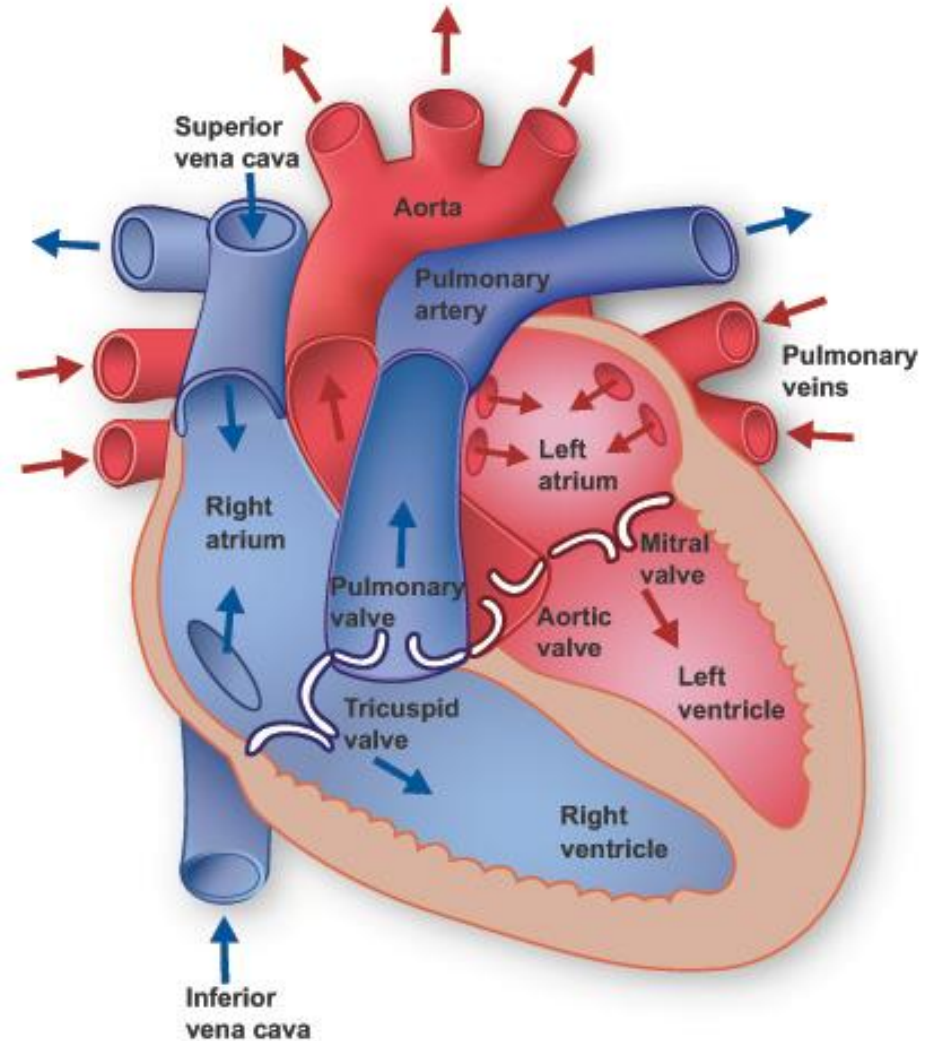


CIRCULATORY EMERGENCIES

Disaster Response Advanced First Aid

Lesson Goals

- Understand shock – causes and treatment
- Recognize and deal with internal bleeding – MOI and management
- Be able to deal with cardiac Issues

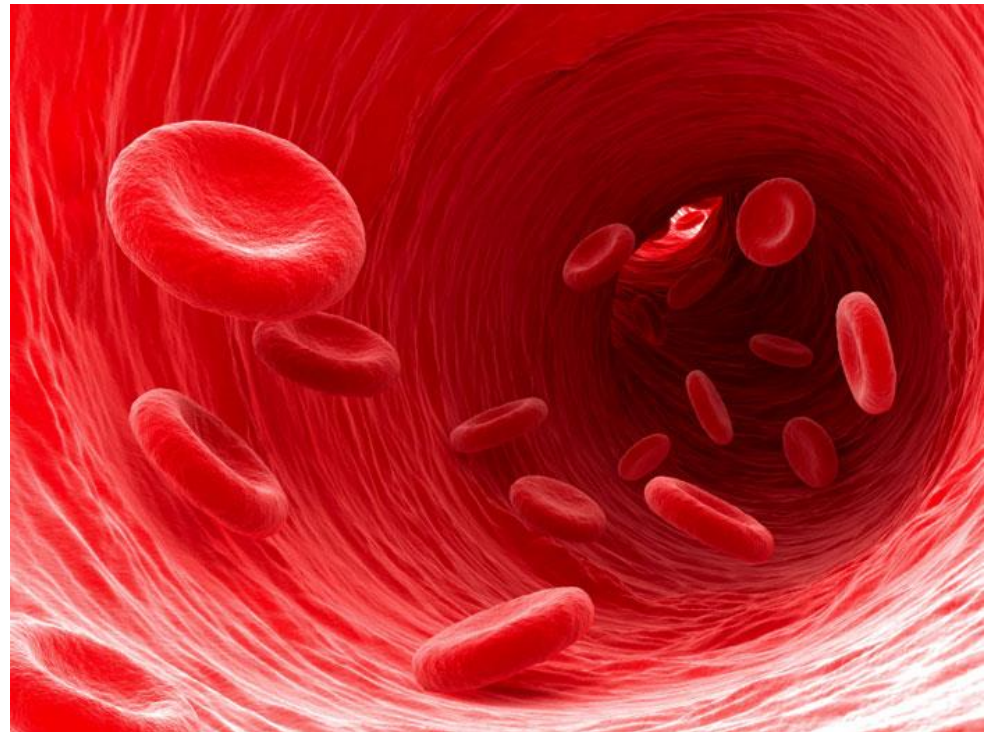


Anatomy and Physiology

Circulatory system components – like plumbing

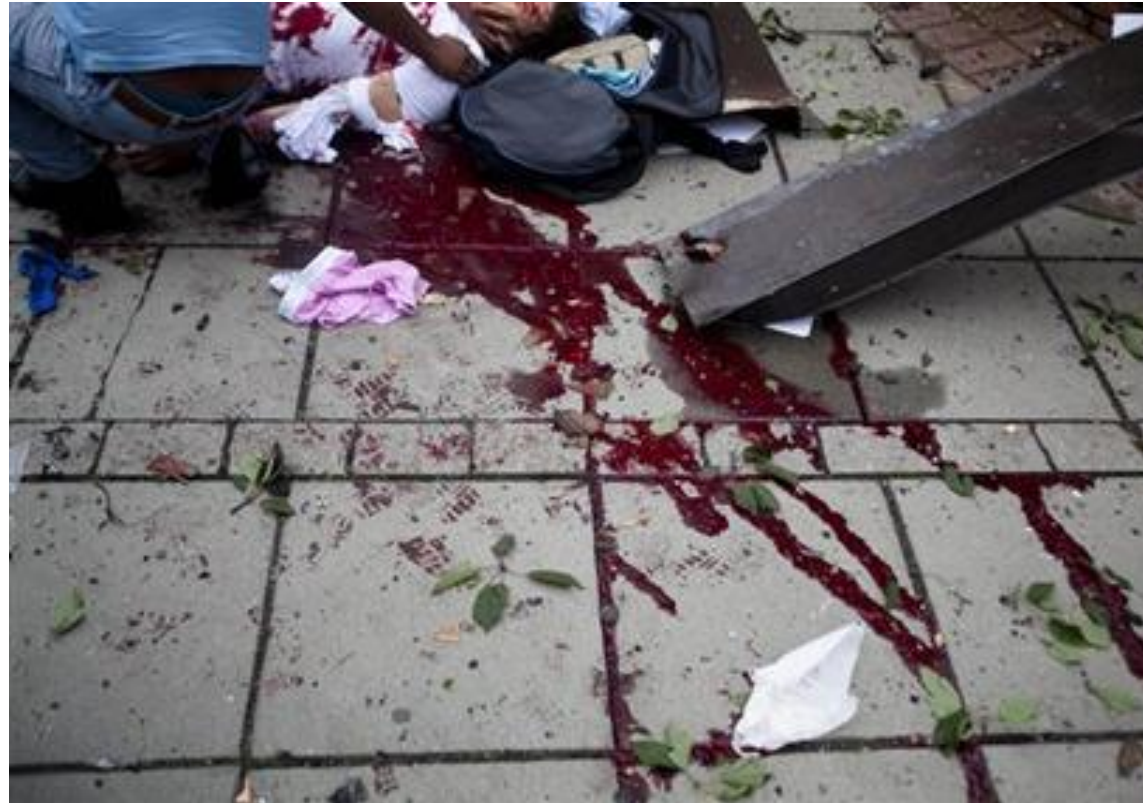
- Heart – The pump
- Blood Vessels – The pipes
- Blood – The liquid

Any one of them can
be disrupted



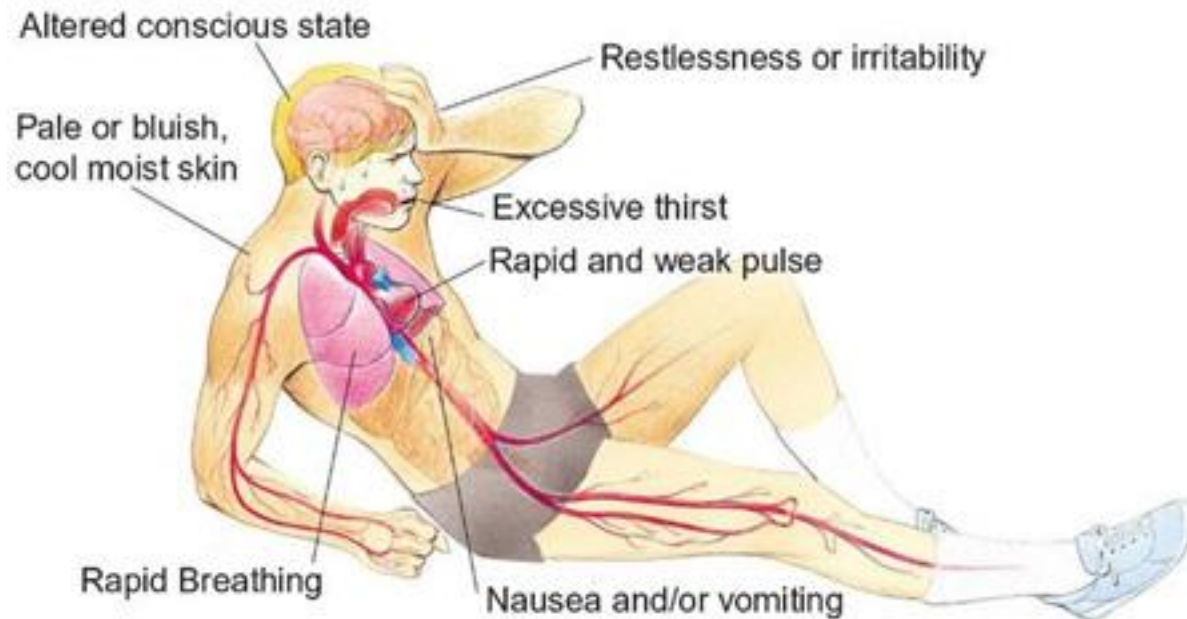
Shock

- Occurs when blood flow is inadequate to perfuse vital organs
- Life threatening condition requiring immediate evac
- In disasters usually caused by blood loss, internally or externally



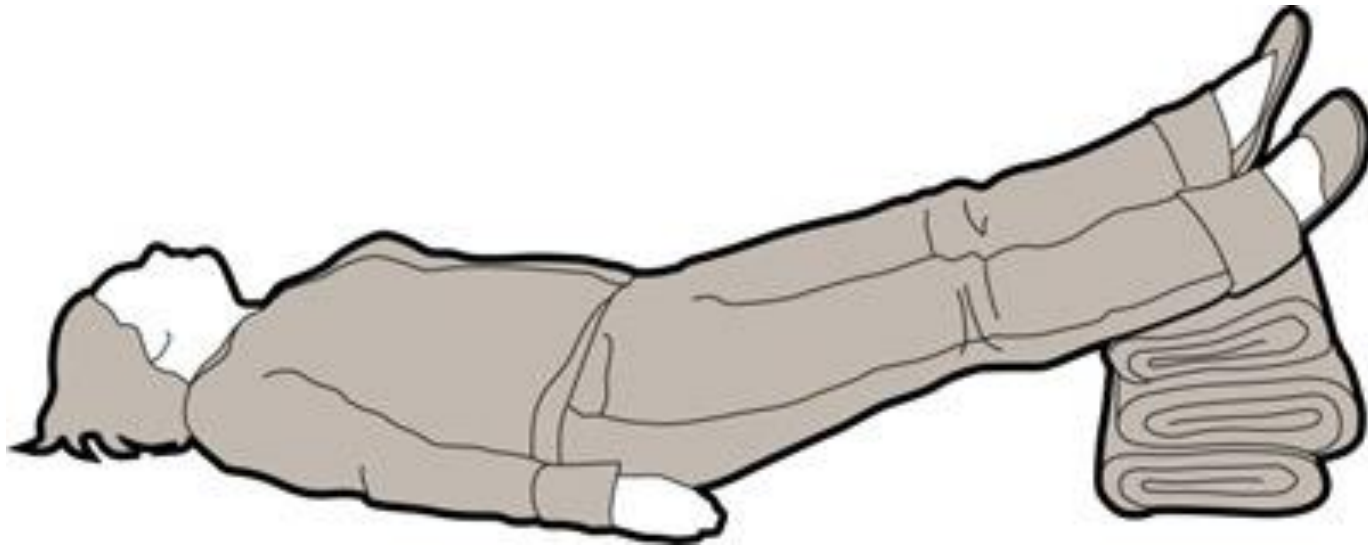
Shock – What to look for

- Restlessness, anxiety, and weakness
- Pale or bluish (cyanotic) skin, nail beds, and lips
- Rapid, weak pulse
- Rapid breathing
- Altered mental status
- Damp, clammy skin



Shock – What to Do

- Control bleeding and treat major injuries
- Check vitals and examine for internal bleeding
- Lay patient on back; elevate legs 6-12 inches
- Keep warm (including insulation from ground)
- **EVACUATE**



Internal Bleeding - Causes

- Disorders such as stomach ulcers
- Miscarriages
- In disasters usually caused by significant trauma
- Trauma that does not break skin
- Fractures of pelvis or thigh
- Sometimes difficult to detect - can be deadly



Internal Bleeding – What to Look For

- If caused by trauma is result of significant MOI
- Painful, ridged abdomen
- Fractured ribs – chest bruising
- Unexplained shock
- Vomiting/coughing up blood
- Black or bloody stools
- Vaginal bleeding/abdominal pain if victim is pregnant



Internal Bleeding

Think **CARPeT**

Internal bleeding from the following parts of the body can lead to shock

- **C**hest
- **A**bdomen
- **R**etroperitoneal (kidneys)
- **P**elvis
- **T**highs

Internal Bleeding – What to Do

- Check vitals repeatedly
- Prepare for vomiting
- Keep warm
- Elevate legs
- Treat for shock
- Emergency evacuation

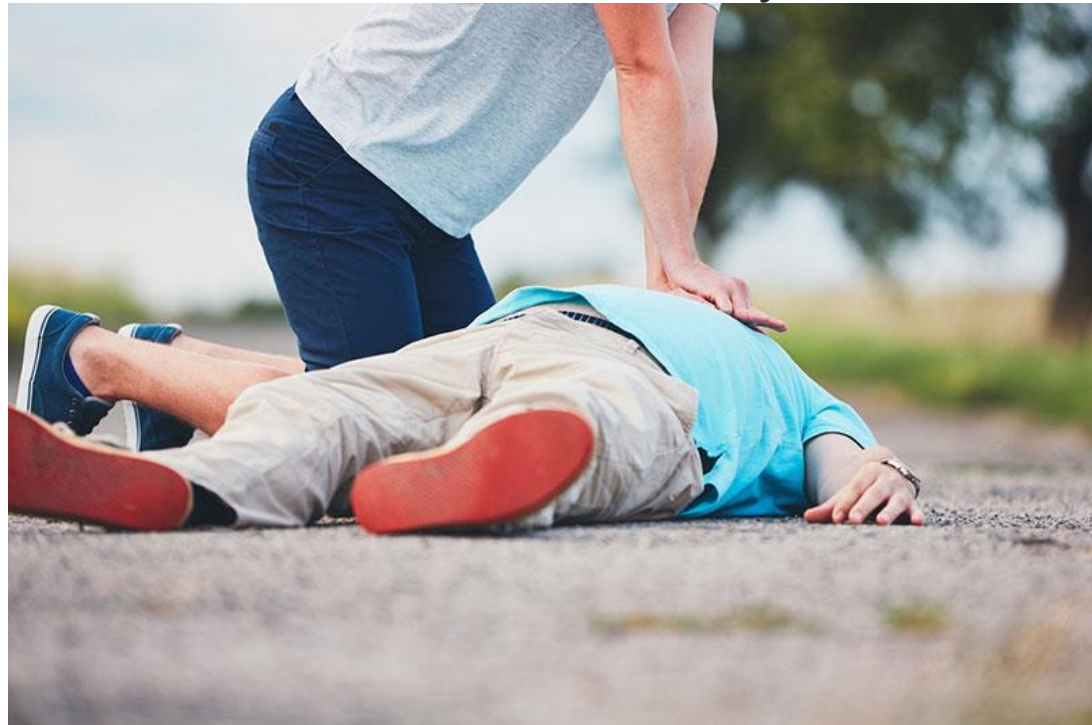


Chest Pain - Causes

- Most causes fairly benign
 - Bruising or mild trauma
 - Muscle strain or overuse
 - GERD or acid reflux
 - Chest or lung infection
- Red Flag – Emergency Evacuation
 - Lung damage (pulmonary embolism, pneumo- or hemo-thorax)
 - Cardiac arrest
 - Heart attack

Cardiac Arrest

- Happens quickly and patient is generally unresponsive, with no pulse nor respirations (or only agonal respirations)
- Immediate treatment is CPR (importance of rescue breaths more important in drowning, suffocation, etc.)
- With primary cardiac arrest CPR usually requires AED and definitive medical care; otherwise outcome very dire
- Emergency evacuation



Chest Pain

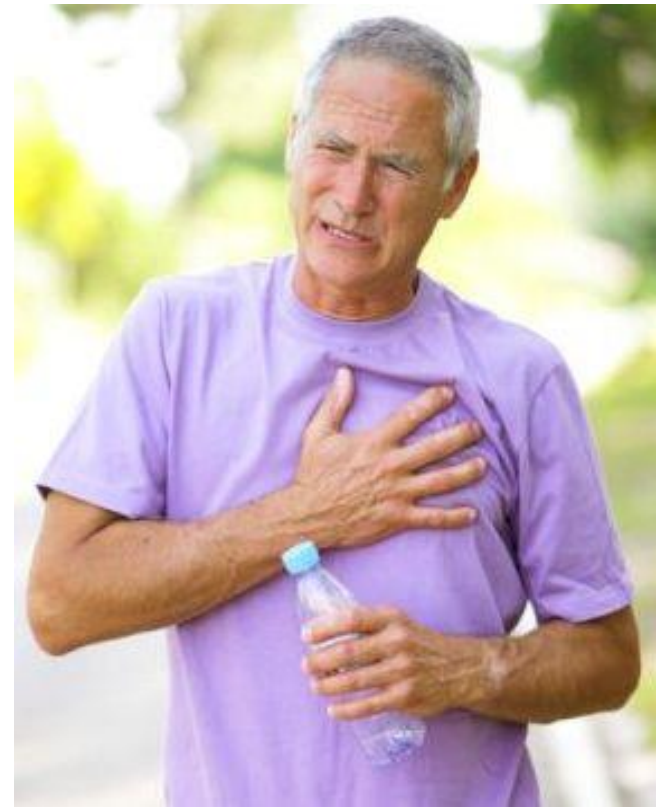
Red Flags Associated with Heart Attack

- Associated with shortness of breath, cold/ clammy skin, weakness, cyanosis
- Gets worse with exertion
- Heavy, crushing, burning, or squeezing pain beneath the breastbone
- Radiating to the neck, jaw, throat, arms, or shoulders
- Women/diabetic/elderly symptoms may be subtle (weakness, nausea, etc.)
- Often occurs in patient with history of heart or lung problems
- Not all patients read the textbook and presentation can be variable.



Chest Pain and Heart Disease

- Often caused by coronary artery disease
- SAMPLE history important!
- Demographics can be significant
 - age
 - gender
 - family history
 - smoking history
 - obesity



Chest Pain Caused by Heart Disease

What to Do

- Treat with 324 mg chewed aspirin
- Pain relieved by rest or nitroglycerin and pain lasting less than 15 minutes is *angina* – if victim has nitroglycerin, assist with administration
- More severe, longer lasting pain not relieved by rest or nitroglycerine can signal heart attack (*myocardial infarction*)
- Keep patient warm, rested if at all possible, and reassured
- Emergency evacuation



Circulatory Issues - Summary

Shock

- Life threatening condition due to inadequate perfusion to major organs
- Different kinds but in disasters most often due to blood loss
- Signs and symptoms: agitation, cyanosis, elevated HR & RR
- Treatment: stop bleeding, keep warm, elevate legs, emergency evacuation

Circulatory Issues – Summary (cont.)

Internal bleeding

- Can cause shock and be life threatening
- Generally caused by major trauma
- Think CARPeT - can occur in Chest, Abdomen, Retroperitoneal, PElvis, Thighs
- Look for and treat for shock

Circulatory Issues – Summary (cont.)

Cardiac arrest

- Major cause of death in US
- Patient generally unresponsive with no pulse or respirations
- In disasters often caused by secondary cardiac arrest due to asphyxiation (drowning, suffocation, etc.)
- Treatment – CPR with rescue breaths and emergency evacuation

Circulatory Issues – Summary (cont.)

Heart Attack

- Patient generally conscious
- History and possibly demographics important
- Symptoms in men:
 - Tightness, heaviness in chest and/or pain, sometimes intense or radiating
 - Pain with exertion
 - Cold, clammy, cyanotic skin
- In women symptoms can be subtle
- Treatment: 324 mg aspirin chewed, keep warm, reassured, rested, emergency evacuation

References & Resources – Circulatory Issues

- AHA Releases Latest Statistics on Sudden Cardiac Arrest. American Heart Association. 2018. <https://www.sca-aware.org/sca-news/aha-releases-latest-statistics-on-sudden-cardiac-arrest>
- CARDIAC ARREST VS. HEART ATTACK. American Heart Association. 2019. https://cpr.heart.org/-/media/cpr-files/resources/ca-vs-ha/cardiac-arrest-vs-heart-attack-2019-ucm_493943.pdf.
- Sepsis and septic shock: New definitions, new diagnostic and therapeutic approaches. Silvano Esposito , Giuseppe De Simone , Giovanni Boccia , Francesco De Caro , Pasquale Pagliano. Journal of Global Antimicrobial Resistance Volume 10, September 2017, Pages 204-212. https://pubmed.ncbi.nlm.nih.gov/28743646/?from_term=septic+shock&from_pos=3.
- Severe Sepsis and Septic Shock. Derek C. Angus and Tom van der Poll. August 29, 2013. N Engl J Med 2013; 369:840-85. https://pubmed.ncbi.nlm.nih.gov/23984731/?from_term=septic+shock&from_pos=1
- What Are Septic Shock and Sepsis? The Facts Behind These Deadly Conditions. H. Prescott.. Michigan Health News. 2016. <https://healthblog.uofmhealth.org/health-topics/what-are-septic-shock-and-sepsis-facts-behind-these-deadly-conditions>