

Hemodynamic Exam, Monitoring and Shock:

Cardiac Output: can be assessed by HR and capillary refill time, mental status changes, and urine output, (falling BP is a late ominous sign)

Preload: can be assessed accurately by **changes in Liver span** or by CXR heart size

Systemic Vascular Resistance (SVR): can be assessed by capillary refill time, pulse pressure, and differential temperatures peripheral to central .

Scenario	Physical				Monitoring		
	WOB	CRT	Liver	Skin	CVP	SVR	CI
<i>Hypovolemic</i>	nl	>2	nl	Cool	↓	↑	↓
<i>Cardiogenic</i>	+++	>2	+++	Cool	↑	↑	↓
<i>Distributive</i>	+ / +++	+ / -	nl	+ / -	↓	↓ ↑	↓ ↑

SHOCK

I. Recognition

-A history that may include trauma, infection, heart murmur, congenital heart disease

-Poor perfusion m/b capillary refill >3 seconds on the extremities and/or >2 seconds on the trunk

-Other signs and symptoms include tachycardia, hypotension (late finding), decreased peripheral pulses, decreased LOC, decreased urinary output, associated with metabolic acidosis, tachypnea, and respiratory failure

II. Types of Shock:

* Hypovolemic shock resulting from blood loss or loss of other body fluids.

* Cardiogenic Shock which may be secondary to congenital heart disease

* Distributive shock

-Septic Shock

-Anaphylaxis Shock

III. Action:

1. Stabilize ABC's- Early mechanical ventilation may be indicated particularly in septic shock
2. Establish IV access
3. Administer rapid volume expansion with NS bolus of 20 cc/kg reassess, if no improvement, repeat bolus as indicated by assessment.
4. Consider vasoactive support if fluid resuscitation fails to reverse shock.
5. Reassessment should include clinical appearance, chest auscultation, capillary refill, HR, BP and when possible chest x-ray.

Hypotension is defined as:

Systolic BP <60 in infants 0 - 1 month

Systolic BP <70 in infants 1 month to 1 year

Systolic BP <70 + 2 times the age in yrs, for children 1 to 10 yo

6. Antibiotics should be administered urgently in suspected sepsis.
7. Correct any Metabolic and Electrolyte disturbances. (Glucose + Calcium)