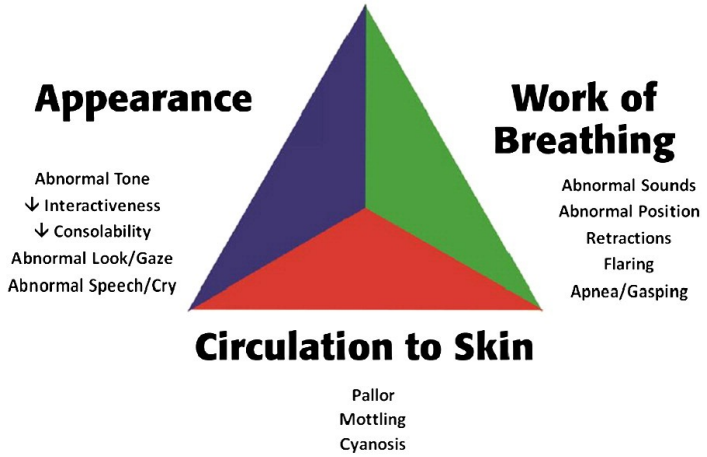
Quick Reference for Assessment, Stabilization and Transfer of Pediatric Trauma Patients

Step 1: Initial Assessment



Step 2: Pediatric considerations to the Primary Survey

Airway: Smaller airways, large tongue & head; positioning is key (prominent occiput)
Breathing: Respiratory failure is a common cause of cardiac arrest, obligate nasal breathers,
Circulation: Circulating volume = 70-80 ml/kg. B/P is not reliable when considering shock. Children compensate and may be in shock despite "normal" vital signs. Tachycardia can indicate early hypovolemic shock. Assess capillary refill time, utilize SIPA score
Disability: Is the patient unresponsive or is it nap time? Use developmental assessment tools based on child's age. Signs of altered mental status could include lethargy or irritability
Exposure: prone to hypothermia. Initiate warming measures early!

Step 3: Pediatric considerations to the Secondary Survey

Head and Face: Assess fontanelle in infants, bulging could indicate increased intracranial pressure, assess for intra oral injuries
Cervical Spine and Neck: Children ≤ 8 are more susceptible to higher (C3 or above) cervical injuries, SCIWORA is more common in children due to spinal anatomy, if concern for non-accidental trauma, place patient in a c-collar, ZERO pressure to clear prior to transfer
Chest: Chest is more compliant than adults, can absorb a lot of kinetic energy from impact; Pay attention to tachycardia, hypotension is a LATE sign,
Abdomen: less fat/connective tissue and vital organs are closer together. A normal initial exam does NOT exclude a significant intraabdominal injury, especially if a seatbelt sign is present.
Perineum/Rectum/Vagina: Examine area for contusions, hematomas, lacerations and urethral bleeding.
Musculoskeletal: Compartment Syndrome: 5 Ps (Pain, Pallor, Paresthesia, Pulselessness, Paralysis) may look different in peds. "3 A's" (**A**nxiety, **A**gitation, **A**nalgesia required)

Step 4: Pediatric Pearls

- Hypotension is a LATE and ominous finding in children. Tachycardia and delayed capillary refill should be treated aggressively
- A rapid assessment of the neurologic status can be obtained through use of the **AVPU scale**, used to describe decreasing levels of consciousness. AVPU stands for: **A**lert, responsive to **V**oice, responsive to **P**ain, **U**nresponsive.
- An elevated SIPA score correlates with increased mortality and the risk of needing blood products. An elevated SIPA score can help identify severely injured children at-risk of requiring operative intervention and/or ICU admission.

Step 5: Disposition

- Please DO NOT obtain CT scans of C-spine, Chest, Abdomen/Pelvis in children OR delay transfer to obtain advanced imaging.
- Skeletal Surveys should be performed at a pediatric trauma center with pediatric radiologists.
- Consider the need for antibiotics, tetanus, immobilization of fractures prior to transfer. Consider tourniquet, PRBC for transport.
- Traumatically injured patients frequently require expeditious specialized care to maximize survival and recovery. Please call the following centers for questions, referrals and/or recommendations.

Pediatric Trauma Centers:

- Children's Healthcare of Atlanta
  - Scene:404-785-6540
  - Transfer: 404-785-7778
- WellStar MCG Augusta/ Wellstar Children's Hospital of GA
  - 877-561-5600
  - For AirCare (scene and interfacility transport) press option 9

Burn Centers:

- Grady Burn Center
  - 1-855-55-TRAUMA1 (8728621)
- Joseph M. Still Burn Center
  - 855-935-5888

Pediatric Reference Guide

Normal Vital Signs

Age (years)		Respiration Rate	Heart Rate	Systolic BP	SIPA = HR÷SBP
Infant	Birth to 1 year	30-53	100-160	72-104	Abnormal Value
Toddler	1 to 3 years	22-37	90-150	86-106	> 1.2
Preschooler	3-6 years	20-28	80-140	89-112	> 1.2
School Age	6-12 years	18-25	70-120	97-120	> 1.0
Adolescent	12-15 years	12-20	60-100	110-131	> 0.9

Fluid Management

Goals of fluid resuscitation: Normal vital signs, improved signs of perfusion, urine output 0.5-1 ml/kg/hr

Type	Fluid	Rates and Notes
Resuscitation Fluids	NS	Initial bolus 20 ml/kg, over 30-60 min, repeat as needed
	PRBCs	• Hemorrhagic Shock • 10 ml/kg if not responding to initial 20 ml/kg of crystalloid • May use O Neg or O+ for males until type-specific or cross matched available
	Plasma	• Type AB • 10-20 mL/kg
Maintenance Fluids	D_5NS	Pediatric patient without renal compromise: • 4 mL/kg/hr first 10 kg • 2 mL/kg/hr next 10 kg • 1 additional mL/kg/hr for each kg over 20 kg
Hypo- glycemic Treatment	$D_{10}W$	Neonate with BG < 45 give 5-10 mL/kg IV or IO
	$D_{25}W$	Infants/Children with BG < 60 give 2-4 mL/kg
	$D_{50}W$	≥ 12 years with BG < 60, give 1-2 mL/kg

AVPU - Check Level of Responsiveness

A	Alert	Is the person awake and responsive? Can they answer questions or are they confused and disoriented?
V	Voice	Do they respond to voice, either verbally or physically?
P	Pain	Do they respond to a physical stimulus?
U	Unresponsive	Is the person unconscious?

Remember: Anything less than an "A" is a problem. Seek medical help.

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