



Geriatrics
Bariatrics
Pregnant-atrics
Pediatrics

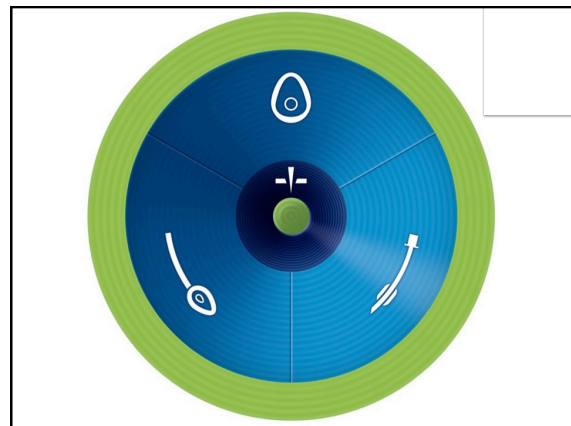
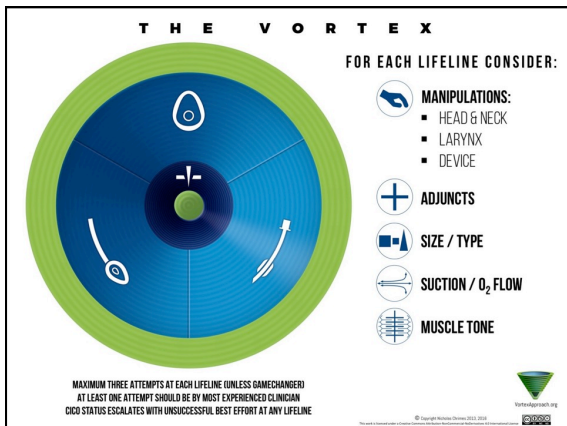
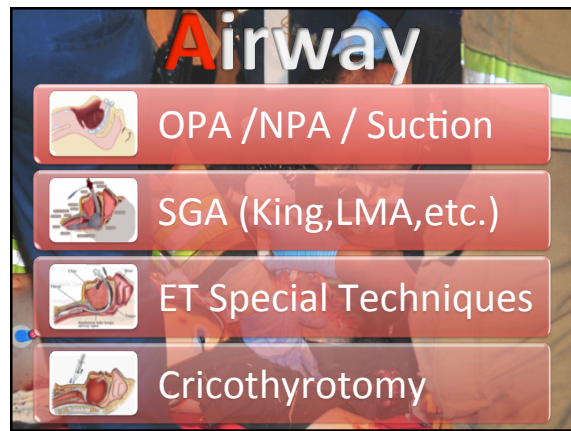
Special
Populations
Special
Questions

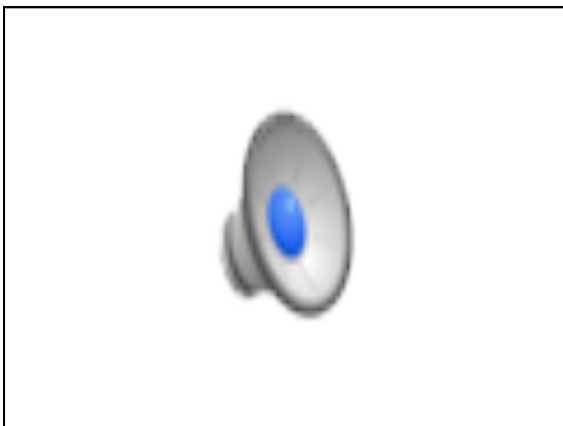
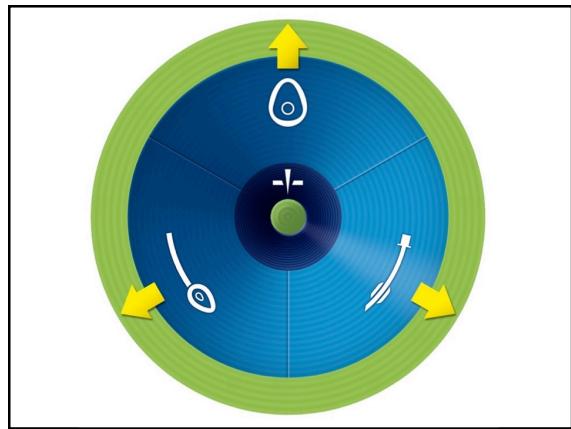
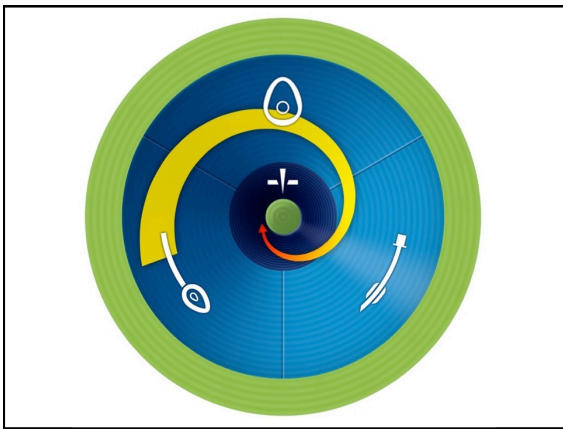
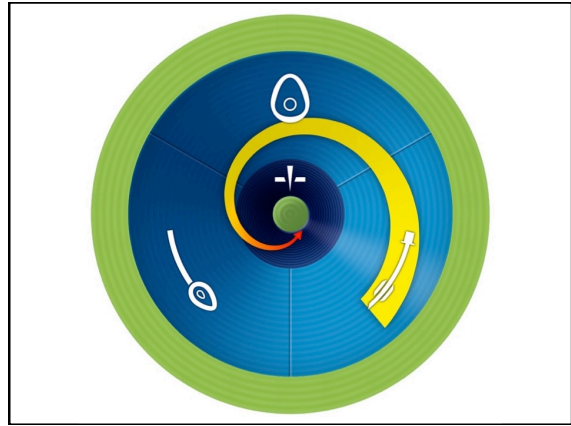
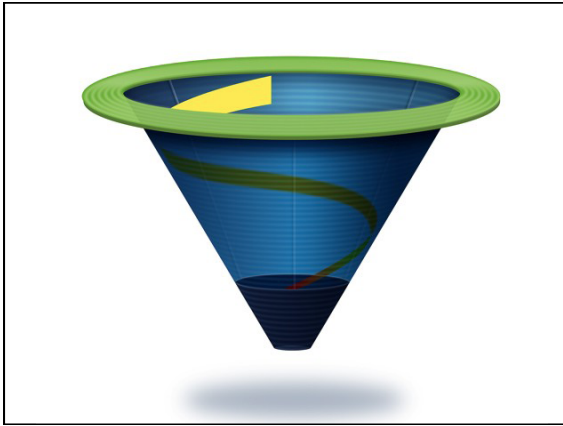
MARCH
✓ Massive Hemorrhage
✓ Airway Problem
✓ Respiratory Problem
✓ Circulation Problem
✓ Head & Hypothermia

Massive Hemorrhage
 Detect
 Direct Pressure
 Devices
 Don't Dilute

Massive Hemorrhage
 Proximal > Distal
 Arterial > Venous
 Stacked Dressings

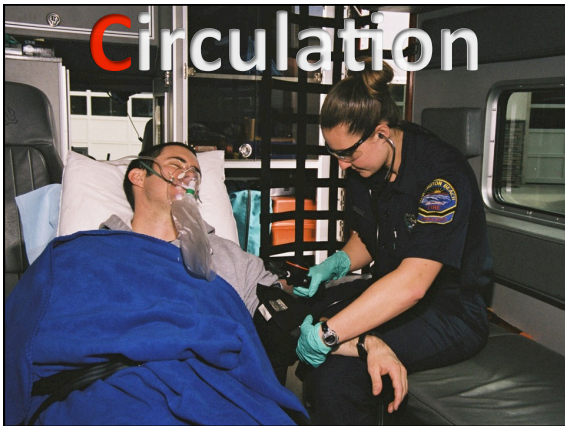
Massive Hemorrhage
 Tourniquet
 Combat Gauze
 Pressure Bandage





Respirations

- High WOB / Apnea
- Flail Chest
- Sucking Chest Wound
- Tension Pneumothorax



Circulation

Shock Index

If the Heart Rate \geq Systolic BP that's BAD

Normal is HR around $\frac{1}{2}$ of SBP (60bpm/120mm/hg) 0.5

HR $\frac{3}{4}$ of SBP still ok (90bpm/120mm/hg) .75

If HR \geq SBP (100 bpm/100mm/hg) SI \geq 1.0 is BAD

- >2x chance for a need for transfusion

Massive Shock is \geq 1.3 (120 bpm/90mm/hg)

- 9x chance for a need for transfusion

Circulation

- MAP = $[(2 \times \text{Diastolic}) + \text{Systolic}] / 3$
 - The formula changes at higher heart rates.
 - MAP of 70 - 110 : Normal
 - Target MAP >65

Circulation

Tissue Oxygen Monitor

Circulation

Pleth

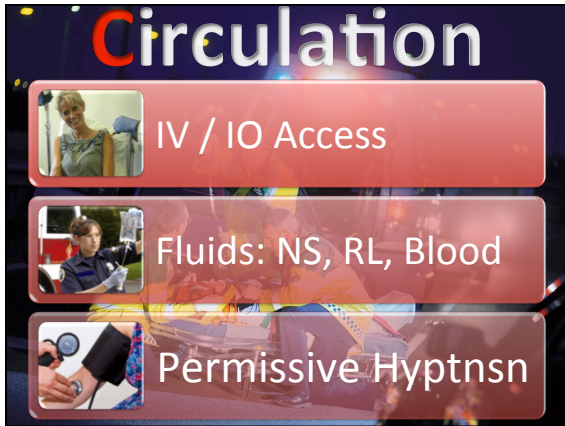
Figure 1 - The Pleth wave. The vertical bar indicates the minimum size for reliable peripheral oxygen saturation (SpO₂) value.

IVC Collapse on Inspiration

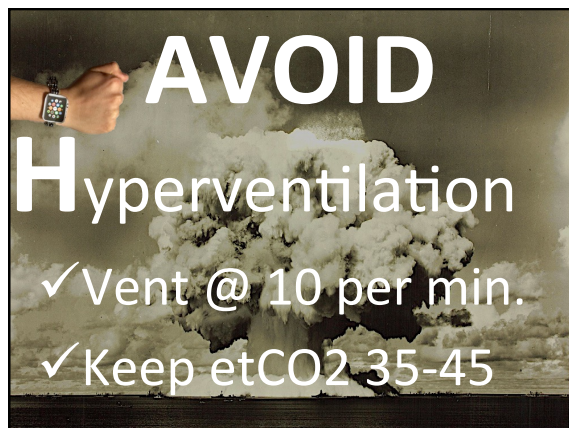
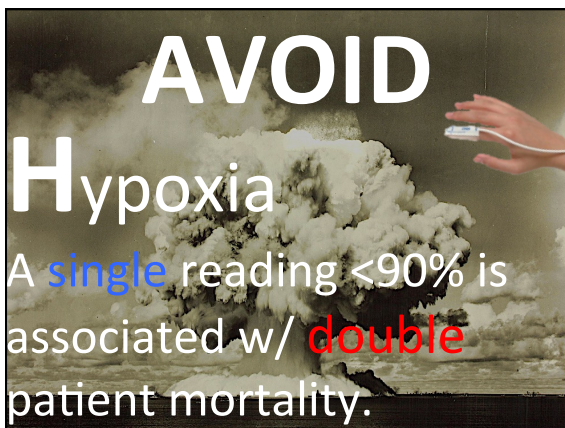
Circulation

Lying down, not UPSIDE down

Circulation

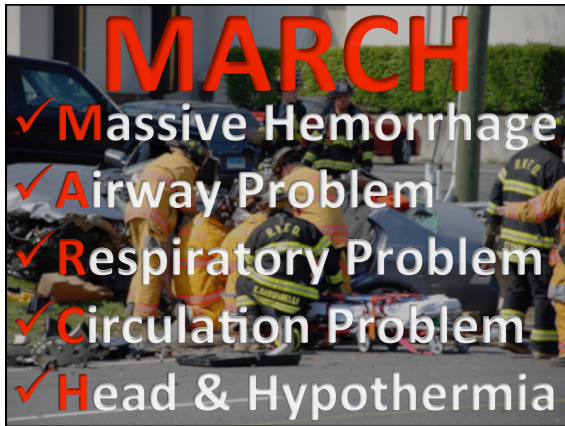


- IV / IO Access
- Fluids: NS, RL, Blood
- Permissive Hypotnsn



MARCH

- ✓ Massive Hemorrhage
- ✓ Airway Problem
- ✓ Respiratory Problem
- ✓ Circulation Problem
- ✓ Head & Hypothermia

A photograph of an emergency scene with several firefighters in yellow gear attending to a patient on a stretcher. The scene is outdoors, possibly at a vehicle accident.

Triage & Transport

-  Trauma Center
-  Air vs Ground
-  Pre-Notify
-  Facilitate Hand-Off

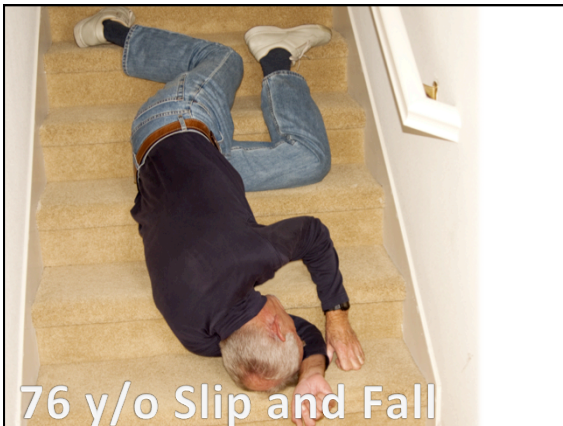
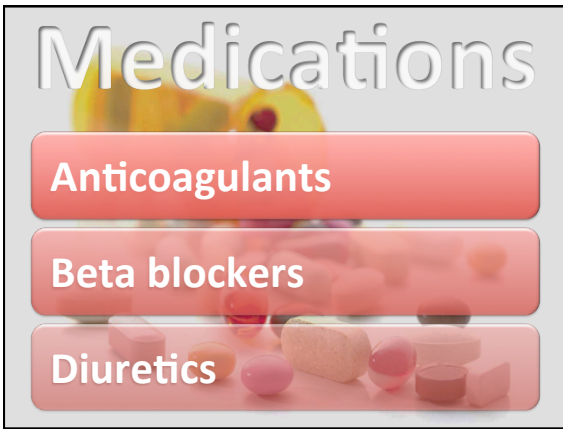


Geriatrics
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Special
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Questions





...center then transferred to a Level I or II trauma center.^{11,12} Nearly half of all transfers to a Level I or II trauma center were for those aged 55 and older ($n = 35,342, 49.6\%$). These results may reflect an unrecognized initial need for trauma center care, the need to provide stabilization and resuscitation at a non-trauma center prior to transfer to the appropriate Level I or II trauma center, or other factors. The high transfer rate associated with this age group may be a result of patient deterioration due to anticoagulation usage.²⁹ Other possible reasons include the high and lower reimburse-

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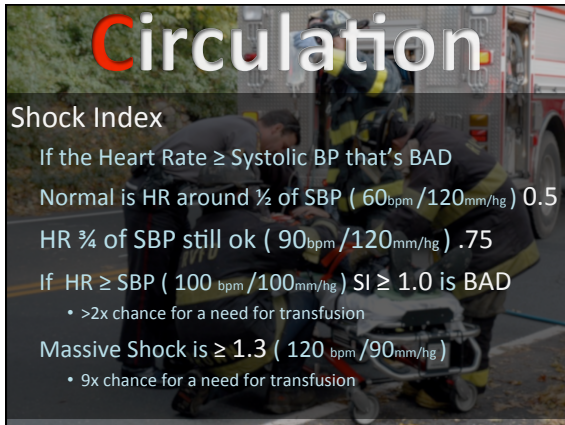
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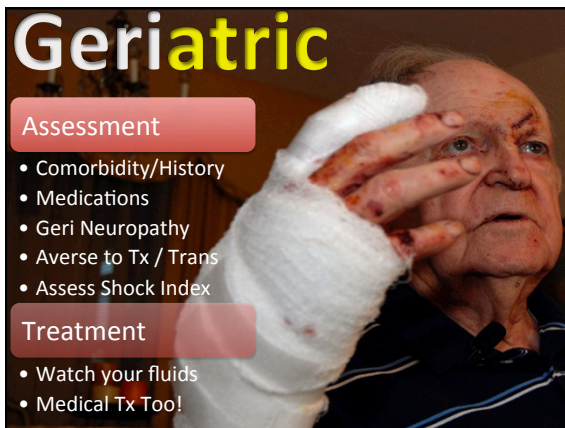
Geriatric

Assessment

- Comorbidity/History
- Medications
- Geri Neuropathy
- Averse to Tx / Trans
- Assess Shock Index

Treatment

- Watch your fluids
- Medical Tx Tool!



Bariatrics

Assessment

- Gain Access
- Comorbidities

Treatment

- Priority Airway
 - Advanced
 - ET
- Priority Breathing
 - O2
 - CPAP
 - BVM
- Transport Resources



Trauma complicates one in 12 pregnancies



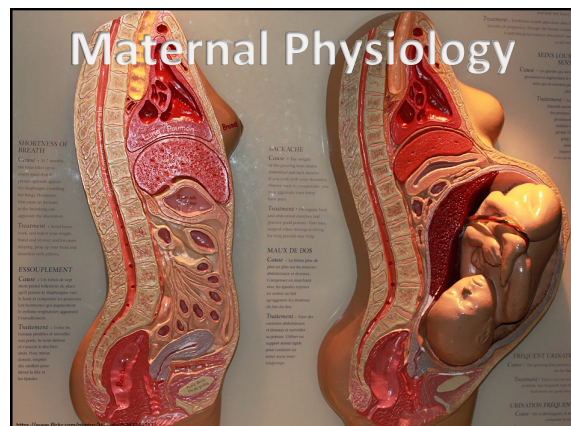
Most common injuries:

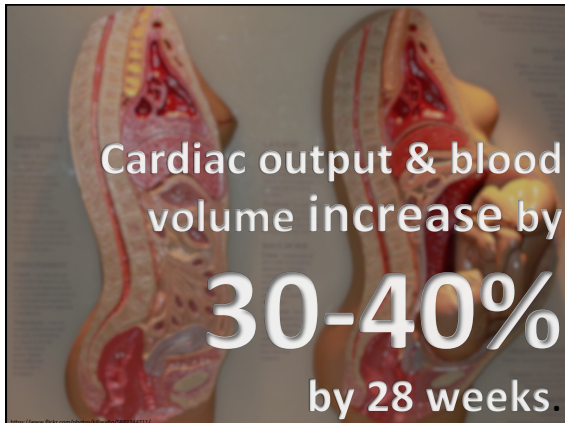
- MVCs
- Assaults
- Falls
- Intimate partner violence



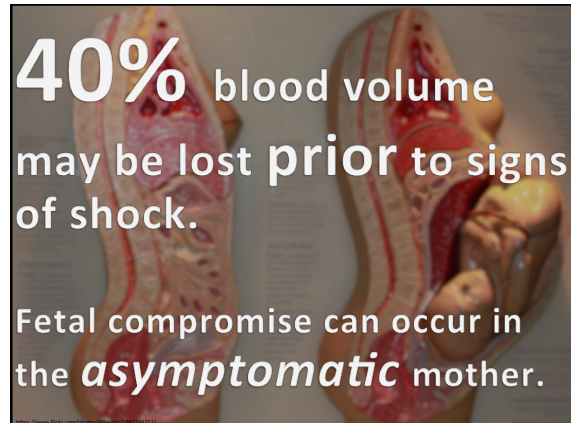
Nine out of 10 traumatic injuries during pregnancy are classified as minor,

Yet **60% to 70%** of fetal losses after trauma are a result of minor injuries.

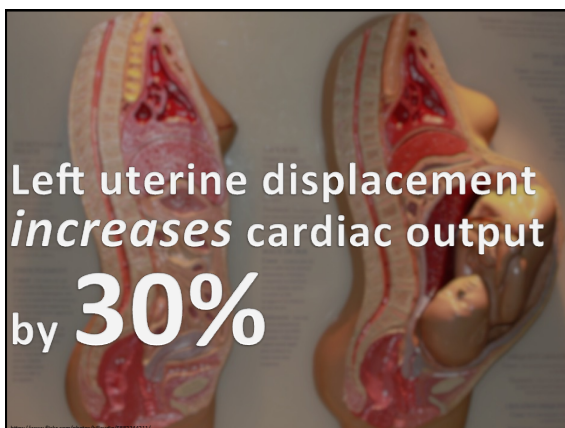




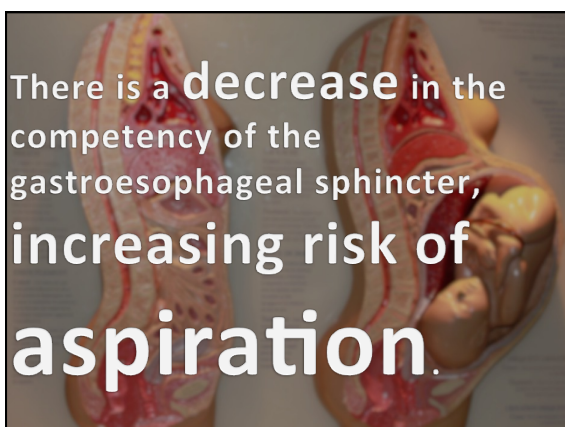
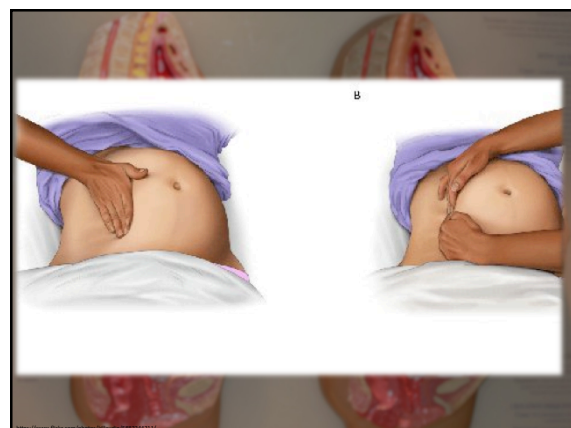
Cardiac output & blood volume increase by **30-40%** by 28 weeks.



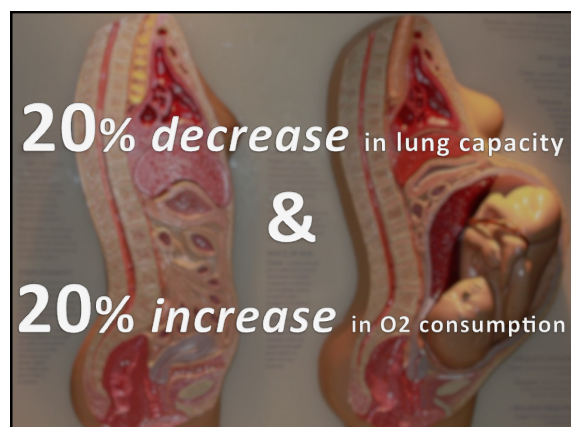
40% blood volume may be lost **prior** to signs of shock.
Fetal compromise can occur in the **asymptomatic** mother.



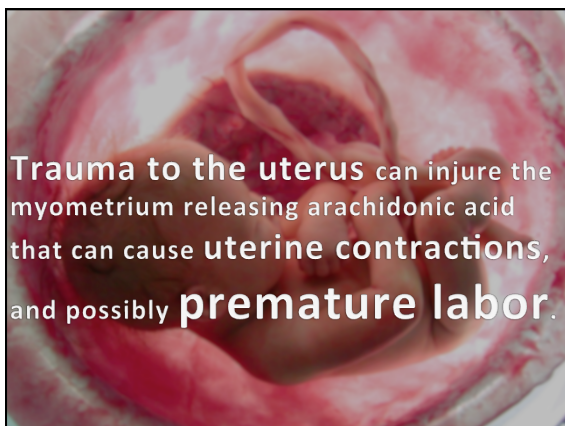
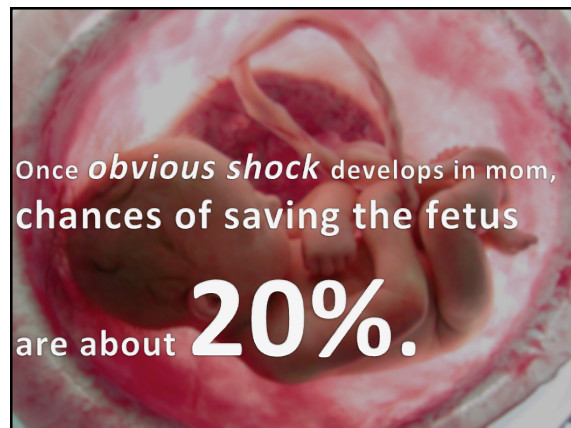
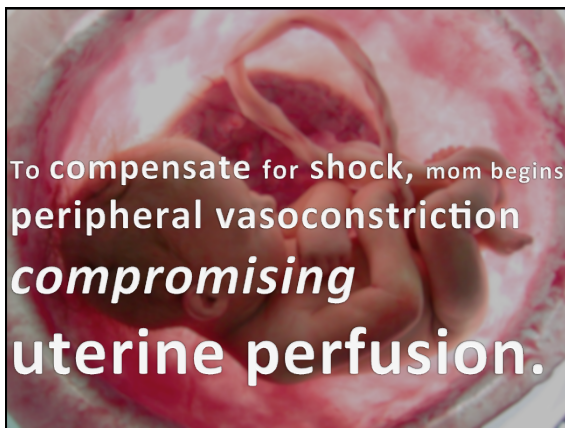
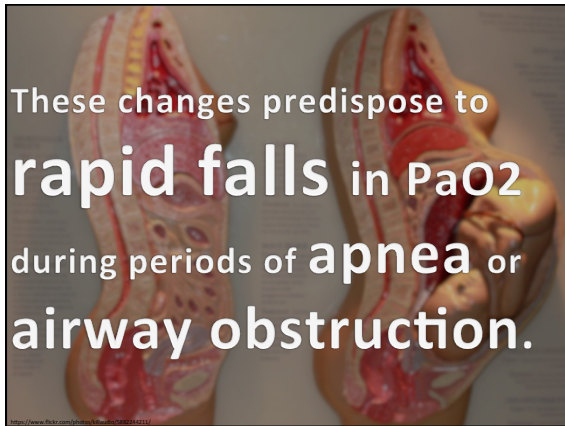
Left uterine displacement **increases** cardiac output by **30%**



There is a **decrease** in the competency of the gastroesophageal sphincter, **increasing risk of aspiration.**



20% decrease in lung capacity
&
20% increase in O₂ consumption





Assessment

- Compensating Mom=Dying Baby
- Premature Labor

Treatment

- LLR >30%
- Priority Airway
- Priority Breathing
 - O2
 - CPAP
 - BVM

Pregnantatics



Pediatric Trauma

*Can you tell if the child is **Critical** or **Not Critical** just by looking at them?*

The Pediatric Assessment Triangle

Critical= QUICK **Not Critical= Not QUICK**

Appearance
Work of Breathing
Circulation

Adapted from the AAP's Pediatric Education for Prehospital Professionals (PEPP) course.

General Appearance

Appearance

- Tone
- Interactiveness
- Consolability
- Look/gaze
- Speech/cry

Are they with it or out of it?

Work Of Breathing

Be W A R E

- Work
- Abnormal Sounds
- Retractions
- Extreme Nasal Flaring

Are they fighting for air?

Circulation to Skin



T
T
P

Temperature - Skin
Time - Capillary Refill
Pulse

Circulation to the Skin

Are they compensating?

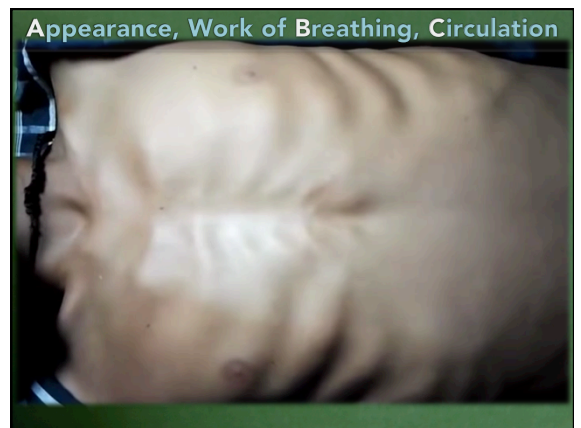
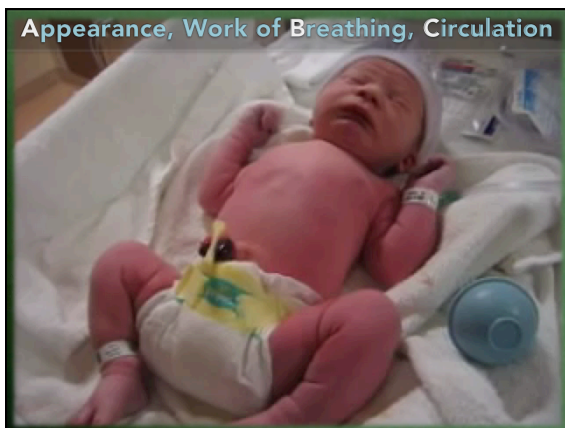
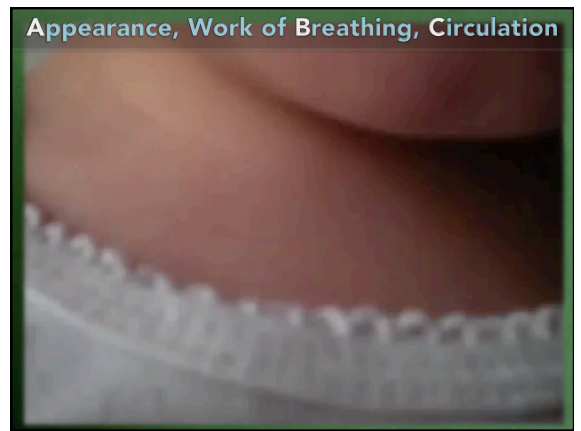
Pediatric Assessment Triangle



Critical=
QUICK

Not Critical=
Not QUICK

Any single RED FLAG = SICK





Infant 0-1 y/o
Toddler 1-3 y/o
Pre-School 3-6 y/o
School Age 6-12 y/o
Adolescent 12-18 y/o

Stages of Development



Avoiding H-Bombs in Kids



Infants SpO2 >90%
Children SpO2 >90%
Older Kids SpO2 >90%

Hypoxia



Infants 25 bpm (1:2 seconds)
Children 20 bpm (1:3 seconds)
Older Kids 10 bpm (1:6 seconds)

Hyperventilation



Infants SBP >70
Children SBP >80
Older Kids SBP >90

Hypotension



Infants AbGt >70 D5%
Children AbGt >70 D10%
Older Kids AbGt >70 D10%

Hypoglycemia

Pediatric Trauma: HEAD



In an infant, a scalp lac. can cause bleeding *significant* enough to cause shock.

Pediatric Trauma: HEAD



In children *under 18 months* check the fontanelle for *bulging* or *depression*

Pediatric Trauma: CHEST



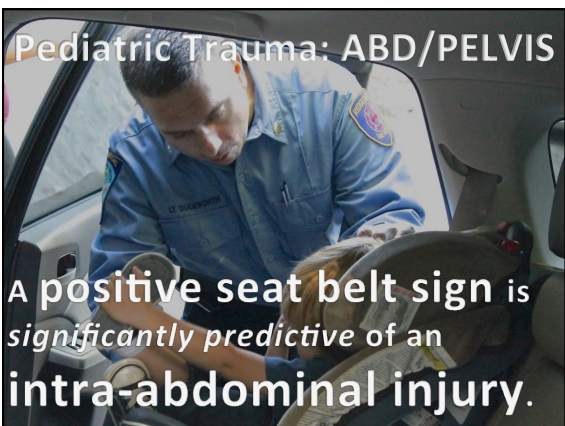
Pediatric patients have a *more compliant* chest wall with a *greater amount* of cartilage and bone elasticity.

Pediatric Trauma: ABD/PELVIS



Children also have weaker *abdominal muscles & decreased abdominal fat*, offering less overall organ protection.

Pediatric Trauma: ABD/PELVIS



A **positive seat belt sign** is *significantly predictive* of an **intra-abdominal injury**.





Rapidly assess severity:
Type of burn

- Size
- Location
- Depth
- Note critical burns



Stop the burning process
Place **dry, sterile dressings**



IV fluids (20cc/kg) in patients with burns over **20% BSA.**

Address **pain control** in pediatric burn patients.



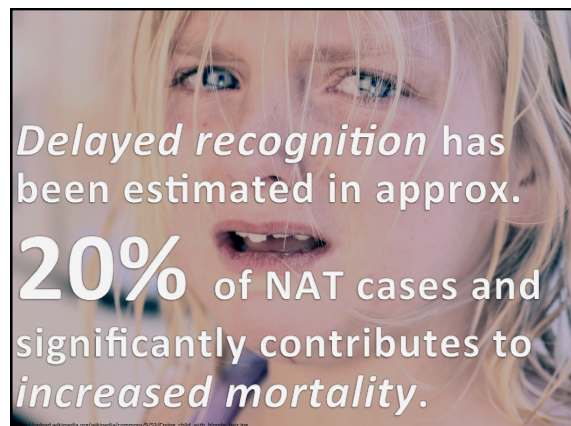
Non Accidental Trauma



Non Accidental Trauma (NAT) accounts for approximately

1 in 10

pediatric patients hospitalized due to trauma.



Delayed recognition has been estimated in approx.

20% of NAT cases and significantly contributes to **increased mortality.**



NAT patients are 6x
 more likely to die from
 injuries compared to
accidental trauma patients.



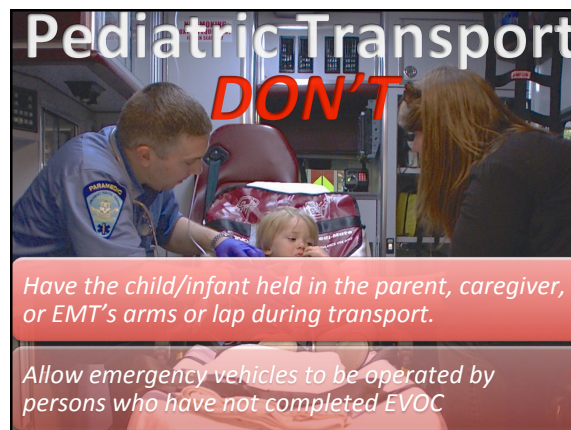
Think T E N 4:

- Torso
- Ears
- Neck
- 4 Years & Under
- Any bruising on 4 months or under



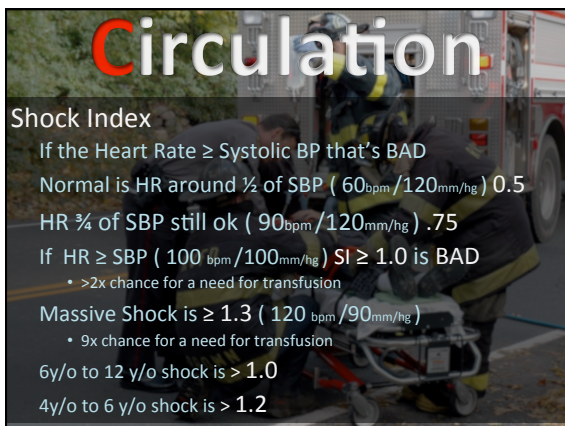
Pediatric Transport
DO

- Secure all equipment.
- Ensure available restraint systems are used by occupants, including the patient.
- Transport children who are not patients, properly restrained in an alternate passenger vehicle whenever possible.



Pediatric Transport
DON'T

- Have the child/infant held in the parent, caregiver, or EMT's arms or lap during transport.
- Allow emergency vehicles to be operated by persons who have not completed EVOC



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- 9x chance for a need for transfusion

6y/o to 12 y/o shock is > 1.0

4y/o to 6 y/o shock is > 1.2



Pediatric

Bottom Line



Assessment

- Evaluate for Head Injury
- Priority chest & abdominal assessment
- Modified GCS in Peds
- Assess Shock Index

Treatment

- Head Injury H-Bombs
- Specialty Transport
- Shock

Pediatrics

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Learn One
Do One
Teach One

BECAUSE
YOU
MAKE THE
DIFFERENCE!



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