

- b. Cardiac problems
 - c. Stroke
 - d. Fever
 - e. Nausea/vomiting, diarrhea
 - f. Frequent or no urination
 - g. Syncopal episode
 - h. Allergic reaction
 - i. Immunocompromise (malignancy, transplant, asplenia)
 - j. Adrenal insufficiency
 - k. Presence of a central line or port
 - l. Other risk of infection (spina bifida or other genitourinary anatomic abnormality)
 - m. Overdose
2. Exam
 - a. Airway/breathing (airway edema, rales, wheezing, pulse oximetry, respiratory rate)
 - b. Circulation (heart rate, blood pressure, capillary refill)
 - c. Abdomen (hepatomegaly)
 - d. Mucous membrane hydration
 - e. Skin (turgor, rash)
 - f. Neurologic (GCS, sensorimotor deficits)
 3. Determination of type of shock
 - a. Cardiogenic
 - b. Distributive (neurogenic, septic, anaphylactic)
 - c. Hypovolemic
 - d. Obstructive (e.g., pulmonary embolism, cardiac tamponade, tension pneumothorax)

Treatment and Interventions

1. Check vital signs
2. Administer oxygen as appropriate with a target of achieving 94–98% saturation
3. Cardiac monitor
4. Pulse oximetry and EtCO₂ (reading of less than 25 mmHg may be sign of poor perfusion)
5. Check blood sugar, and correct if less than 60 mg/dL
6. EKG
7. Check lactate, if available (greater than 2 mmol/L is abnormal)
8. Establish IV access. If unable to obtain within two attempts or less than 90 seconds, place an IO needle
9. IV fluid volume goal attained by giving boluses that are pressure infused over less than 15 minutes each based on patient's condition and clinical impression. Fluid volume goal to achieve a mean arterial pressure (adults) or other targets (pediatrics). Mean Arterial Pressure is calculated: (MAP = [(2X diastolic) + (systolic)]/3)
 - a. Adult
 - i. Physiologic target: MAP goal 65 mmHg
 - ii. Fluid goal of up to 30 mL/kg of isotonic fluid by administering rapid, predetermined boluses (e.g., 500 mL) unless the MAP goal is achieved, or pulmonary edema develops.
 - iii. If available, the administration of packed red blood cells or whole blood may be indicated for hemorrhagic shock
 - b. Pediatric