NUMBERS

Weight in kg = 8 + (age in yrs X 2)

- Neonate (less than 1 month) = 3 – 5kg
- Infant (up to 1 year) = 6 – 9kg
- Over 1 year = use above formula

Blood volume = 80mL/kg

Blood pressure

- (ages 1 – 10) = 90 + (age in yrs X 2)
- (ages > 10) = 70 + (age in yrs X 2)

Decompensated shock (25% volume loss)

- Neonate (less than 1 month) = SBP < 60
- Infant (up to 1 year) = SBP < 70
- Child (1 – 10 yrs) = SBP < 70 + (age in yrs X 2)
- Adolescent = SBP < 90

Heart rate (the younger, the faster)

- Neonate (< 1 month) = 140 (+/-) 20
- Infant (up to 1 year) = 120 (+/-) 20
- Young child (1 – 5 yrs) = 100 (+/-) 20
- Older child (5 - 9 yrs) = 90 (+/-) 10
- Adolescent to adult = 80 (+/) 20

Normal Cap. Refill = < 2 seconds

Urine output = 1 – 2 mL/kg/hr

Respiratory Rate

Neonate (< 1 month) = 30 – 50

Child (1 – 7 yrs) = 20 – 30

Adolescent to adult = 12 - 24

Normal tidal volume = 4 – 6 mL/kg

ET tube size = age (yrs)/4 + 4 uncuffed

= age (yrs)/4 + 3 cuffed

Depth of insertion = age (yrs)/2 + 12

Physical differences between children and adults

- Head is a greater percentage of body surface area in children than in adults

  Lose and gain heat more quickly

  Heavier so children tend to land head-first from falls

- Tongue is proportionately larger in children and take up more space in the mouth

- The occipital area of the skull is much larger than in an adult

Placing a child on a flat surface will flex the head and can occlude airway

- Bones are soft

  Tend to bend rather than break

  Forces are easily transmitted to internal structures

  Greater internal injury can occur without external signs

- Abdominal organs are larger and mostly unprotected by the rib cage

Emotional and psychological differences between children and adults

- Stranger anxiety

Children up to the age of about six do not like strangers and fear separation from parents

- Body image and fear of mutilation

Preschoolers fear blood

Adolescents fear permanent scarring and disfigurement

- Guilt
- School-aged children through adolescents feel responsible for their injuries
- You may not get the full story when interviewing them

Respiratory Distress vs Respiratory Failure

Respiratory Distress

Increased work of breathing

- Tachypnea
- Shock
- DKA
- Cardiac defects
- Salicylate poisoning
- Diarrhea
- Metabolic acidosis
- Sternal retractions

- Nasal flairing
- Grunting
- Tachycardia
- Normal blood gases
- Adequate oxygen saturation
- Slight acrocyanosis

Respiratory Failure

- May be preceded by respiratory distress but may occur without sign
- Shallow, ineffective respirations (slow respirations are very bad
- Low oxygen saturation
- Mottling and cyanosis
- Lethargy
- Hypotonia (limp)
- Weak cry
- Bradycardia
- Shock

Causes:

- Hypovolemia (vomiting, diarrhea, blood loss)
- Septic (infection)
- Anaphylactic (acute allergic reaction)
- Cardiogenic (ineffective heart action)
- Respiratory failure
- Signs and symptoms of shock:
- Tachycardia proceeding to bradycardia
- Lethargy
- Hypotonia
- Weak femoral pulse
- Absent peripheral pulse
- Cool, mottled, or cyanotic extremities
- Delayed capillary refill (with extremity warm)
- Treatment for Shock and Respiratory Failure

Correct respiratory situation

- Insure patent airway
- Provide oxygenation

- Provide ventilation
- Provide CPR
- if bradycardic for age group

Replace fluids

10 mL/kg IV bolus if < 1 month old

20 mLkg IV bolus if > 1 month