

Prehospital Pediatric Care Course

Lesson 2 Anatomic and Physiologic Differences

There are fundamental anatomic and physiologic differences between children and adults that directly effect

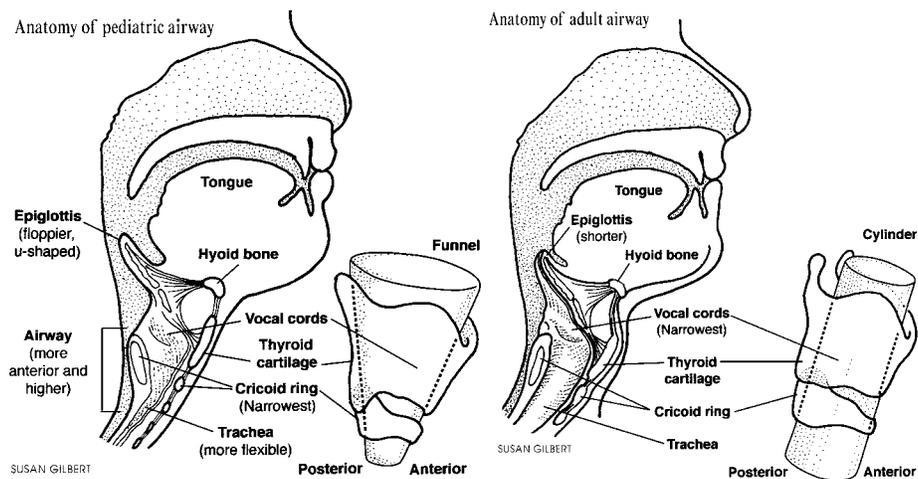
- **How assessment is performed**
- **How children respond to illness and injury**
- **How treatment and transportation decisions are made**

Pediatric Airway Considerations

- More anterior than the adult (less head tilt to open the airway).
- Smaller diameter of airway than the adult (easily blocked by secretions or blood).

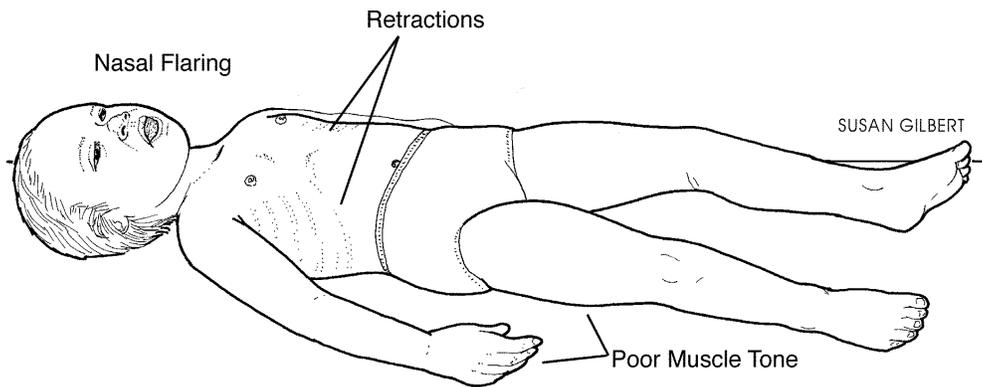
Large tongue in relation to jaw size (likely to cause obstruction when child is unconscious).

- Infants prefer to breathe through the nose (nasal obstructions can cause respiratory distress).



Breathing Considerations

- Small children are dependent on contraction of the diaphragm to breathe.
- Children in respiratory distress compensate rapidly by increasing the respiratory rate, but, then easily fatigue, signaling the onset of respiratory failure.
- Children may have pronounced retractions of the chest wall because their chest walls are less muscular and have more flexible bones.
- Bradycardia is a late sign of low blood oxygen in the pediatric patient.



Pediatric Respiratory Rates	
Age	Rate (breaths per minute)
Infant (birth–1 year)	30–60
Toddler (1–3 years)	24–40
Preschooler (3–6 years)	22–34
School-age (6–12 years)	18–30
Adolescent (12–18 years)	12–16

Circulation Considerations

- Children compensate efficiently in shock by increasing heart rate and vasoconstriction but then decompensate rapidly.
- Mental state change may be an indicator of hypoperfusion.
- Hypovolemia can develop from vomiting or diarrhea in children.
- Blood pressure is an unreliable indicator of perfusion in the pediatric patient.

Pediatric Pulse Rates		
Age	Low	High
Infant (birth–1 year)	100	160
Toddler (1–3 years)	90	150
Preschooler (3–6 years)	80	140
School-age (6–12 years)	70	120
Adolescent (12–18 years)	60	100

Pulse rates for a child who is sleeping may be 10 percent lower than the low rate listed.

Low-Normal Pediatric Systolic Blood Pressure	
Age*	Low Normal
<i>Infant (birth–1 year)</i>	<i>greater than 60*</i>
<i>Toddler (1–3 years)</i>	<i>greater than 70*</i>
Preschooler (3–6 years)	greater than 75
School-age (6–12 years)	greater than 80
Adolescent (12–18 years)	greater than 90

**Note: In infants and children aged three years or younger, the presence of a strong central pulse should be substituted for a blood pressure reading.*