

Shock for Step One: Background

Howard J. Sachs, MD
www.12DaysinMarch.com

Shock

- Definition: life-threatening, circulatory failure
 - Cardiogenic
 - Distributive (Vasodilatory)
 - Hypovolemic
 - Obstructive
 - Mixed

Shock

- Definition: life-threatening, circulatory failure
 - Cardiogenic
 - Distributive (Vasodilatory)
 - Hypovolemic
 - Obstructive
 - Mixed
- Effects: end organ dysfunction/failure
 - Pulmonary: ARDS
 - Renal: AKI
 - Heme: DIC
 - Consumption/Fibrinolysis/MHA
 - Microvascular thrombosis/Hemorrhage

Acid-Base Δ

Shock

- Definition: life-threatening, circulatory failure
 - Cardiogenic
 - Distributive (Vasodilatory)
 - Hypovolemic
 - Obstructive
 - Mixed
 - Effects: end organ dysfunction/failure
 - Pulmonary: ARDS
 - Renal: AKI
 - Heme: DIC
 - Consumption/Fibrinolysis/MHA
 - Microvascular thrombosis/Hemorrhage
- Acid-Base Δ

Shock 101



Cardiogenic

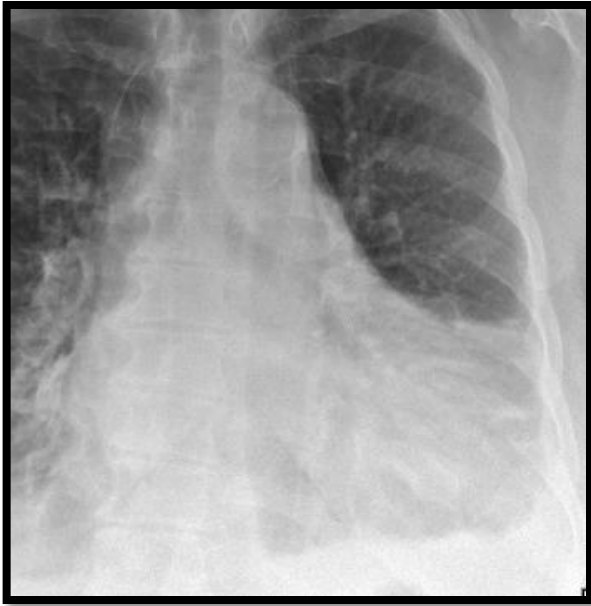


Vasodilatory



Hypovolemic





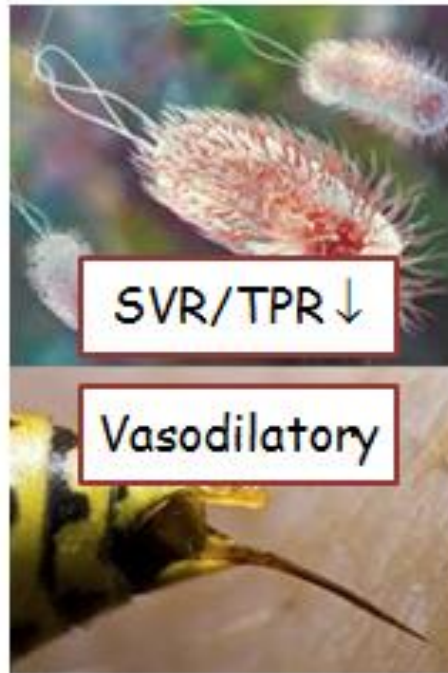
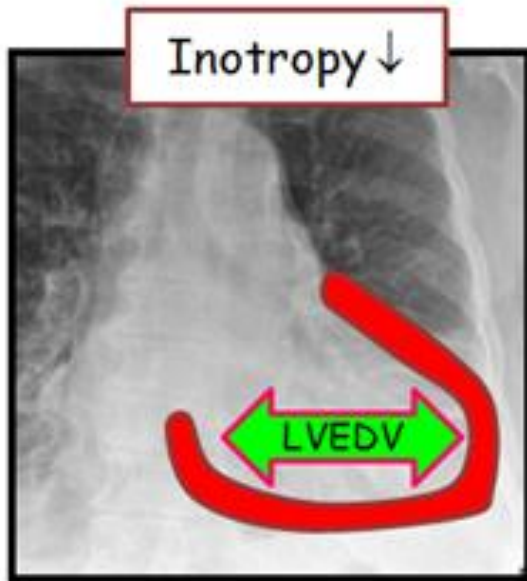
EF%

CO ml/min

VR
(preload)

SVR/TPR

Traditional parameters



EF%

CO ml/min

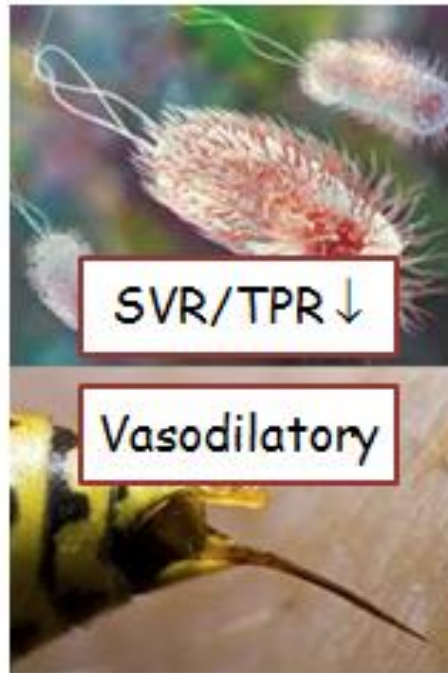
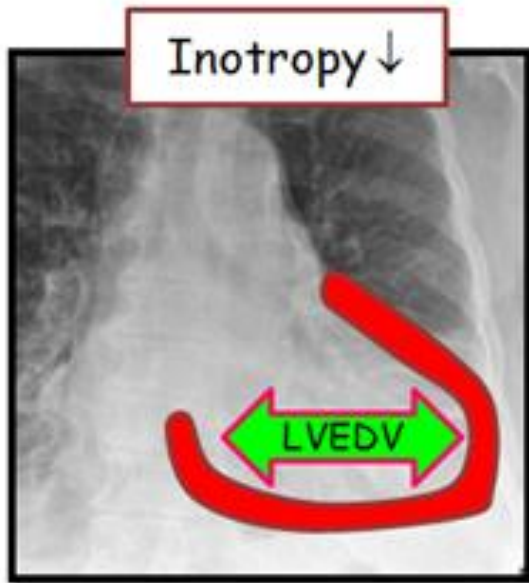
VR
(preload)

SVR/TPR

Consider the labels: Inotropy, SVR, Volume

Think in these terms AND **think big**...

You'll discover the CV parameters are intuitive.

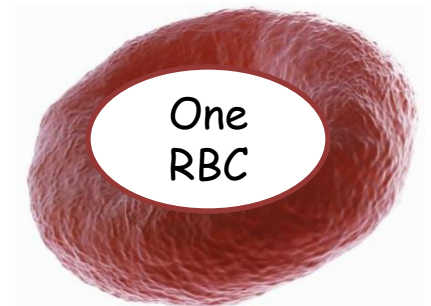


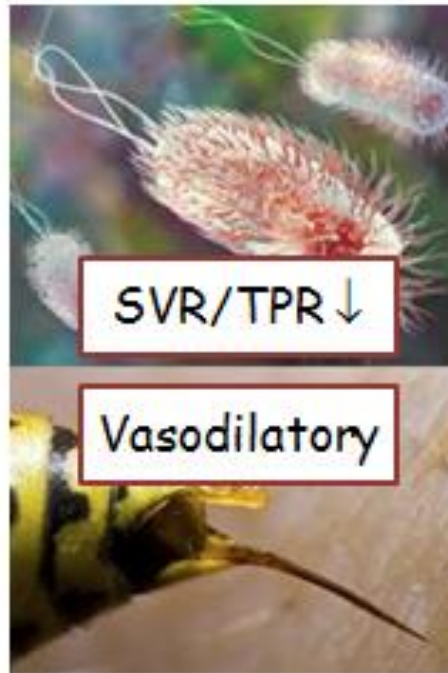
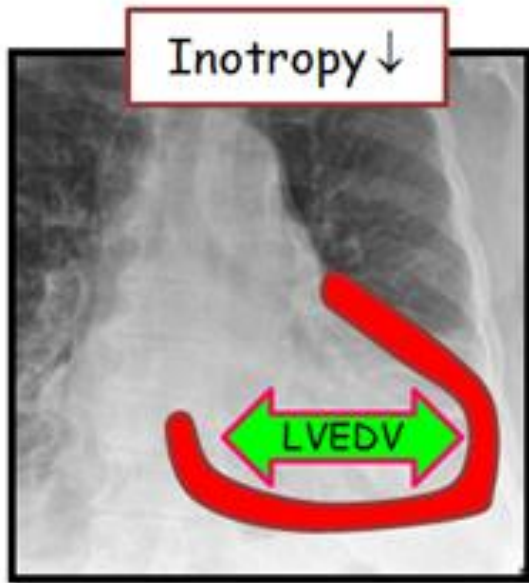
EF%

CO ml/min

VR
(preload)

SVR/TPR



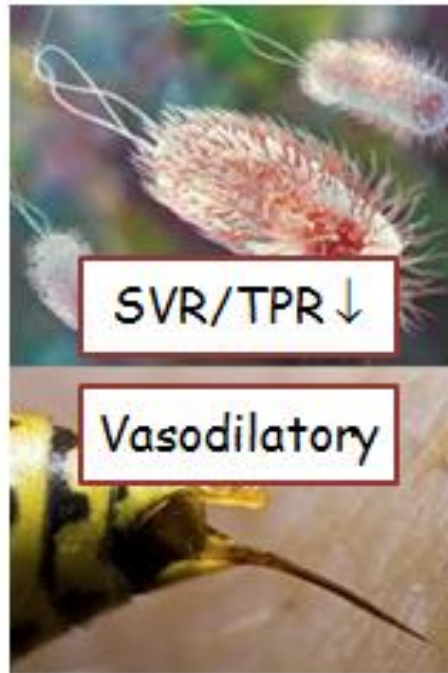
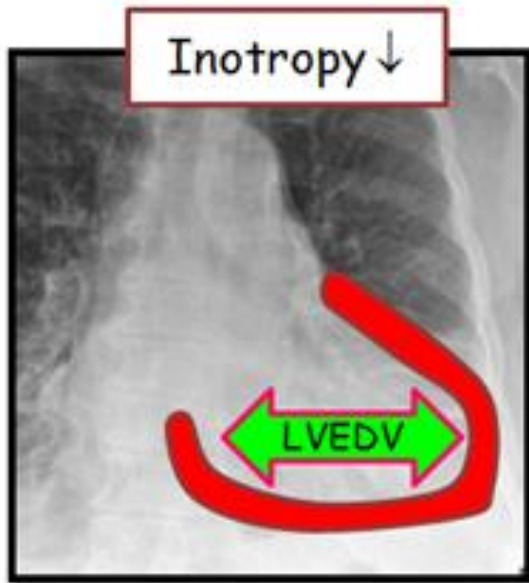


EF%

CO ml/min

VR
(preload)

SVR/TPR



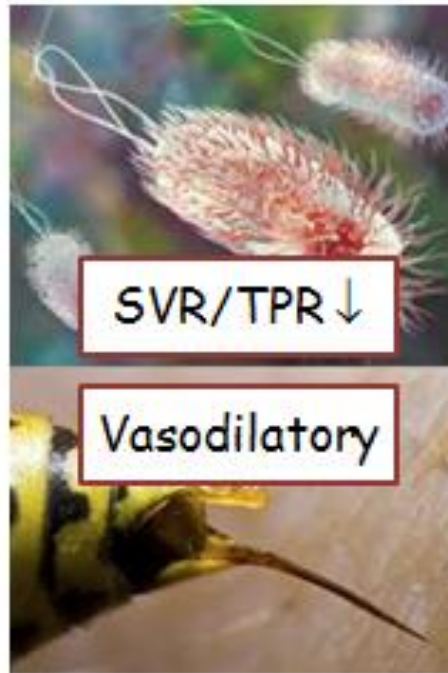
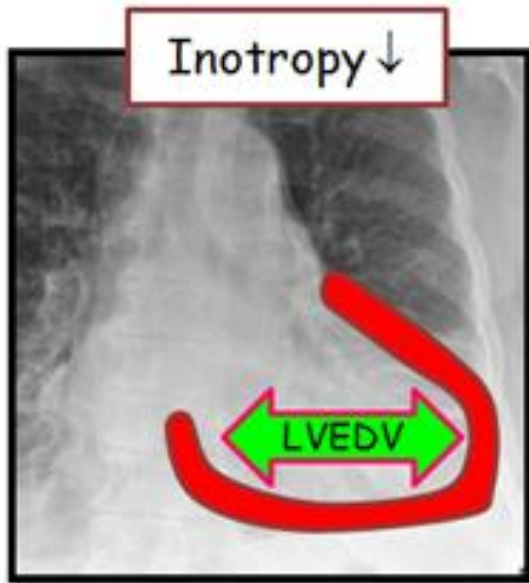
EF%



CO ml/min

VR
(preload)

SVR/TPR



EF%

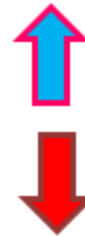
CO ml/min

VR
(preload)

SVR/TPR



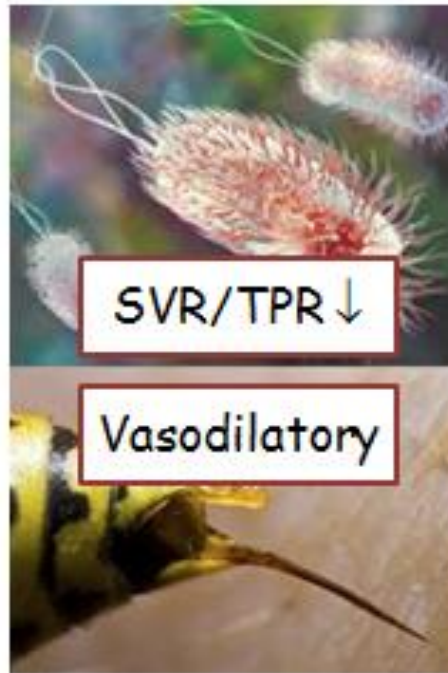
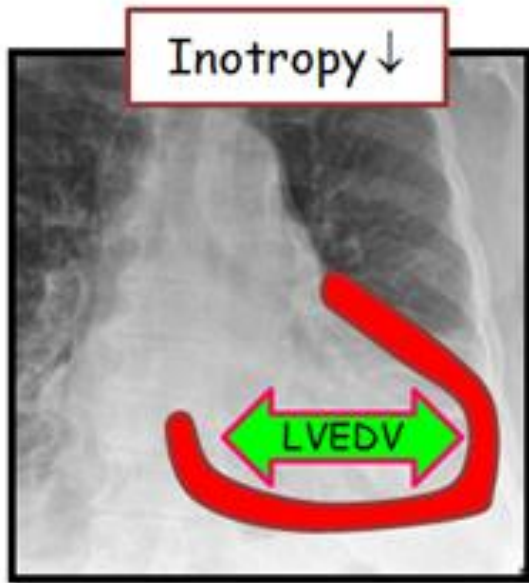
No R_{Ω}



Φ ml

$$CO = SV \times HR$$





EF%

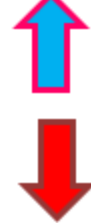
CO ml/min

VR
(preload)

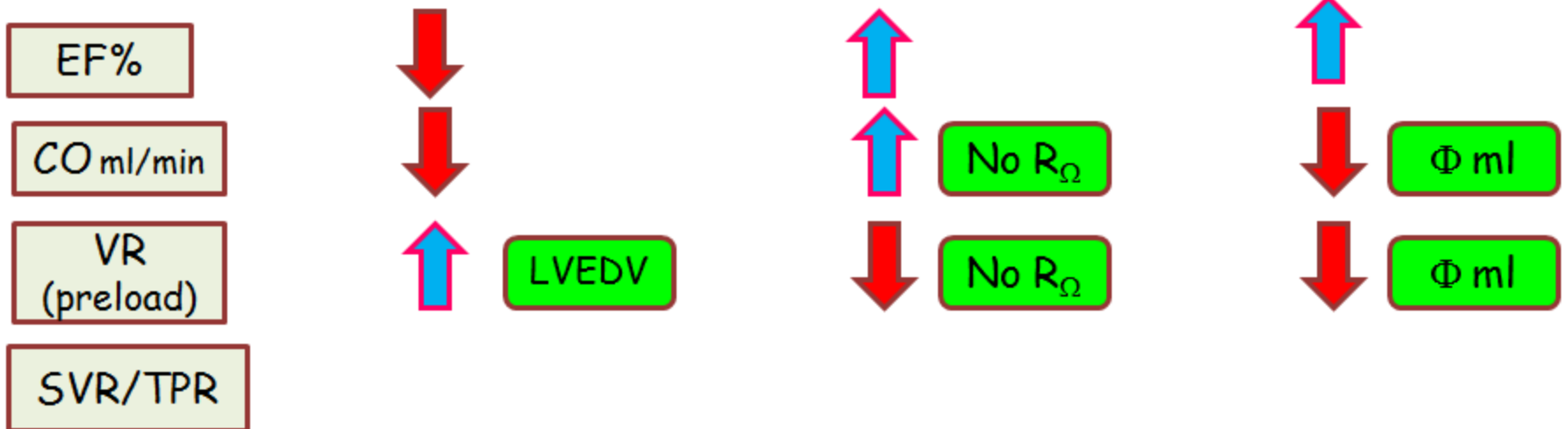
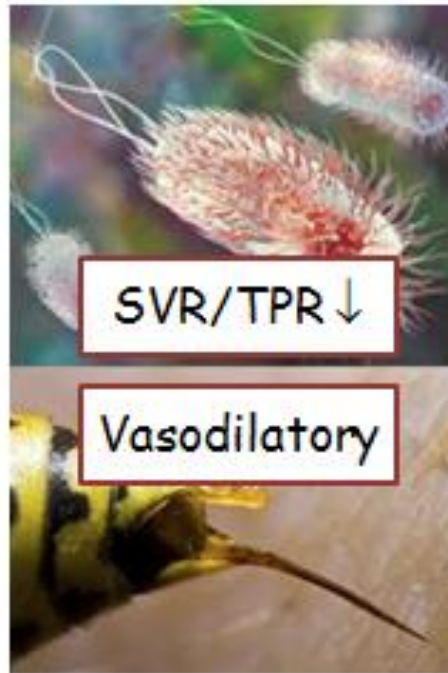
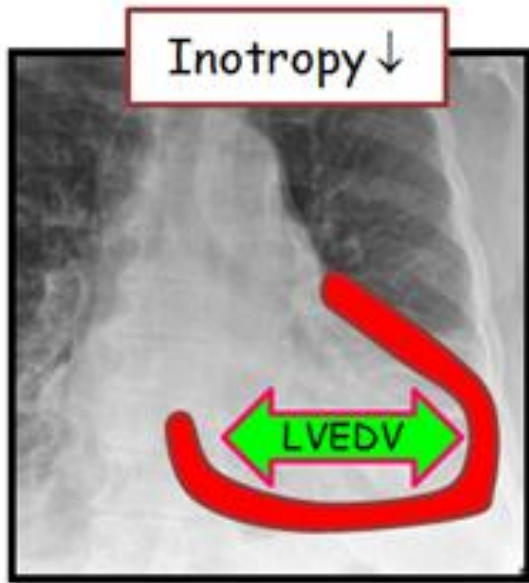
SVR/TPR

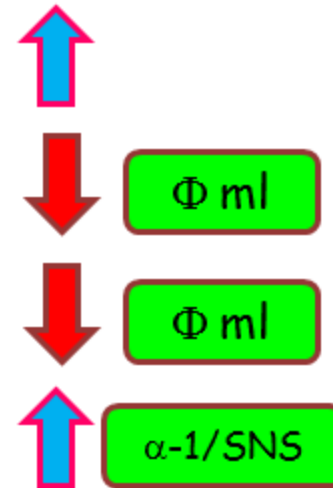
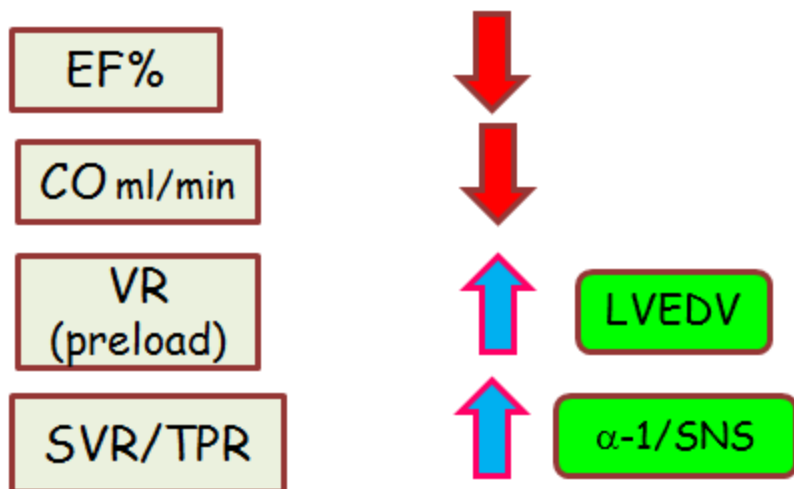
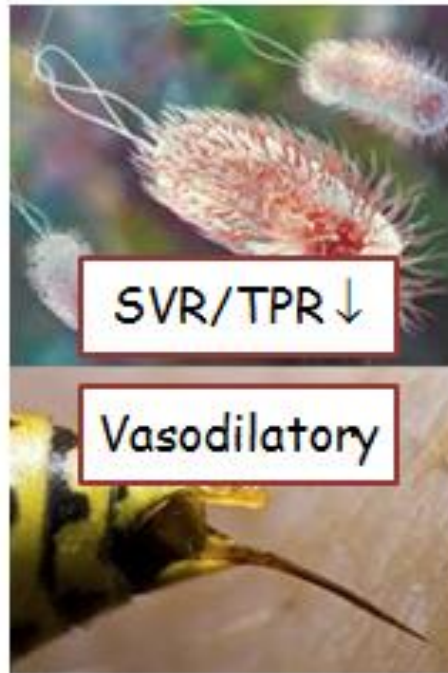
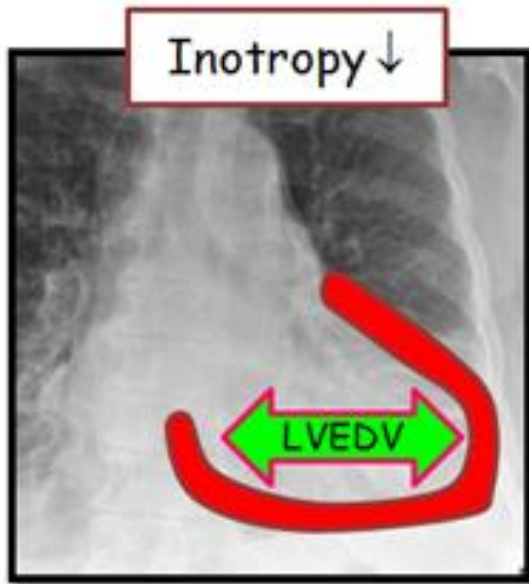


No R_{Ω}



Φ ml





Great stuff...

e ↓

EF%

CO ml/min

VR
(preload)

SVR/TPR



LVEDV

α -1/SNS



No R_{Ω}

No R_{Ω}

No R_{Ω}



Φ ml

Φ ml

α -1/SNS

e ↓

Great stuff...

except...

I haven't seen a single question about this junk.



They ask other neat junk...

Φ ml

Φ ml

U

C

(p

SVR/TPR



α -1/SNS



No R_{Ω}



α -1/SNS

Shock

- Definition: life-threatening, circulatory failure
 - Cardiogenic
 - Distributive (Vasodilatory)
 - Hypovolemic
 - Obstructive
 - Mixed
 - Effects: end organ dysfunction/failure
 - Pulmonary: ARDS
 - Renal: AKI
 - Heme: DIC
 - Consumption/Fibrinolysis/MHA
 - Microvascular thrombosis/Hemorrhage
- Acid-Base Δ

Part II: Shock-specific scenarios

- Definition: life-threatening, circulatory failure
 - Cardiogenic
 - Distributive (Vasodilatory)
 - Hypovolemic
 - Obstructive
 - Mixed
 - Effects: end organ dysfunction/failure
 - Pulmonary: ARDS
 - Renal: AKI
 - Heme: DIC
 - Consumption/Fibrinolysis/MHA
 - Microvascular thrombosis/Hemorrhage
- Acid-Base Δ

Shock for Step One: Background

Howard J. Sachs, MD
E-mail: Howard@12DaysinMarch.com