TRAUMA: PRIMARY SURVEY

Injury is the leading cause of death and disability in children
The **Primary Survey** is a rapid and systematic assessment to identify and manage life-threatening conditions
Children come in different sizes: use **Broselow tape** to select medication dosages and equipment sizes

A: AIRWAY + C-SPINE CONTROL

Identify and treat airway obstruction or loss of airway protective reflexes; identify and stabilize C-spine injuries

Look:
- Foreign bodies or obvious injury
- Signs of respiratory distress, airway compromise

Feel: midline C-spine tenderness, neck range of motion

PHYSICAL EXAM:
If patient can say their name with normal voice quality, their airway is likely patent

Initial Interventions:
- Remove foreign body, suction secretions
- Airway control: jaw thrust, chin lift, OPA, LMA, Bag-valve-mask ventilation, intubation as needed
- Stabilize C-spine: cervical collar, lateral neck X-ray, or manual inline stabilization if needed

B: BREATHING

Assess oxygenation and ventilation; identify and treat chest injuries

Look: seatbelt marks, bruising, tracheal deviation (tension pneumothorax)
- Oxygenation: SpO2, cyanosis
- Ventilation: signs of respiratory distress (increased RR, work of breathing)

Listen: auscultate lungs for **absent or asymmetric breath sounds** (tension PTX)

Feel:
- Chest percussion: hyperresonance, dullness (tension PTX, hemothorax)
- Gross chest wall tenderness, defects (flail chest)

Point of Care Ultrasound: assess for PTX, hemothorax, pericardial tamponade

Initial Interventions:
- Supplemental O2
- Tension PTX → needle/tube thoracostomy or chest tube
- Hemothorax → chest tube

C: CIRCULATION

Assess for hemorrhage and shock; provide hemodynamic support and hemostasis

1. Monitor vitals and hemodynamic stability
2. Look for **signs of hypoperfusion**:
   - Weak femoral pulses
   - Pallor, delayed cap refill
   - **Tachycardia**, hypotension (late sign of shock in kids)
   - Decreased LOC, agitation
3. **Localize bleeding**: wounds, bruising

Initial interventions
- Labs: crossmatch, CBC, lytes, LFTs, Cr, VBG coagulation (INR/PTT), extended lytes, glucose
- IV access, IV fluids and PRBCs as indicated

Bedside hemorrhage control:
- Direct pressure, tourniquet, binders/splints as needed

Surgical consult or **transfer to pediatric trauma centre**

D: DISABILITY

Identify life-threatening traumatic brain injuries (TBI); treat elevated intracranial pressure (ICP)

Assess **neurological status**:
1. Level of Consciousness: Glascow Coma Scale (GCS) or AVPU scale (Alert, Voice, Pain, Unresponsive)
2. Pupils: response to light
3. Motor function: able to move all 4 limbs

Signs of elevated ICP: decreased LOC, anisocoria, vomiting, headache, Cushing's triad

Initial interventions:
- Treat hypotension and hypoglycemia
- Elevate head of bed
- Treat elevated ICP

Consider **CT head**, **neurosurgical consult, transfer**

E: EXPOSURE + ENVIRONMENT

Expose entire patient to assess for occult injuries; maintain normothermia

Undress patient to assess whole body for injuries:
- Log roll maneuver to examine spine
- Include exam of axillae, groin, back

Initial interventions:
- Limit exposure to prevent heat loss
- Rewarming: blankets, Bair hugger, warm IVF & blood

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