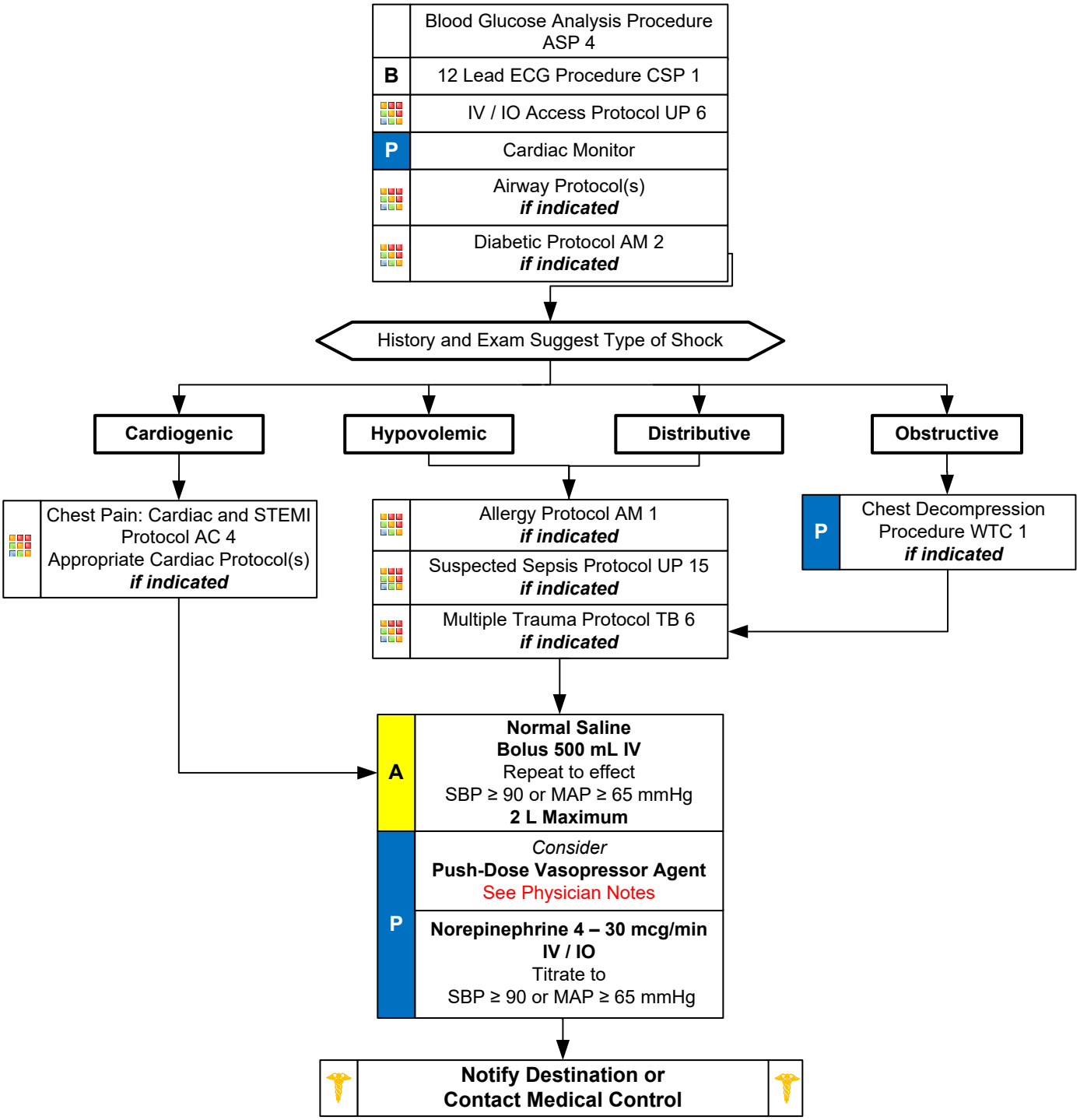
Hypotension / Shock

History
- 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

Signs and Symptoms
- Restlessness, confusion
- Weakness, dizziness
- Weak, rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

Differential
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolus
- Tension pneumothorax
- Medication effect / overdose
- Vasovagal
- Physiologic (pregnancy)
- Sepsis



Adult Medical Protocol Section

Hypotension / Shock

Norepinephrine (Levophed) Drip Rates

For the following chart, add **4mg** norepinephrine to **250mL** NS or D5W. Use **60 gtts/mL** IV Set

Desired Dose (mcg/min)	4 mcg/min	8 mcg/min	12 mcg/min	16 mcg/min	20 mcg/mi	24 mcg/min	28 mcg/min	30 mcg/min
Drip Rate (drops/min)	15 gtts/min	30 gtts/min	45 gtts/min	60 gtts/min	75 gtts/min	90 gtts/min	105 gtts/min	113 gtts/min

Norepinephrine Infusion Preparation

1) **Draw 4mL off and discard from a 250 mL bag** of NS or D5W
2) **Add 4mg** (1mg/mL) **norepinephrine** (Levophed) resulting in 250mL of a 16 microgram/milliliter solution of norepinephrine.
3) Connect and prime a **60 gtts/mL IV set** for medication administration.
4) Using high contrast sticker, label IV bag with medication name, amount added, date/time added, resulting concentration and provider initials

Pearls

* **Recommended Exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
* **Hypotension can be defined as a systolic blood pressure of less than 90. This is not always reliable and should be interpreted in context and patients typical BP if known.**
* **Shock may be present with a normal blood pressure initially or even elevated blood pressure.**
* **Shock is often present with normal vital signs and may develop insidiously. Tachycardia may be the first and only sign.**
* **Consider all possible causes of shock and treat per appropriate protocol.**
* **Hypovolemic Shock;**
  Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm or pregnancy-related bleeding.
  Tranexamic Acid (TXA):.
  TXA is NOT indicated and should NOT be administered where trauma occurred > 3 hours prior to EMS arrival.
* **Cardiogenic Shock:**
  Heart failure: MI, Cardiomyopathy, Myocardial contusion, Ruptured ventrical / septum / valve / toxins
* **Distributive Shock:**
  Sepsis, Anaphylactic, Neurogenic & Toxins:
  Hallmark is warm, dry, pink skin with normal capillary refill time and typically alert.
* **Obstructive Shock:**
  Pericardial tamponade. Pulmonary embolus. Tension pneumothorax.
  Signs may include hypotension with distended neck veins, tachycardia, unilateral decreased breath sounds or muffled heart sounds.
* **Acute Adrenal Insufficiency or Congenital Adrenal Hyperplasia:**
  Body cannot produce enough steroids (glucocorticoids/ mineralocorticoids.)
  May have primary or secondary adrenal disease, congenital adrenal hyperplasia, or more commonly have stopped a steroid like prednisone. Injury or illness may precipitate.
  Usually hypotensive with nausea, vomiting, dehydration and/ or abdominal pain.
  If suspected, Paramedic should give Methylprednisolone 125 mg IM / IV / IO or Dexamethasone 10 mg IM / IV / IO. Use steroid agent specific to your drug list.
  May administer prescribed steroid carried by patient IM / IV / IO. Patient may have Hydrocortisone (Cortef or Solu-Cortef). Dose: < 1y.o. give 25 mg, 1-12 y.o. give 50 mg, and > 12 y.o. give 100 mg or dose specified by patient's physician.