		• Hypoxia
		• Hydrogen Ion (acidosis)
		• Hypo- /Hyperkalemia
		• Hypoglycemia
		• Hypothermia
		• Toxins
		• Tamponade
		• Tension Pneumo
		• Thrombosis
		• Trauma
		• Death

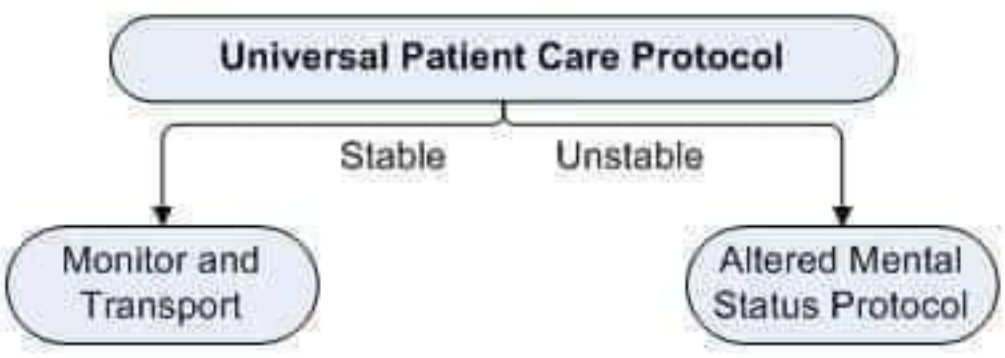


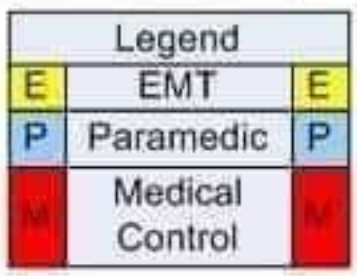
Pearls:

- 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.
- The 8 different signs of tension pneumothorax are: SpO2 < 94%, tachycardia, cyanosis, decreased lung compliance, hypotension, decreased breath sounds, decreased cap. refill, and tracheal deviation.
- All medication that can be given IV/IVP can also be given intraosseous

Overdose Toxic Ingestion

History:	Signs and Symptoms	Differential:
• Ingestion or suspected ingestion of a potentially toxic substance • Substance Ingested, route, quantity • Time of ingestion • Reason (suicidal, accidental, criminal) • Past medical history, medications	• Mental status changes • Hypotension / hypertension • Decreased respiratory rate • Tachycardia, dysrhythmias • Seizures • Vomitting	• **Tricyclic antidepressants (TCAs)** • **Acetaminophen (tylenol)** • **Depressants** • **Stimulants** • **Anticholinergic** • **Cardiac medications** • **Solvents, Alcohols, Cleaning agents** • **Insecticides (organophosphates)**



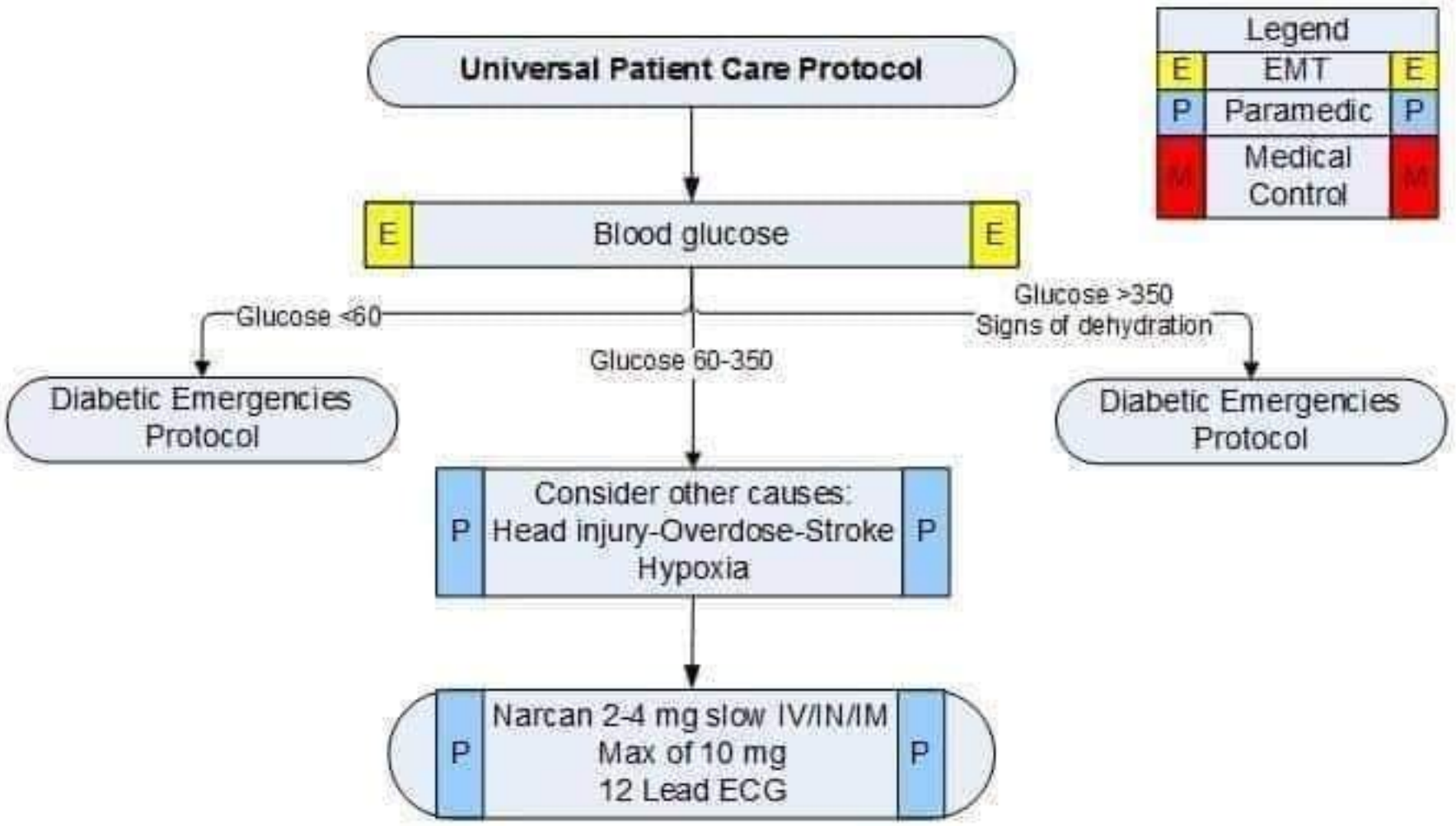


Pearls:

- Poision Control- 1-800-222-1222
- Unstable Pt- BP < 90, GCS <13, responsive only to pain
- Do not rely on patient history of ingestion, especially in suicide attempts.
- 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. Consider Sodium Bicarb (1 meq/kg).
- **Depressants:** decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
- **Stimulants:** Cocaine and Methamphetamine. Increased HR, increased BP, increased temperature, dilated pupils, seizures. Versed 2-4 mg, 10 mg max
- **Solvents:** nausea, vomiting, and mental status changes
- **Insecticides: SLUDGE** (Consider Atropine 2-5 mg)
- Consider restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- If Digitalis Toxicity is suspected with unstable HR >150 consider synch cardioversion at 5-20 joules

Altered Mental Status

History:	Signs and Symptoms	Differential:
• Known diabetic, medic alert tag • Drugs, drug paraphernalia • Report of illicit drug use or toxic ingestion • Past medical history • Medications • History of trauma • Change in condition	• Decreased mental status • Change in baseline menta l status • Bizarre behavior • Hypoglycemia (cool, diaphoretic • skin) • Hyperglycemia (warm, dry skin; fruity breath; Kussmal resps; signs of dehydration)	• Head trauma • CNS (stroke, tumor, seizure, infection) • Cardiac (MI, CHF) • Infection • Thyroid (hyper / hypo) • Shock (septic, metabolic, traumatic) • Diabetes (hyper / hypoglycemia) • Toxicologic • Acidosis / Alkalosis • Environmental exposure • Pulmonary (Hypoxia) • Electrolyte abnormatility • Psychiatric disorder



Pearls:

- If altered mental status persists consider other causes (other than hyperglycemia or hypoglycemia) of altered mental status
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- Consider restraints if necessary for patient's and/or personnel's protection per the restraint procedure.
- Poison Control 1-800-222-1222

Supraventricular Tachycardia

History:	Signs and Symptoms	Differential:
• Medications • (Aminophylline, Diet pills, • Thyroid supplements, • Decongestants, Digoxin) Diet (caffeine, chocolate) Drugs (nicotine, cocaine) Past medical history History of palpitations / heart racing • Syncope / near syncope • WPW	• HR > 150/Min • **QRS < .12 Sec (QRS > .12 sec** • **go to V-Tach Protocol)** • **If history of WPW, go to VTach** • **Protocol** • Dizziness, CP, SOB • Potential presenting rhythm Sinus tachycardia Atrial fibrillation / flutter Multifocal atrial tachycardia	• **Heart disease (WPW, Valvular)** • **Sick sinus syndrome** • **Myocardial infarction** • **Electrolyte imbalance** • **Exertion, Pain, Emotional stress** • **Fever** • **Hypoxia** • **Hypovolemia or Anemia** • **Drug effect / Overdose (see HX)** • **Hyperthyroidism** • **Pulmonary embolus**

Legend	
E	EMT
P	Paramedic
M	Medical Control

Universal Patient Care Protocol

Stable

P — 12 Lead ECG — P

E — May attempt **Valsalva's maneuver** initially and after each drug administration if indicated — E

P — Adenosine 6 mg rapid IV no change then 12 mg rapid IV/IO each with 10 cc flush — P

P — Amiodarone 150 mg / 100 ml NACL over 10 min or Cardizem 0.25mg/kg — P

Unstable

P — Adenosine 12 mg rapid IV/IO with 10 cc flush — P

P — Sedate for Cardioversion with Etomidate .3 mg/kg no more than 30 mg or Versed 2-4mg IV/IO — P

P — Synchronized Cardioversion 50J, If unsuccessful then 100J. If unsuccessful then 200J, repeat PRN — P

P — Amiodarone 150 mg / 100 ml D5W over 10 min or Cardizem 0.25mg/kg — P

P — 12 Lead ECG — P

Pearls:

- Adenosine may not be effective in identifiable atrial flutter/fibrillation, yet is not harmful.
- Monitor for hypotension after administration of Amiodarone.
- Continuous pulse oximetry is required for all SVT Patients.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Versed for prolonged cardioversion > 5 min.
- All medication that can be given IV/IVP can also be given intraosseous

Suspected Stroke

History:	Signs and Symptoms	Differential:
• Previous CVA, TIA's • Previous cardiac / vascular surgery • Associated diseases: diabetes, hypertension, CAD • Atrial fibrillation • Medications (blood thinners) • History of trauma • Last time seen normal	• Altered mental status • Weakness / Paralysis • Blindness or other sensory loss • Aphasia / Dysarthria • Syncope • Vertigo / Dizzyness • Vomiting • Headache • Seizures • Respiratory pattern change • Hypertension / hypotension	• **See Altered Mental Status** • **TIA (Transient ischemic attack)** • **Seizure** • **Hypoglycemia (see Pearls)** • **Stroke** **Thrombotic/Embolic (≈ 85%)** **Hemorrhagic (≈ 15%)** • **Tumor** • **Trauma**

Universal Patient Care Protocol

E **RACE Scale Evaluation** E

If Positive and Symptoms < 3.5 hours,
transport to approved facility.
Limit scene time to 10 minutes.
Do Not Treat Hypertension

E Elevate the head 30° E

P If Systolic BP < 90,
Normal Saline Bolus P

P 2nd IV (do not delay transport) P

Consider other protocols as indicated
Altered Mental Status
Seizure

Hypoglycemia <60
give Glucagon 1 unit
IM/IV
If no change use
1 amp D25 slowly

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Refer to
Hospital
Categories

Pearls:

- For sudden onset of severe headache "worst headache ever" consider acute intracranial hemorrhage, see "Stroke Check Sheet"
- Maintain SpO2 > 94%
- Thrombolytic Screening Checklist should be completed for any suspected stroke patient.
- With a duration of symptoms of less than 3.5 hours, scene times and transport times should be minimized. Consider delay of procedures such as IV initiation until transport is under way.
- Onset of symptoms is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free).
- Whenever possible a family member should accompany patient to hospital to provide additional history and/or consent.
- The differential listed on the Altered Mental Status Protocol should also be considered.
- Be alert for airway problems (swallowing difficulty, vomiting).
- Treat all possible TIA's as stroke alerts.
- Hypoglycemia – start treatment with Glucagon IM/IV; if glucose remains < 60 use D25 1amp slowly

Pediatric Burns

History:	Signs and Symptoms	Differential:
• Type of exposure (heat, gas, chemical) • Inhalation injury • Time of injury • Past medical history • Medications • Other trauma • Loss of consciousness • Tetanus/Immunization status	• Burns, pain, swelling • Dizziness • Loss of consciousness • Hypotension / shock • Airway compromise / distress • Singed facial or n asal hair • Hoarseness / wheezing	• **Superficial (1^{a})** red and painful • **Partial thickness (2^{a})** blistering • **Full thickness (3^{a})** painless and charred or leathery skin • **Chemical** • **Thermal** • **Electrical** • **Radiation**

Universal Patient Care Protocol

Airway Protocol

Consider trauma alert / high index criteria

E — Remove rings, bracelets, and other constricting items — E

Thermal / Chemical

E — If burn is <20% of 2nd Degree or <5% of 3rd degree (using rule of nines) **Cool down the wound with Normal Saline** — E

E — >20% of 2nd degree or >5% of 3rd degree Cover burn with a **Dry** sterile sheet or dressings — E

Remove clothing or expose area
Brush off any dry chemical s or powder

Eye involvement ?
Continuous saline flush in affected eye

Flush area with water or Normal Saline for 10-15 minutes

P — For Pain Control
Morphine 0.1 mg/kg IV
(Max = 2mg/dose)
and/or
Nitrous prn — P

P — Repeat Morphine q 5 minutes up to 3 total doses prn
Monitor Resp Status — P

M — Consider Transport Directly to Burn Center If No Airway Involvement — M

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **If Airway Involvement, Consider Transport to Nearest Hospital If unable to intubate**
- Early intubation is required in significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen.
- Burn patients are prone to hypothermia - Never apply ice or cool burns that involve >10% body surface area.
- Do not overlook the possibility for child abuse with children sustaining burn injuries.

Electrical Injuries

History:	Signs and Symptoms	Differential:
• Lightning or electrical exposure • Single or multiple victims • Trauma secondary to fall from highwire or MVC into line • Duration of exposure • Voltage and current (AC / DC)	• Burns • Pain • Entry and exit wounds • Hypotension or shock • Arrest	• **Cardiac arrest** • **Seizure** • **Burns (see Burn Protocol)** • **Multiple trauma**

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- All Patients get a 12 Lead
- Ventricular fibrillation and asystole are the most common dysrhythmias.
- Damage is often hidden; the most severe damage will occur in muscle, vessels and nerves.
- In a mass casualty lightning incident, attend to victims in full arrest first. If the victim did not arrest initially, it is likely they will survive. These patients are often resucitated with adequate CPR and ALS. Conduct a **reverse** START Triage
- Do not overlook other trauma (i. e. falls).
- Lightning is a massive DC shock most often leading to asystole as a dysrhythmia.
- In lightning injuries, most of the current will travel over the body surface producing flash burns.

Pulmonary Edema

History:	Signs and Symptoms	Differential:
• Congestive heart failure • Past medical history • Medications (digoxin, lasix) • **Viagra, Levitra, Cialis** • Cardiac history –past myocardial infarction	• Respiratory distress, bilateral rales • Apprehension, orthopnea • Jugular vein distention • Pink, frothy sputum • Peripheral edema, diaphoresis • Hypotension, shock • Chest pain	• **Myocardial infarction** • **Congestive heart failure** • **Asthma** • **Anaphylaxis** • **Aspiration** • **COPD** • **Pleural effusion** • **Pneumonia** • **Pulmonary embolus** • **Pericardial tamponade** • **Toxic Exposure**

Universal Patient Care Protocol

E	Obtain and record ETCO2 and Pulse Oximetry	E
P	Nitroglycerin 0.4 mg SL q 3 minutes and/or Nitro paste If BP > 110 systolic	P
E	**CPAP as tolerated**	E
P	Versed 1-2 mg IV *or* 2 mg IN if SBP>110 and pt not tolerating mask	P
P	Lasix 40 mg slow IV (Use Careful Paramedic Judgement)	P
P	12 Lead ECG	P

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **Avoid Nitroglycerin in any patient who's used Viagra, Levitra, or Stendra in the past 24 hours or Cialis in the past 48 hours due to possible severe hypotension.**
- Consider myocardial infarction in all these patients.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- If patient condition precludes use of indicated NTG spray, proceed to NTG paste.
- Document CPAP application. Document 12-lead with "12-lead EKG" procedure
- IF etco2 waveform reveals bronchial spasms consider 1 dose of Albuterol
- If patient's systolic BP is over 160 you can give 0.8mg of NTG

Cardiac Arrest

History:	Signs and Symptoms	Differential:
• Events leading to arrest • Estimated downtime • Past medical history • Medications • Existence of terminal illness • DNR	• Unresponsive • Apenic • Pulseless • Fixed and dilated pupils	• Medical vs. Trauma • V. fib vs Pulseless V. tach • Asystole • Pulseless electrical activity (PEA)

Universal Patient Care Protocol

Withhold resuscitation ← Yes — P Meets criteria for Death / No Resuscitation P

E **Rapid Continuous Compressions (C.A.B.)** E

ALS Available?

No

E Automated Defibrillation Procedure E

Airway Procedure

Interrupt Compressions Only as per AED Procedure. Ventilate no more than 10 breaths per minute (30:2)

Yes

P Assess Rhythm P

Go to appropriate protocol

Ventricular Fibrillation (Hyperlink)

or

Pulseless Ventricular Tachycardia (Hyperlink)

or

Pulseless Electrical Activity (Hyperlink)

or

Asystole (Hyperlink)

or

Pediatric Pulseless Arrest (Hyperlink)

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

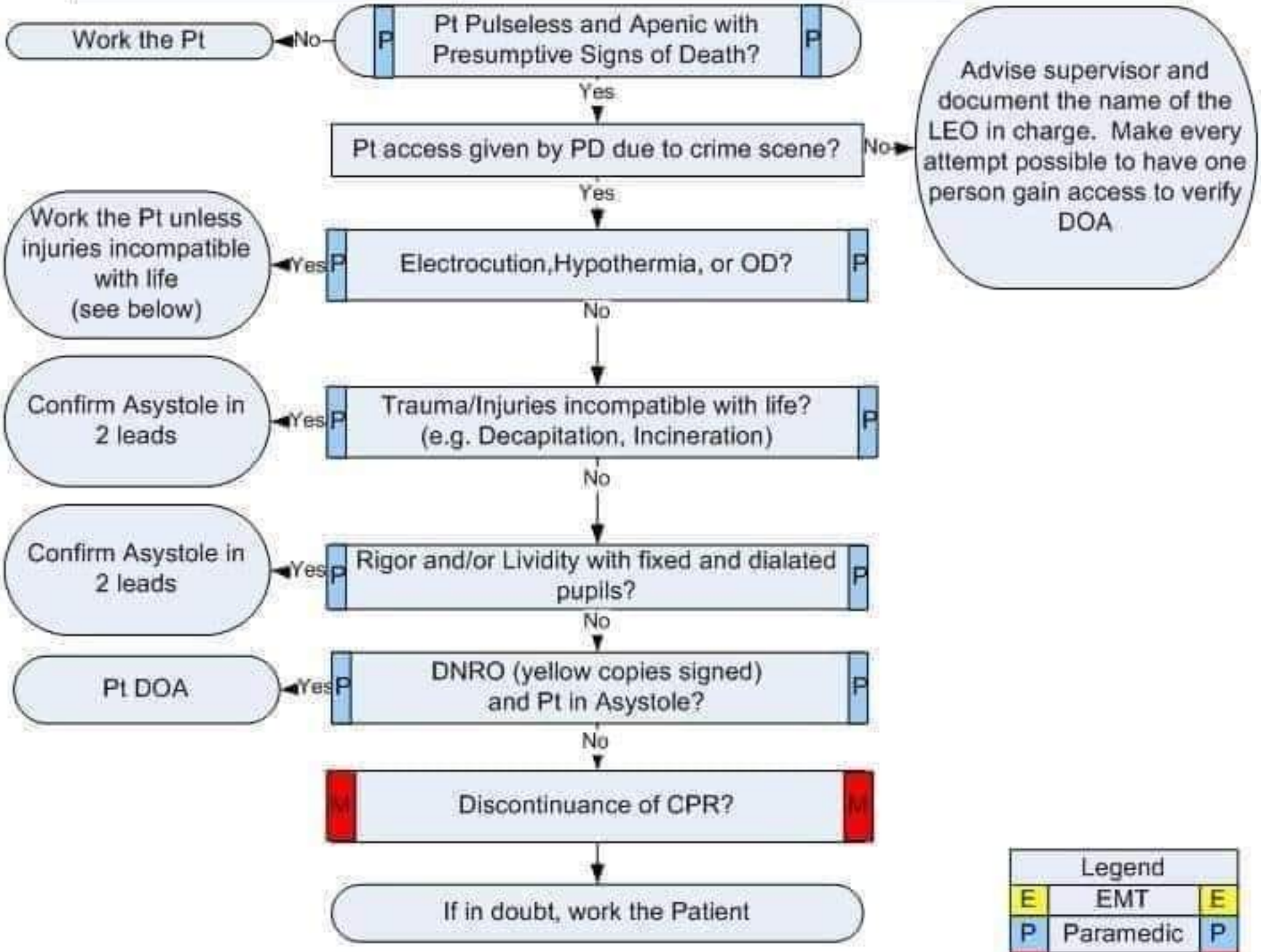
AT ANY TIME
Return of Spontaneous Circulation
Go to
Post Resuscitation Protocol

Pearls:

- Success is based on proper planning and execution. Use team approach.
- If witnessed arrest – administer a pre-cordial thump
- Reassess airway frequently and with every patient move including SAO2 and end-tidal CO2
- Maternal Arrest- Treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport.
- **Adequate compressions with early defibrillation are the keys to success.**
- All medication that can be given IV/IVP can also be given intraosseous.

Determination of Death in the Field

Presumptive Signs of Death:	History:	Clinical Signs of Death
• These all **must** be present Pulseless Apenic Unresponsive Fixed and dilated pupils	• Pt has not been seen for many hours • Injuries/Trauma incompatible with life	• Rigormortis • Lividity • Tissue Decomposition • Incineration • Decapitation



Legend	
E	EMT
P	Paramedic
M	Medical Control

Pearls:

- The body of a deceased person must be transferred to a police officer to determine the cause of death and release the body to the appropriate place. (Funeral home, Medical Examiner, etc)
- Trauma/Injuries incompatible with life (Examples: decapitation, obvious broken neck with no pulses, Severe crushing injury with body badly deformed and no pulses)
- If family wants all measures done start efforts

Ventricular Fibrillation
Pulseless Vent. Tachycardia

History:	Signs and Symptoms	Differential:
• Estimted down time • Past medical history • Medications • Events leading to arrest • Renal failure / dialysis • DNR	• Unresponsive, apenic, pulseless • Ventricular fibrillation or ventricular tachycardia on ECG	• Asystole • Artifact / Device failure • Cardiac • Endocrine / Metabolic • Drugs • Pulmonary

Universal Patient Care

↓

Cardiac Arrest Protocol

↓

P E — Feel for pulse for less than 10 seconds
If no pulse, start chest compressions for 2 minutes — P E

↓

P E — Defibrillation Sequence:
Defibrillate @ 200 J
Immediately Resume CPR
Reassess Rhythm and Repeat Shocks q 2 mins. — P E

↓

P — Vasopressin 40U IV/IO X1 or
Epinephrine 1 mg 1:10,000 IV
(If no IV: Epinephrine 1:1,000 2 mg in 10 mls of NACL ET q 3 minutes) — P

↓

P — Amiodarone 300 mg IVP — P

↓

P — Epinephrine 1 mg 1:10,000 IVP
or 2 mg in 10 mls ET
Repeat every 3 minutes — P

↓

P — Amiodarone 150 mg IVP/IO (if needed) — P

↓

P — Magnesium Sulfate 2 gms IVD/IO for torsades de pointes — P → M — If criteria for discontinuation, contact medical control — M

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

AT ANY TIME

Return of Spontaneous Circulation

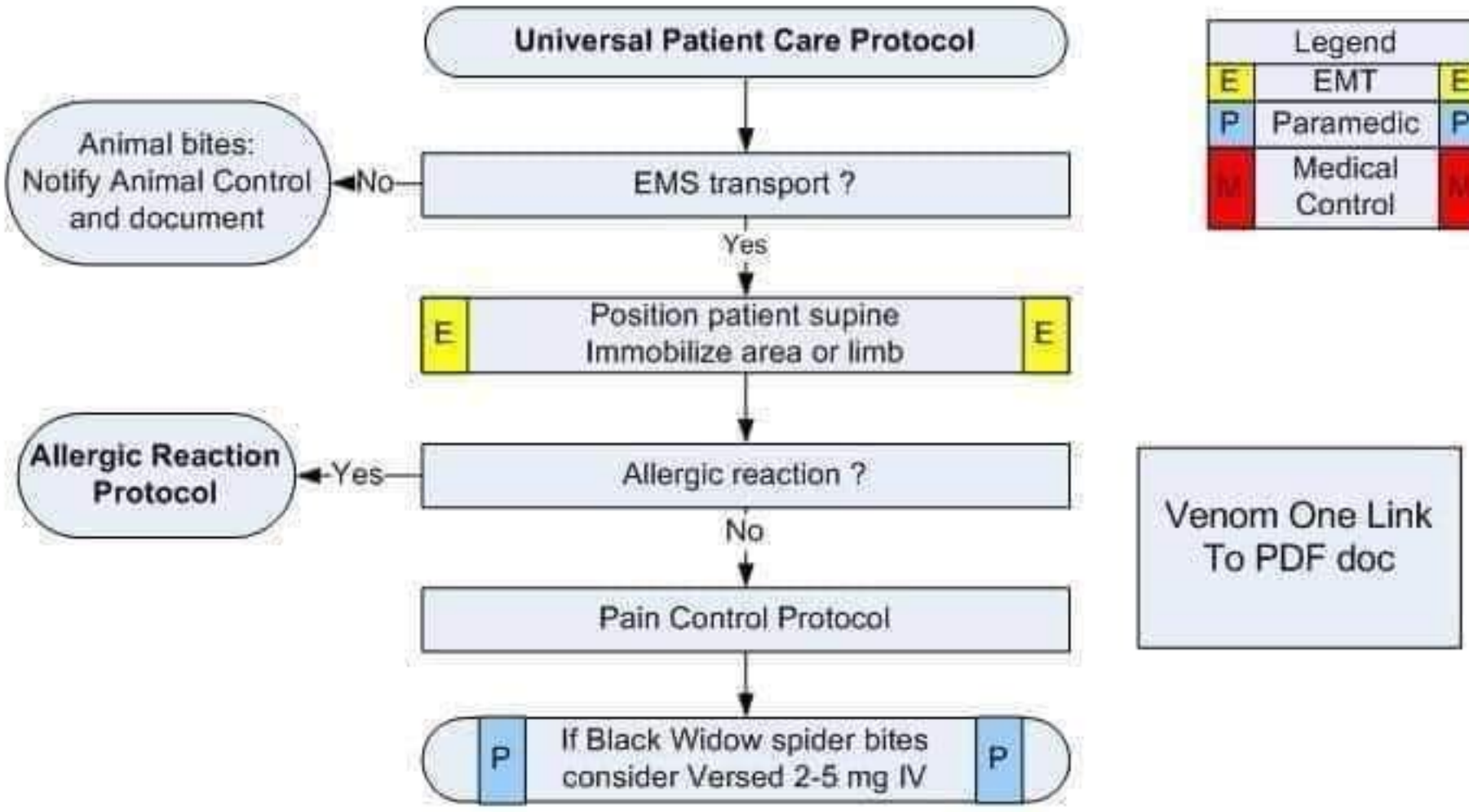
Go to Post Resuscitation Protocol

Pearls:

- Reassess and document endotracheal tube placement and ET CO2 frequently, after every move, and at discharge.
- Calcium and sodium bicarbonate if hyperkalemia is suspected (renal failure, dialysis).
- Treatment priorities are: uninterrupted compression, defibrillation, then IV access and airway control.

Bites and Envenomations

History:	Signs and Symptoms	Differential:
• Type of bite / sting • Description / photo with patient for • identification of animal involved • Time, location, size of bit e / sting • Previous reaction to bite / sting • Domestic vs. Wild • Tetanus and Rabies risk • Immunocompromised patient	• Rash, skin break, wound • Pain, soft tissue swelling, redness • Blood oozing from the bite wound • Evidence of infection • Shortness of breath, wheezing • Allergic reaction, hive s, itching • Hypotension or shock	• **Animal bite** • **Human bite** • **Snake bite (poisonous)** • **Spider bite (poisonous)** • **Insect sting / bite (bee, wasp, an t, tick)** • **Infection risk** • **Rabies risk** • **Tetanus risk**



Pearls:

- For specific bite information refer to Miami Dade Venom One document
- Consider contacting the Poison Control Center for guidance. 1-800-222-1222

Ventricular Fibrillation
Pulseless Vent. Tachycardia

History:	Signs and Symptoms	Differential:
• Estimted down time • Past medical history • Medications • Events leading to arrest • Renal failure / dialysis • DNR	• Unresponsive, apenic, pulseless • Ventricular fibrillation or ventricular tachycardia on ECG	• Asystole • Artifact / Device failure • Cardiac • Endocrine / Metabolic • Drugs • Pulmonary

Universal Patient Care

Cardiac Arrest Protocol

P E — Feel for pulse for less than 10 seconds
If no pulse, start chest compressions
for 2 minutes

P E — Defibrillation Sequence:
Defibrillate @ 200 J
Immediately Resume CPR
Reassess Rhythm and Repeat Shocks
q 2 mins.

P — Start IV

P — Epinephrine 1 mg 1:10,000 IV/IO
(If no IV: Epinephrine 1:1,000 2 mg in
10 mls of NACL ET q 3 minutes)

P — Amiodarone 300 mg IVP/IO

P — Epinephrine 1 mg 1:10,000 IVP/IO
or 2 mg in 10 mls ET
Repeat every 3 minutes

P — Amiodarone 150 mg IVP/IO (if needed)

P — Magnesium Sulfate 2 gms IV/IO
for torsades de pointes

M — If criteria for discontinuation,
contact medical control

AT ANY TIME

Return of Spontaneous Circulation

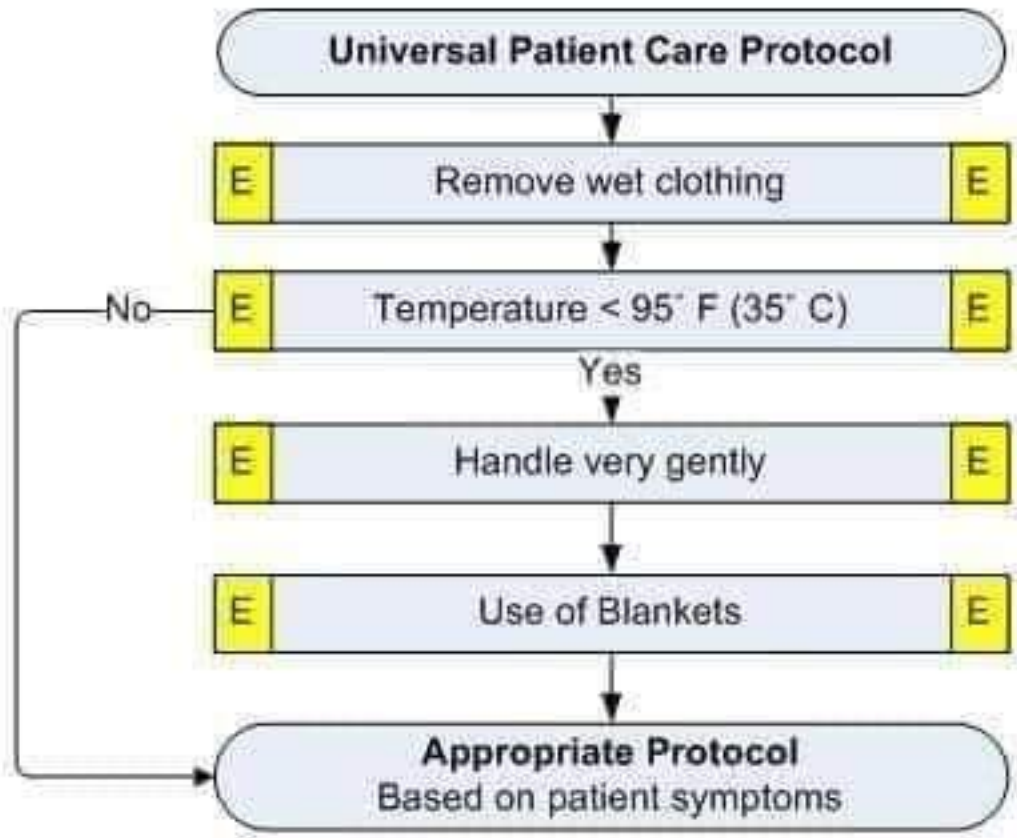
Legend	
E	EMT
P	Paramedic
M	Medical Control

Pearls:

- Reassess and document endotracheal tube placement and ET CO2 frequently, after every move, and at discharge.
- Treatment priorities are: uninterrupted compression, defibrillation, then IV access and airway control.
- Consider Calcium 4mg/kg and/or Sodium Bicarb 1meq/kg if hyperkalemia is suspected (renal failure, dialysis).
- If patient converts prior to use of an anti-arrhythmic, administer Amiodarone 150mg in 50 or 100 ml NS over 10 min while monitoring patient's vital signs.
- All medication that can be given IV/IVP can also be given intraosseous

Hypothermia

History:	Signs and Symptoms	Differential:
• Past medical history • Exposure to environment even in normal temperatures • Exposure to extreme cold • Extremes of age • Drug use: Alcohol, barbituates • Infections / Sepsis • Length of exposure / Wetness	• Cold, clammy • Shivering • Mental status changes • Extremity pain or sensory abnormality • Bradycardia • Hypotension or shock	• **Sepsis** • **Environmental exposure** • **Hypoglycemia** • **CNS dysfunction** **Stroke** **Head injury** **Spinal cord injury**



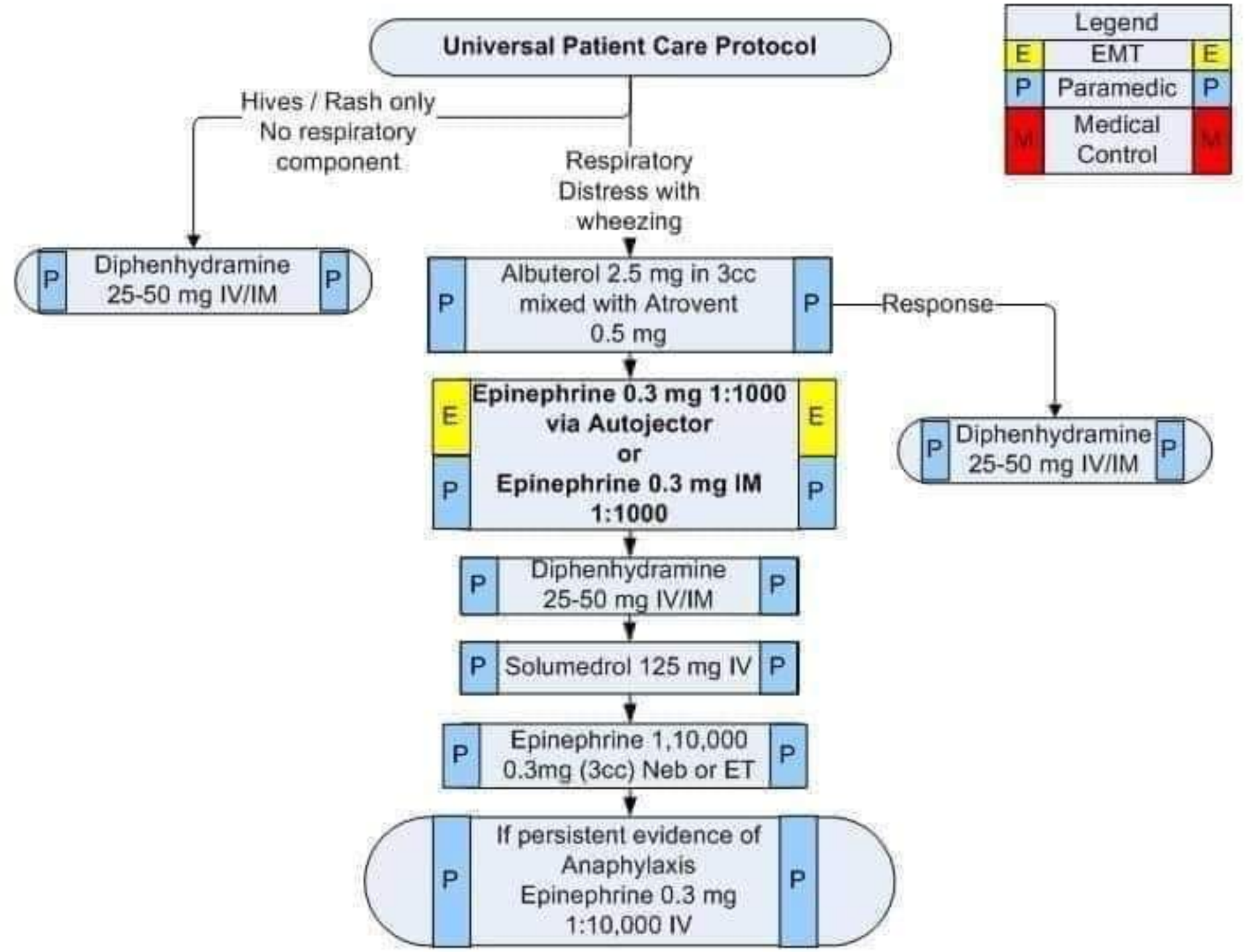
Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **NO PATIENT IS DEAD UNTIL WARM AND DEAD.** Defined as core temperature < 35˚ C (95˚ F).
- Extremes of age are more susceptable (i.e. young and old).
- With body temperature less than 31˚ C (88˚ F) ventricular fibrillation is common cause of death. Handling patients gently may prevent this (rarely responds to defibrillation).
- Hypothermia may produce severe bradycardia.
- Shivering stops below 32˚ C (90˚ F).

Allergic Reaction / Anaphylaxis

History:	Signs and Symptoms	Differential:
• Onset and location • Insect sting or bite • Food allergy / exposure • Medication allergy / exposure • New clothing, soap, detergent • Past history of reactions • Past medical history • Medication history	• Itching or hives • Coughing / wheezing or • respiratory distress • Chest or throat constriction • Difficulty swallowing • Hypotension or shock • Edema	• **Urticaria (rash only)** • **Anaphylaxis (systemic effect)** • **Shock (vascular effect)** • **Angioedema (drug induced)** • **Aspiration / Airway obstruction** • **Vasovagal event** • **Asthma or COPD** • **CHF**



Pearls:

- **Consider Contact Medical Control prior to administering 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 cardiac ischemia. These patients should receive a 12 lead ECG.**
- Any patient with respiratory symptoms or extensive reaction should receive IV or IM diphenhydramine.
- The shorter the onset from symptoms to contact, the more severe the reaction.

Burns

History:	Signs and Symptoms	Differential:
• Type of exposure (heat, gas, chemical) • Inhalation injury • Time of injury • Past medical history • Medications • Other trauma • Loss of consciousness • Tetanus/Immunization status	• Burns, pain, swelling • Dizziness • Loss of consciousness • Hypotension / shock • Airway compromise / distress • Singed facial or nasal hair • Hoarseness / wheezing	• **Superficial (1°)** red and painful • **Partial thickness (2°)** blistering • **Full thickness (3°)** painless and charred or leathery skin • **Chemical** • **Thermal** • **Electrical** • **Radiation**

Universal Patient Care Protocol

E — Remove rings, bracelets, and other constricting items — E

Thermal / Chemical

E — If burn is <20% of 2nd Degree or <5% of 3rd degree (using rule of nines)
Cool down the wound with Normal Saline and Consider Burn Gel (if available) — E

E — >20% of 2nd degree or >5% of 3rd degree
Cover burn with a **Dry** sterile sheet or dressings — E

P — For pain control
Morphine 5 mg IV q 5-10 min up to 30 mg
For Nausea, Zofran 4 mg IV — P

Consider Transport Directly to a Trauma Center

E — Remove clothing or expose area
Brush off any visible dry chemicals or powder — E

E — Eye involvement ?
Continuous saline flush in affected eye(s) — E

E — Flush area with water or Normal Saline for 10-15 minutes — E

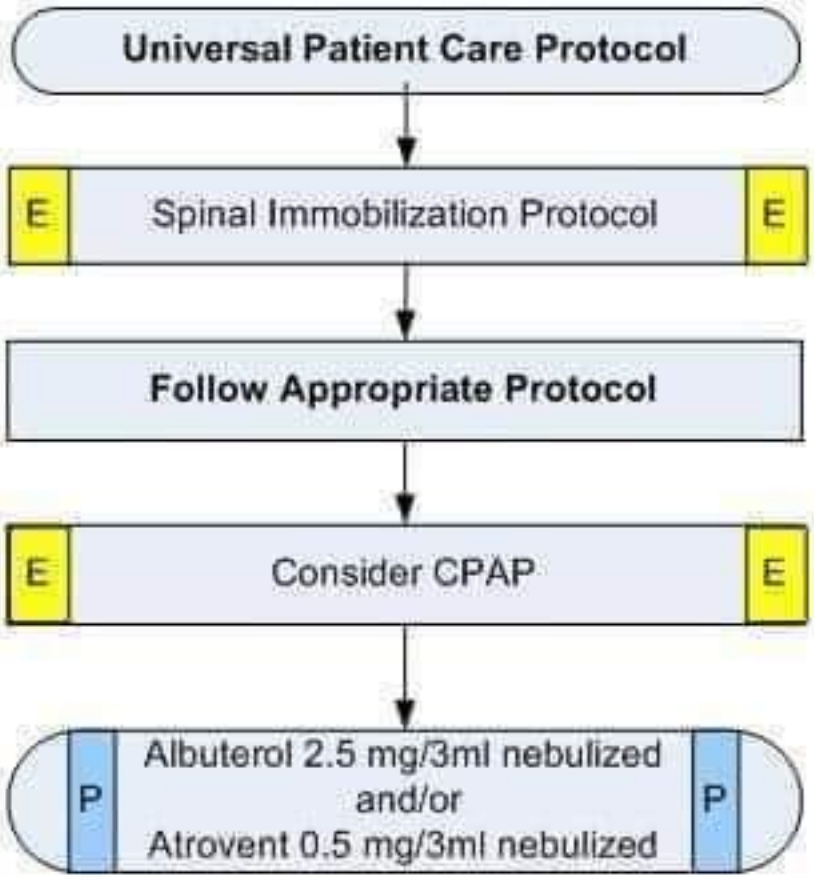
Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **Critical Burns:** >25% body surface area (BSA); 3° burns >10% BSA; 2° and 3° burns to face, eyes, hands or feet; electrical burns; respiratory burns; deep chemical burns; burns with extremes of age or chronic disease; and burns with associated major traumatic injury. These burns may require hospital admission or transfer to a burn center.
- Early intubation is required in significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen.
- Circumferential burns to extremities are dangerous due to potential vascular compromise due to soft tissue swelling.
- Burn patients are prone to hypothermia - Never apply ice or cool burns that involve >10% body surface area.
- Do not overlook the possibility of multiple system trauma.
- Do not overlook the possibility for child abuse with children and burn injuries.

Drowning / Near Drowning

History:	Signs and Symptoms	Differential:
• Submersion in water regardless of depth • Possible history of trauma ie: diving board • Duration of immersion • Temperature of water • Fresh/Salt Water	• Unresponsive • Mental status changes • Decreased or absent vital signs • Vomiting • Coughing	• **Trauma** • **Pre-existing medical problem** • **Pressure injury (diving)** **Barotrauma** **Decompression sickness**



Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- With suspected trauma, "Trauma Alert" should be considered
- With cold water no time limit – resuscitate all.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- **Drowning is a leading cause of death among would-be rescuers.**
- **With pressure injuries (decompression / barotrauma), notify receiving facility of possibly needing a hyperbaric chamber**

Atrial Fibrillation

History:
- Medications (Amiodarone, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Diet (caffeine, chocolate)
- Drugs (nicotine, cocaine)
- Past medical history
- History of palpitations, heart racing if longer than 48 hours do not treat
- Syncope / near syncope

Signs and Symptoms
- HR > 150/min
- QRS < 12 sec
- Dizziness, CP, SOB
- Potential presenting rhythm
  - Sinus tachycardia
  - Atrial flutter/ Flutter
  - Multifocal atrial tachycardia

Differential:
- Heart disease (MPVI, Valvular)
- Sick sinus syndrome
- Myocardial infarction
- Electrolyte imbalance
- Exertion, Pain, Emotional stress
- Fever
- Hypoxia
- Hypovolemia or Anemia
- Drug effect / Overdose (see Hx)
- Hyperthyroidism
- Pulmonary embolus

Universal Patient Care Protocol

Symptoms longer than 48 hrs with Pt not on anticoagulants

No

Legend: EMT, Paramedic, Medical Control

Stable

P: Consider Amiodarone 150mg in 100mls of NACL IVD over 10 minutes or Cardizem 0.25mg/kg over 2 minutes (P)

P: If unsuccessful after 10 min, Consider Amiodarone 150mg in 100mls of NACL IVD over 10 minutes or Cardizem 0.35mg/kg over 2 minutes (P)

P: After rate control, Obtain 12 Lead ECG (P)

Unstable

P: Consider sedation for cardioversion with Etomidate 0.3mg/kg 30 mg IV (P)

P: Synchronized Cardioversion 50J, if unsuccessful then 100J, if unsuccessful then 200J repeat PRN (P)

P: Amiodarone 150mg in 100mls of NACL IVD over 10 minutes (P)

P: If unsuccessful after 10 min, Amiodarone 150mg in 100mls of NACL IVD over 10 minutes (P)

P: After conversion, Obtain 12 Lead ECG (P)

Pearls:
- Adenosine may not be effective in identifiable atrial flutter/fibrillation, yet is not harmful
- Monitor for respiratory depression and hypotension
- If longer than 48 hours of symptoms the Pt may have formed an atrial clot. Chemical or electrical cardioversion may dislodge the clot and cause a pulmonary embolism or CVA.
- Unstable is BP < 90 and inadequate for clinical condition or AMS or chest pain with diaphoresis
- Versed can be used for prolonged cardioversion times prn.
- If Etomidate has worn off for sedation Versed may be used

Chest Pain
Suspected Cardiac Event

History:	Signs and Symptoms	Differential:
• Age • Medication • Viagra, Levitra, Cialis • Past medical history (MI, Angina, Diabetes, Post menopausal) • Allergies (Morphine, Lidocaine) • Recent physical exertion • Onset • Palpitation / Provocation • Quality (crampy, costant, sharp, dull, etc.) • Region / Radiation / Referred • Severity (1-10) • Time (duration / repetition)	• CP (pain, pressure, aching, vice-like tightness) • Location (substernal, epigastric, arm, jaw, neck, shoulder) • Radiation of pain • Pale, diaphoresis • Shortness of breath • Nausea, vomiting, dizziness	• Trauma vs. Medical • Angina vs. Myocardial infarction • Pericarditis • Pulmonary embolism • Asthma / COPD • Pneumothorax • Aortic dissection or aneurysm • GE reflux or Hiatal hernia • Esophageal spasam • Chest wall injury or pain • Pleural pain • Overdose (Cocaine)

Universal Patient Care Protocol

E | Aspirin 162-184 mg PO | E

P | 12 Lead ECG q 10 minutes | P

P | Cardiac Alert / STEMI Alert? | P

P | Inferior Infarct? Perform V4R | P

Yes → P | Consider Fluid Bolus 500cc for Hypotension systolic < 90 | P

No

P | Nitroglycerin 0.4 mg SL q 3 min
If BP > 110 Nitro paste 15mg to L side chest wall | P

Continued Pain?

STEMI

P | Morphine 2.5 - 5 mg, slow IV up to 10 mg
or
Fentanyl 1mcg/kg IV-IO slowly, may give second dose after 5 min. | P

ACS (Cardiac Alert)

P | Nitrates
Consider Versed 1-2mg IV/IM for Anxiety | P

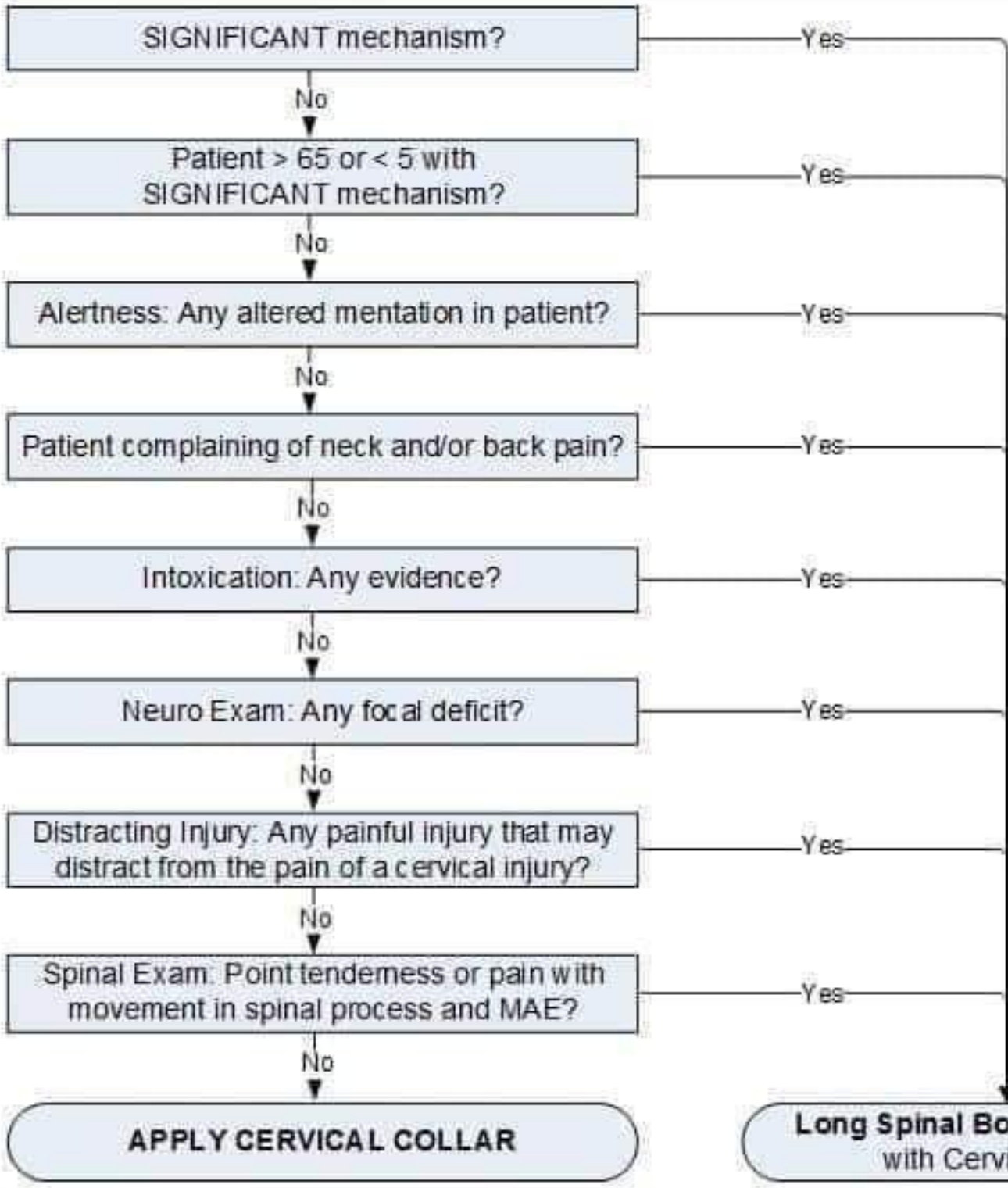
Hypotension / Dysrhythmias
Treat per protocol

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **Fentanyl 100mcg increments every 3-5 minutes to a maximum of 200mcg IN, IM. Second dose of Fentanyl if needed, not to exceed a maximum total dose of 200mcg IV, IN, IO, IM. Continuous monitoring of patient is mandatory.**
- **For cocaine or methamphetamine induced chest pain consider Versed if pain not relieved by Morphine**
- **Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 48 hours due to potential severe hypotension.**
- If you can't give SL Nitro immediately go to Nitro Paste as replacement
- 1 inch of Nitro paste can be administered after first dose of spray Nitro if BP is above 110 systolic.
- If positive ECG changes, establish a second IV while en route to the hospital.
- Monitor for hypotension after administration of nitroglycerin and morphine.
- All patients with suspected ACS should be transported to a cath facility. Pt with out ST elevation can be transported to a secondary facility only when encouragement fails to the primary facility.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Document 12-lead and transmission status using "12-lead EKG" procedure in the call reporting system

Spinal Immobilization Criteria



Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- **Consider immobilization in any patient with arthritis, cancer, or other underlying disease.**
- Significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes and may indicate the need for spinal immobilization in the absence of symptoms.
- Range of motion should NOT be assessed if patient has midline spinal tenderness. Patient's range of motion should not be assisted. The patient should touch their chin to their chest, extend their neck (look up), and turn their head from side to side (shoulder to shoulder) without spinal process pain.
- 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 in extremes of age.
- "**A**" = Alertness. Is patient oriented to person, place, time, and situation? Any change to alertness with this incident?
- "**I**" = Intoxication. Is there any indication that the person is intoxicated (impaired decision making ability)?
- "**D**" = Distracting injury. Is there any other injury which is capable of producing significant pain in this patient?
- "**S**" = Spinal exam. Look for point tenderness in any spinal process or spinal process tenderness with range of motion.
- **The decision to NOT implement spinal immobilization in a patient is the responsibility of the paramedic.**
- **In very old and very young patients, a normal exam may not be sufficient to rule out spinal injury.**

Pediatric Supraventricular Tachycardia

History:	Signs and Symptoms	Differential:
• Past medical history • Medications or Toxic Ingestion (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin) • Drugs (nicotine, cocaine) • Congenital Heart Disease • Respiratory Distress • Syncope or Near Syncope	• **Heart Rate: Child > 180/bpm** **Infant > 220/bpm** • Pale or Cyanosis • Diaphoresis • Tachypnea • Vomiting • Hypotension • Altered Level of Consciousness • Pulmonary Congestion • Syncope	• Hypovolemia • Hypoxia • Hydrogen Ion (acidosis) • Hypo- /Hyperkalemia • Hypoglycemia • Hypothermia • Toxins • Tamponade • Tension Pneumo • Thrombosis • Trauma • Death

Universal Patient Care Protocol

E | Continuous Cardiac Monitor
Attempt to Identify Cause | E

Stable

E | Vagal maneuvers:
Ice Pack to Face or
Valsalva | E

P | 12 Lead | P

P | Adenosine
0.1 mg/kg IV,
0.2 mg/kg IV
flush each w/5 cc NS | P

If rhythm changes
Go to Appropriate Protocol

Unstable
(No palpable BP,
Altered mental status)

P | Cardioversion
(0.5 joules/kg)
Consider Versed 0.05mg/kg – 0.3 mg/kg IV
for sedation up to 2 mg Max | P

P | Repeat cardioversion
(1.0 - 2.0 joules/kg) | P

P | Amiodorone
5mg/kg over 20 min | P

Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

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 paddles should be used in children < 10 kg or Broselow-Luten color Purple
- Continuous pulse oximetry is required for all SVT patient s if available.
- Document all rhythm changes with monitor strips and obtain monitor strips with eac h therapeutic intervention.
- **As a rule of thumb, the maximum sinus tachycardia rate is: 220 - patient age in years.**
- A one time dose of Adenosine can be considered prior to sedation for Cardioversion

Ventricular Tachycardia / Wide Complex with Pulse

History:	Signs and Symptoms	Differential:
• Past medical history /	• Ventricular tachycardia on ECG	• **Artifact / Device failure**
• medications, diet, drugs	• (Runs or sustained)	• **Cardiac**
• Syncope / near syncope	• Conscious, rapid pulse	• **Endocrine / Metabolic**
• Palpitations	• Chest pain, shortness of breath	• **Hyperkalemia**
• Pacemaker	• Dizziness	• **Drugs**
• Allergies: lidocaine / novacaine	• Rate usually 150 - 180 bpm for	• **Pulmonary**
	• sustained V-Tach	
	• **QRS > .12 Sec**	

Universal Patient Care Protocol

Palpable pulse? Signs of life?

No → **Ventricular Fibrillation Protocol**

Yes

Stable, Wide-Complex, Monomorphic

P 12-Lead ECG P

P Adenosine 6mg P

P Amiodarone 150mg in 50-100mls of NACL IVD over 10 minutes P

P Repeat Amiodarone 150mg in 50-100mls of NACL IVD over 10 minutes P

P **After conversion 12-Lead ECG** P

Unstable

P For sedation consider **Etomidate 0.3 mg/kg max 30 mg** or Versed 2-4mg IV/IO P

P Amiodarone 150 mg IV/IO IVP P

Response

P Synchronized Cardioversion 100J. P

Response

P Amiodarone 150mg in 50-100mls of NACL IVD over 10 minutes P

Response

P Synchronized Cardioversion 200J. P

Response

P Synchronized Cardioversion 200J. If no response then 200J repeat prn P

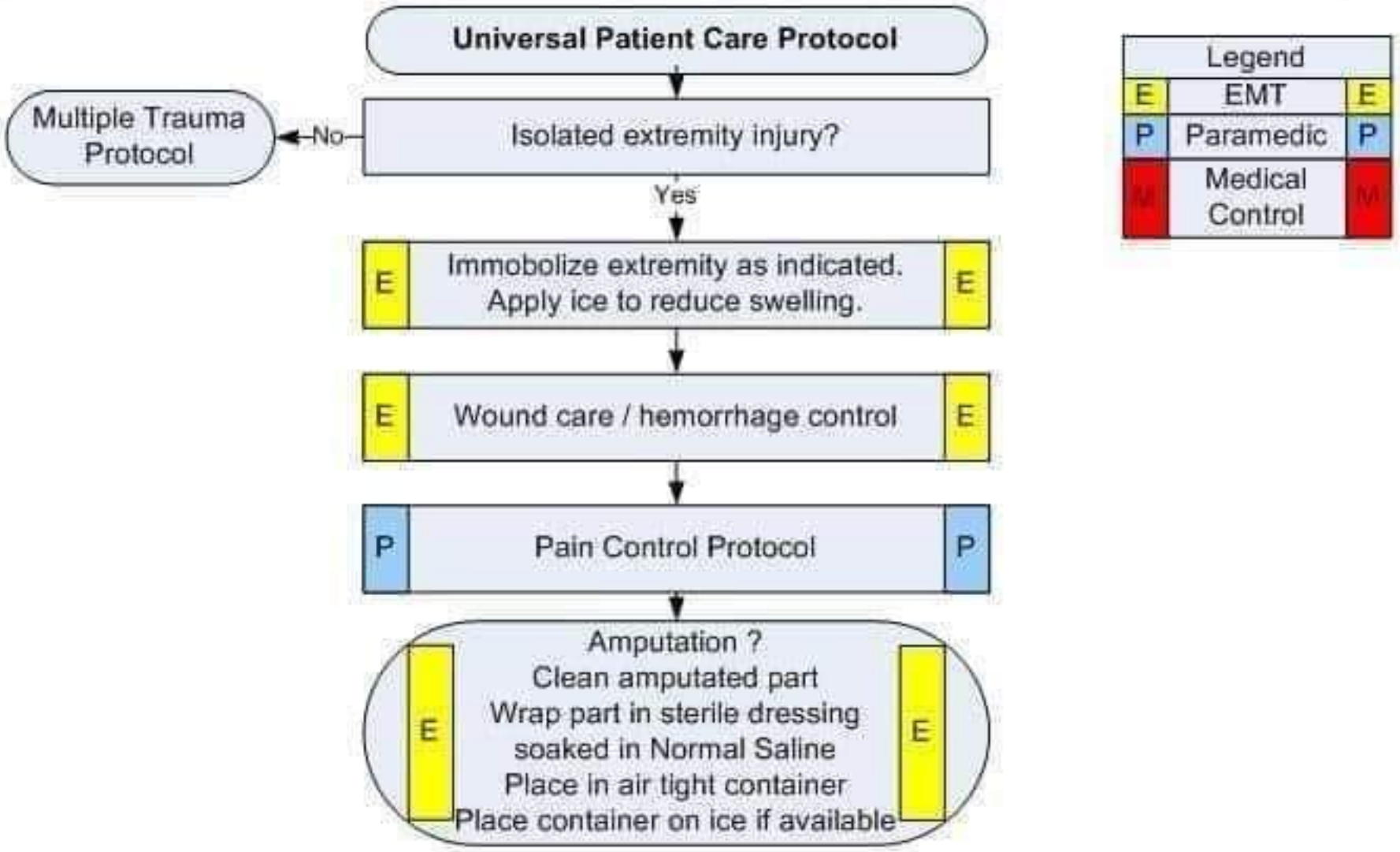
Legend		
E	EMT	E
P	Paramedic	P
M	Medical Control	M

Pearls:

- For witnessed / monitored ventricular tachycardia, try having patient cough and bear down.
- Polymorphic V-Tach (Torsades de Pointes) may benefit from the administration of magnesium sulfate 2g/50-100mls over 5-10min.
- Consider Calcium 4mg/kg and/or Sodium Bicarb 1meq/kg if hyperkalemia is suspected (renal failure, dialysis).
- All medication that can be given IV/IVP can also be given intraosseous

Extremity Trauma

History:	Signs and Symptoms	Differential:
• Type of injury • Mechanism: crush / penetrating / amputation • Time of injury • Open vs. closed wound / fracture • Wound contamination • Medical history • Medications	• Pain, swelling • Deformity • Altered sensation / motor function • Diminished pulse / capillary refill • Decreased extremity temperature	• **Abrasion** • **Contusion** • **Laceration** • **Sprain** • **Dislocation** • **Fracture** • **Amputation**

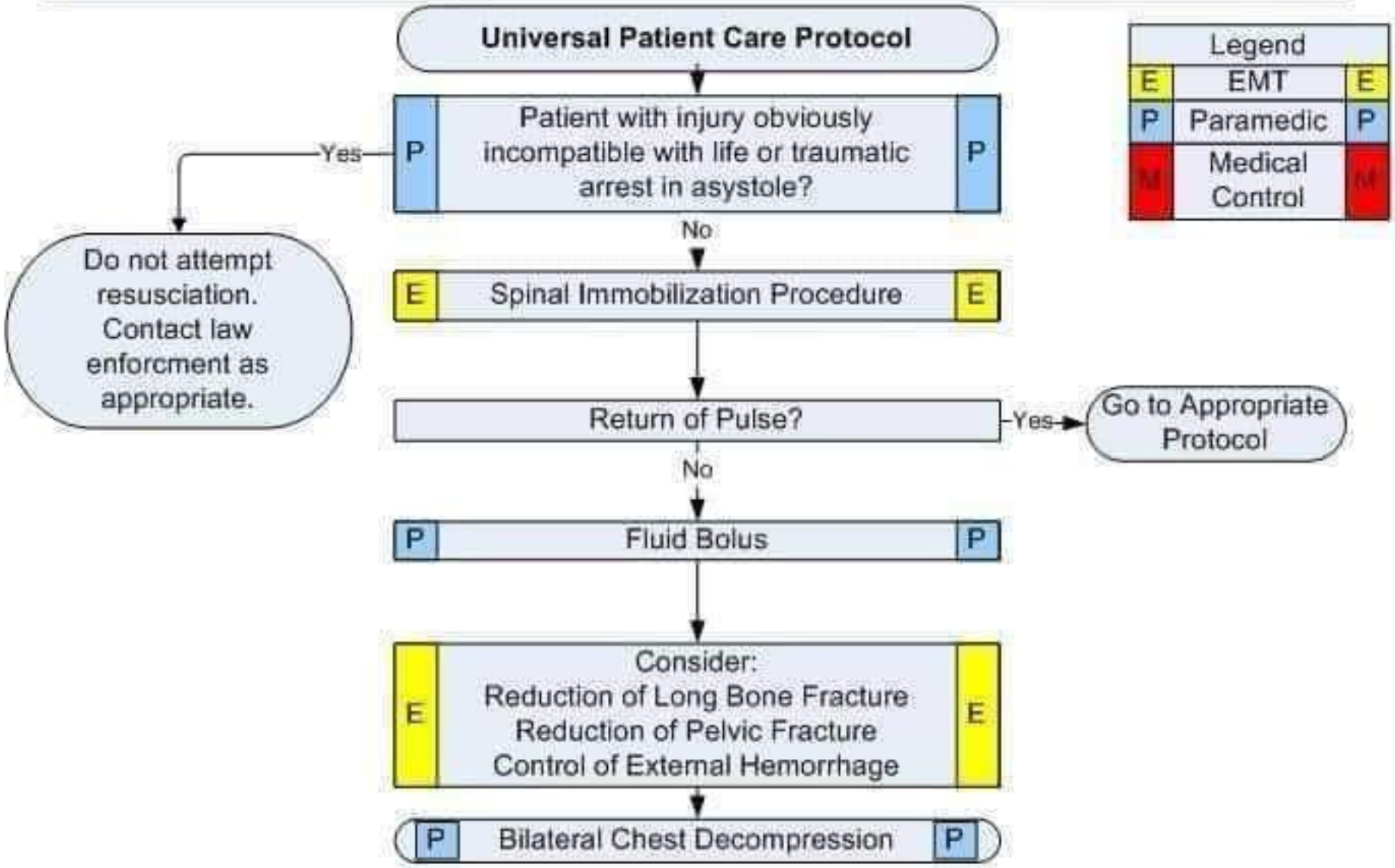


Pearls:

- In amputations, time is critical. Transport to Trauma Center.
- Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Severe bleeding not rapidly controlled may necessitate application of a tourniquet.
- Lacerations must be evaluated for repair within 6 hours from the time of injury.

Trauma Arrest

History:	Signs and Symptoms	Differential:
• Patient who has suffered traumatic injury and is now pulseless	• Evidence of penetrating trauma • Evidence of blunt trauma	• Medical condition preceding traumatic event as cause of arrest. • Tension Pneumothorax • Hypovolemic Shock • External hemorrhage • Unstable pelvic fracture • Displaced long bone fracture(s) • Hemothorax • Intra-abdominal hemorrhage • Retroperitoneal hemorrhage

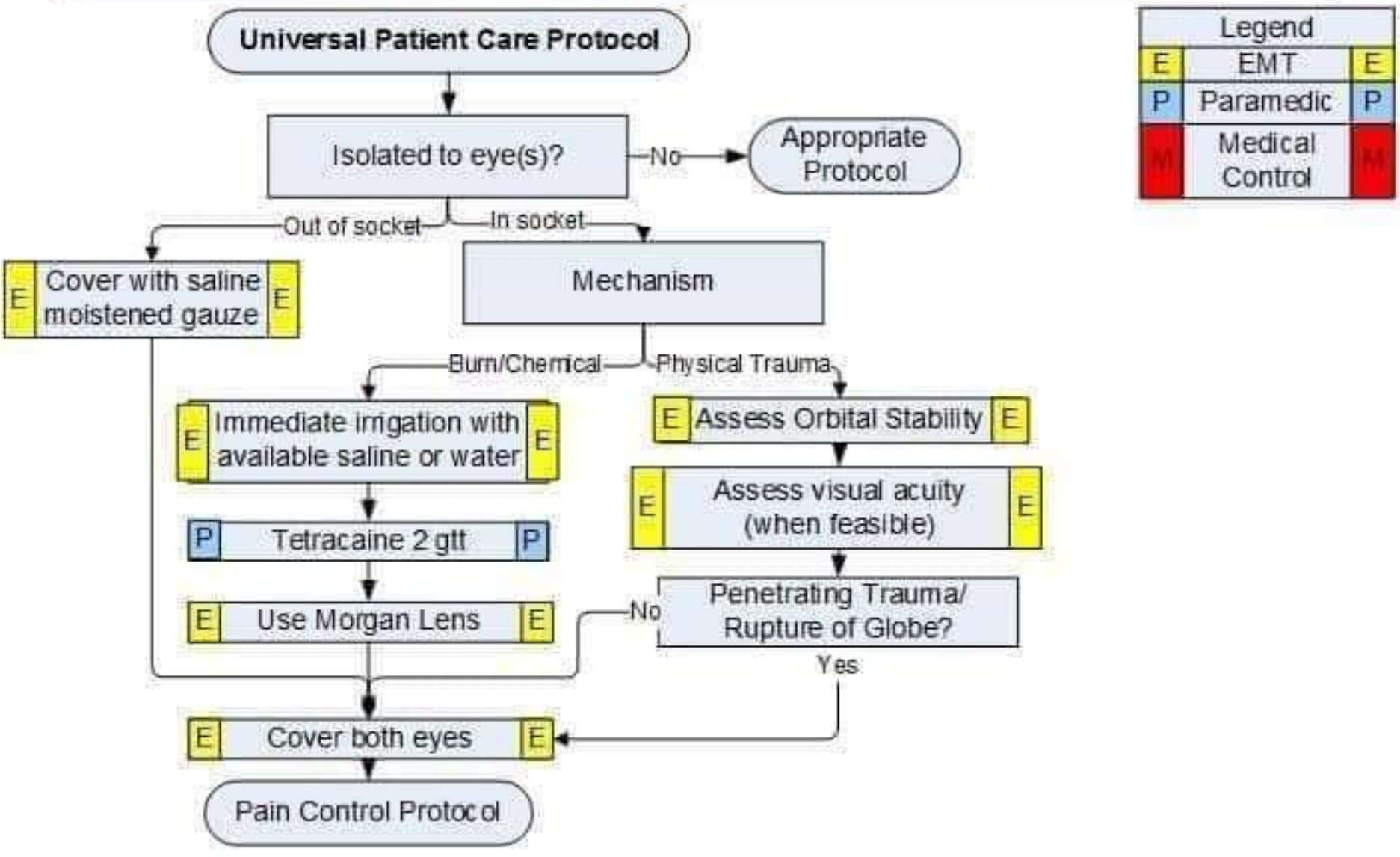


Pearls:

- Injuries obviously incompatible with life include decapitation, massively deforming head or chest injuries, or other features of a particular patient encounter that would make resuscitation futile. If in doubt, place patient on the monitor.
- Consider using medical cardiac arrest protocols if uncertainty exists regarding medical or traumatic cause of arrest.

Eye Injury

History:	Signs and Symptoms	Differential:
• Time of injury/onset • Blunt/penetrating/chemical • Open vs. closed injury • Involved chemicals/MSDS • Wound Contamination • Medical History • Tetanus status • Normal visual acuity • Medications	• Pain, swelling, blood • Deformity, contusion • Visual deficit • Leaking aqueous/vitreou s humor • Upwardly fixed eye • "Shooting" or "streaking" light • Visible contaminants • Lacrimation	• Abrasion/Laceration • Globe rupture • Retinal nerve damage/detachment • Chemical/thermal burn/agent of terror • Orbital fracture • Orbital compartment symdrome

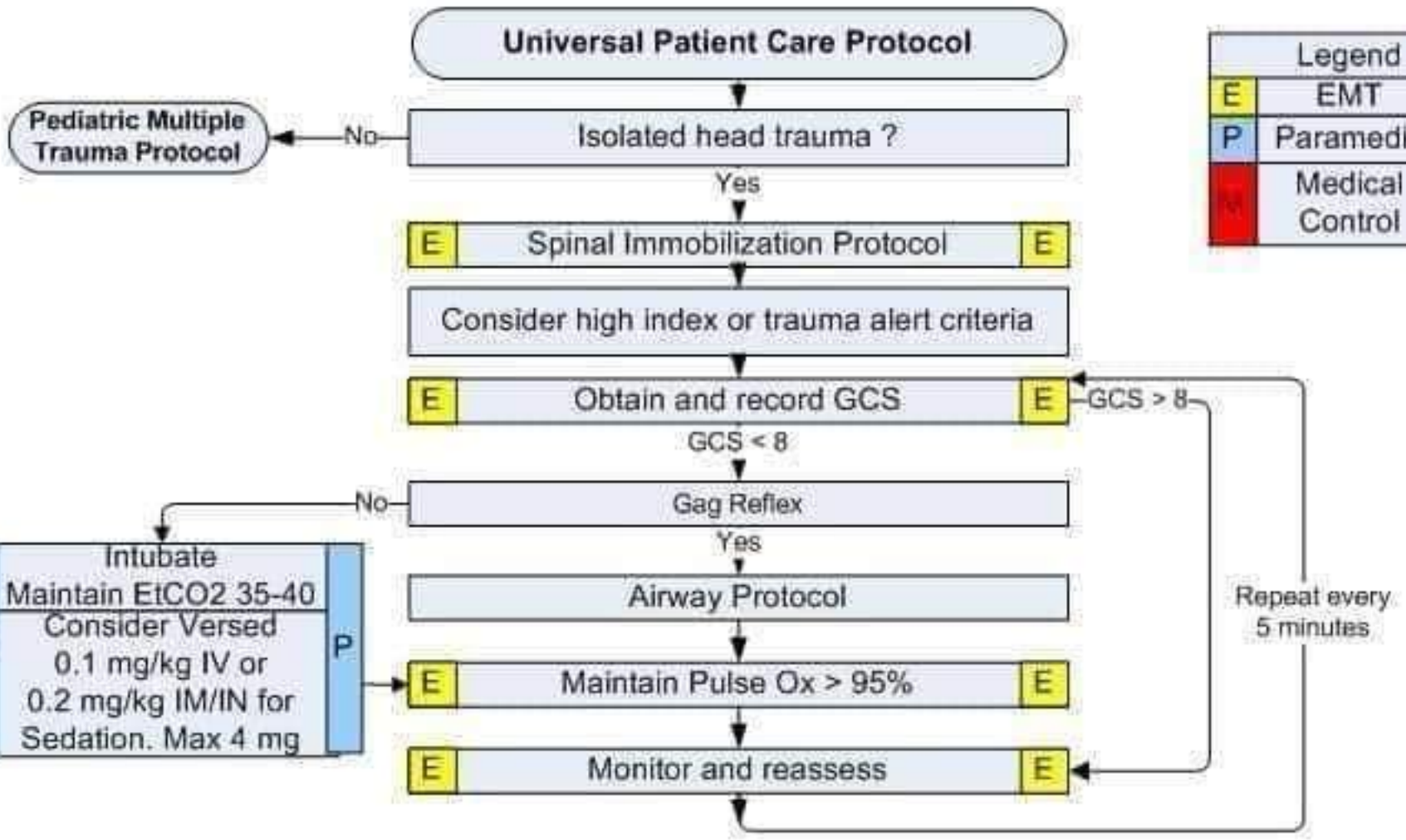


Pearls:

- **Normal visual acuity can be present even with severe eye injury**
- **Remove contact lens whenever possible.**
- **Any chemical or thermal burn to the face/eyes should raise suspicion of respiratory insult**
- **Orbital fractures raise concern of globe or nerve injury and need repeated assessments o f visual status**
- **Always cover both eyes to prevent further injury.**
- **Do not remove impaled objects**
- If nontraumatic eye complaint cover both eyes and transport

Pediatric Head Trauma

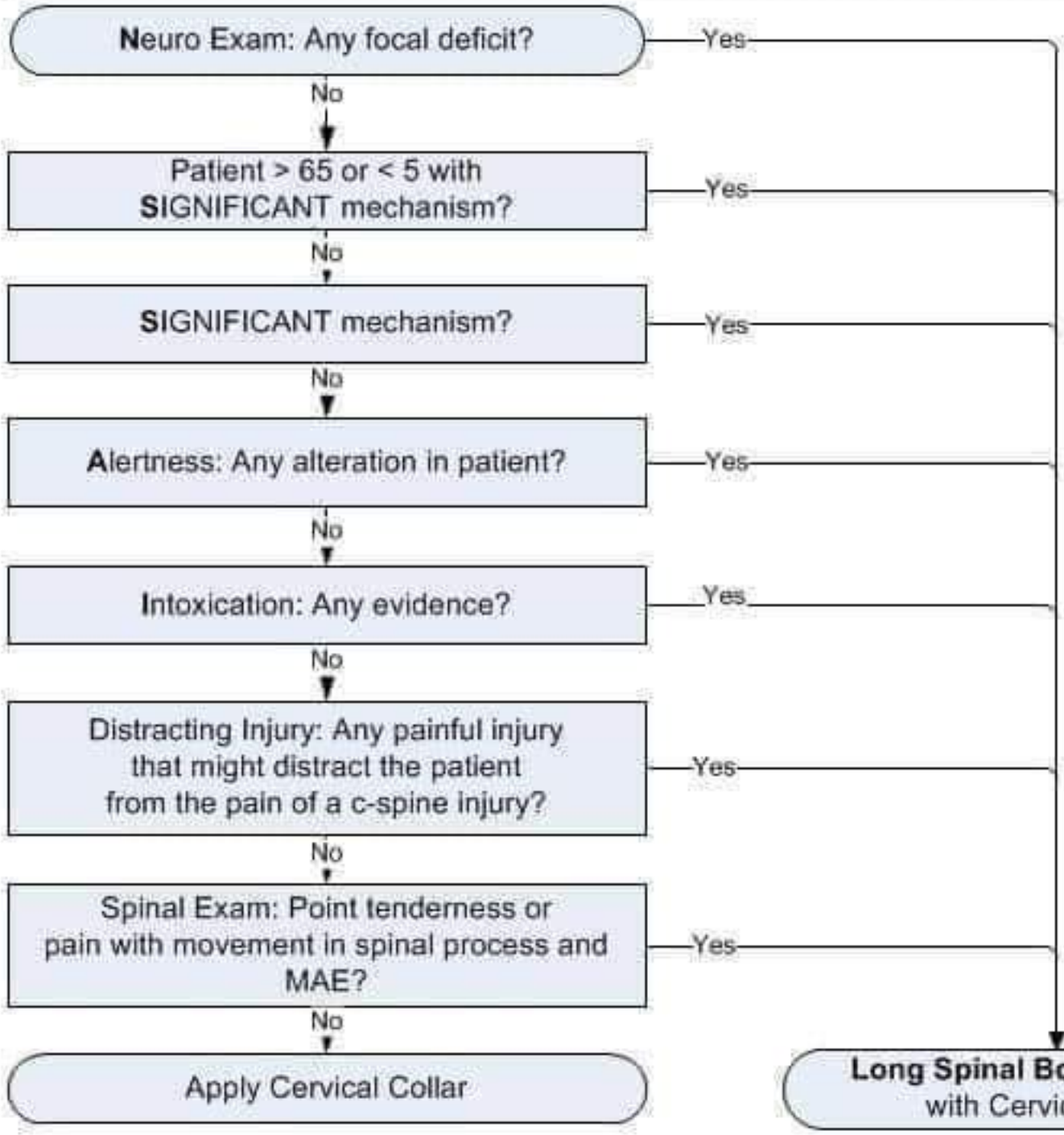
History:	Signs and Symptoms	Differential:
• Time of injury • Mechanism (blunt vs. penetrating) • Loss of consciousness • Bleeding • Past medical history • Medications • Evidence for multi -trauma	• Pain, swelling, bleeding • Altered mental status • Unconscious • Respiratory distress / failure • Vomiting • Major traumatic mecha nism of injury • Seizure	• **Skull fracture** • **Brain injury (Concussion,** • **Contusion, Hemorrhage or Laceration)** • **Epidural hematoma** • **Subdural hematoma** • **Subarachnoid hemorrhage** • **Spinal injury** • **Abuse**



Pearls:

- Maximum D25 dose = 25 cc, Narcan = 2mg, Glucagon = 1mg
- If GCS < 12 consider air / rapid transport and if GCS < 8 intubation should be anticipated.
- If hyperventilation is needed (35/minute for infants <1 year and 25/ minute for children >1 year)
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- The most important item to monitor and document is a change in the level of consciousness.

Spinal Immobilization Criteria



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- "**D**" = Distracting injury. Is there any other injury which is capable of producing significant pain in this patient?
- "**S**" = Spinal exam. Look for point tenderness in any spinal process or spinal process tenderne s s with range of motion.
- **The decision to NOT implement spinal immobilization in a patient is the responsibility of the paramedic.**
- **In very old and very young patients, a normal exam may not be sufficient to rule out spinal injury.**
- If patient does not tolerate cervical collar have them sign a refusal form and document why cervical collar was not applied to patient