



FOUNDATIONS  
of Emergency Medicine

# Foundations Frameworks

## Approach to Undifferentiated Shock

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### What is shock?

- Tissue and cellular ischemia due to insufficient perfusion, with subsequent multisystem dysfunction
- Management includes identifying the type of shock, providing appropriate support, and treating the underlying cause

### What are common causes of shock?

- Pump: problems with the heart
  - Acute myocardial infarction, arrhythmia, CHF
  - Acute valvular insufficiency
  - Mechanical obstruction: massive pulmonary embolism
- Pipes: problems with the blood vessels
  - Distributive shock: anaphylaxis, sepsis, neurogenic
  - Endocrine: adrenal crisis, myxedema coma
  - Vascular catastrophe: ruptured aortic aneurysm, aortic dissection, vascular trauma
- Tank: problems with volume/preload
  - Hemorrhage, hypovolemia
  - Tension pneumothorax, tamponade (both cause impaired venous return to the heart)
  - Abdominal compartment syndrome

### What are some hallmarks of shock?

- Tachypnea, tachycardia, hypotension, oliguria, altered mental status, EKG changes, AKI

### What workup do I need to perform?

- Obtain vital signs (including rectal temperature), place on the monitor, address ABCs, defibrillator pads as appropriate, establish IV access with 2 large bore IVs or a central line
- VBG with Hgb and lytes, lactate, CBC/chem/Mg, troponin/BNP, coags, type & screen, hCG, UA/UCx
- EKG, portable CXR
- RUSH exam (Rapid Ultrasound for Shock and Hypotension): “HI-MAP”
  - Heart: evaluate for effusion/tamponade, RV failure or strain, LV function
  - IVC: can provide information on volume status
  - Morison’s pouch (FAST exam): evaluate for intra-abdominal free fluid
  - Aorta: evaluate for abdominal aortic aneurysm
  - Pneumothorax

### What treatments do I need to administer?

- Supportive care and directed therapies based on the suspected underlying cause
- General principles
  - Address airway, breathing, circulation
  - Fluid resuscitation (if adequate cardiac contractility), blood transfusion if necessary
  - Keep the patient warm to help prevent coagulopathy

- Early broad-spectrum antibiotics if suspected infectious etiology
- Vasopressors/inotropes as needed, targeted to “pipes” etiologies
- Consider intubation as a means to decrease metabolic demands of breathing, but be careful in “tank” etiologies as increased intrathoracic pressure will decrease preload and worsen the shock state
- Always remember that shock states overlap (e.g., sepsis may be accompanied by cardiomyopathy and a mixed shock state) so reassess the patient early and often

**References:**

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