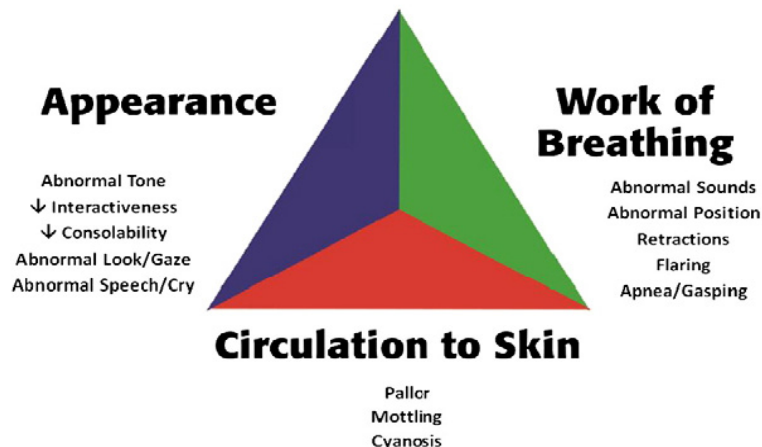


# Quick Reference for Assessment, Stabilization and Transfer of Pediatric Trauma Patients

## Step 1: Initial Assessment



## 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.
- 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 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. BP 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:** Unresponsive or nap time? Utilize pediatric GCS or AVPU. 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  $\leq 8$  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. C-spine clearance prior to transfer is not a priority.  
**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” (Anxiety, Agitation, Analgesia required)

## Step 5: Disposition

- For patients who have an identified indication for transfer, do not delay transfer to Pediatric Trauma Center (PTC) for CT scans
- Discuss with PTC if CT scans should be obtained while waiting for transport
- Routine whole-body CT (WBCT) should NOT be routinely performed in pediatric trauma patients.
- 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 the need for tourniquet, blood products for transport.

**ACS-Verified 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

**For a comprehensive list of Trauma Centers in Georgia, please visit:**  
<https://georgiatraumafoundation.org/trauma-locations/>

## 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	<b>Abnormal Value</b>
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	<ul style="list-style-type: none"> <li>Initial bolus 20 mL/kg, if non-responsive, move to blood products</li> <li>In traumatically injured children in hemorrhagic shock -&gt; prioritize blood product transfusion over use of crystalloids</li> </ul>
	PRBCs	<ul style="list-style-type: none"> <li>10-20 mL/kg</li> <li>Target 1:1 plasma/PRBC weight-based ratios</li> <li>Whole Blood (low titer group O whole blood, LTOWB) safe in children and should be considered if available in lieu of blood component transfusion</li> </ul>
	Plasma	<ul style="list-style-type: none"> <li>Type AB</li> <li>10-20 mL/kg</li> <li>Target 1:1 plasma/PRBC weight-based ratios</li> </ul>
Maintenance Fluids	D <sub>5</sub> NS	<p>(4:2:1 Rule)</p> <ul style="list-style-type: none"> <li>4 mL/kg/hr first 10 kg</li> <li>2 mL/kg/hr next 10 kg</li> <li>1 additional mL/kg/hr for each kg over 20 kg</li> </ul>
Hypo-glycemic Treatment	D <sub>10</sub> W	Neonate with BG < 45 give 5-10 mL/kg IV or IO over 15-30 min
	D <sub>25</sub> W	Infants/Children with BG < 60 give 2-4 mL/kg
	D <sub>50</sub> W	≥ 12 years with BG < 60, give 1-2 mL/kg

## AVPU - Check Level of Responsiveness

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

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

[www.medkitauthority.com](http://www.medkitauthority.com)

## TEN-4-FACES<sup>p</sup>

Bruising Clinical Decision Rule for Children < 4 Years of Age

**When is bruising concerning for abuse in children < 4 years of age?**  
If bruising in any of the three components (Regions, Infants, Patterns) is present without a reasonable explanation, strongly consider evaluating for child abuse and/or consulting with an expert in child abuse.

**TEN**  
Torso | Ears | Neck



**FACES**

Frenulum  
Angle of Jaw  
Cheeks (*fleshy part*)  
Eyelids  
Subconjunctivae

REGIONS

4 months and younger



Any bruise, anywhere

INFANTS

Patterned bruising



Bruises in specific patterns like slap, grab or loop marks

PATTERNS