

CHAPTERS 22 • 32 • 47

The Pediatric Airway

Same principles, different tolerances — anatomy, assessment, management, and the conditions that close a child's airway

Children rarely arrest from the heart. They arrest because nobody fixed the airway in time.
Approx. 90 minutes with skill stations • Aligned to Region SOP

Children arrest from the airway — and usually warn you first

1 The most common reason EMS treats a child

Respiratory emergencies. Not trauma, not seizures — breathing.

2 The most common cause of pediatric arrest

Airway and respiratory problems. Shock is second. Primary cardiac arrest is uncommon in children.

3 And it is rarely sudden

“Cardiopulmonary arrest is usually not a sudden event, but a progressive deterioration.” The child usually warns you.

The intervention that saves a child usually happens BEFORE the arrest

An adult arrest is often cardiac, and the question is how fast you defibrillate. A pediatric arrest is usually the end of a respiratory failure that has been developing for minutes or hours. Recognising distress, recognising failure, and supporting ventilation in time is where outcomes are decided.

Today — in the order the rest depends on

Anatomy and physiology

Every difference, and its one consequence.

Assessment

The PAT, and distress versus failure.

Basic management

Position, oxygen, suction, adjuncts, BVM, choking.

Advanced management

i-gel, intubation, drug-assisted airway, cric.

The conditions

Croup, epiglottitis, asthma, bronchiolitis and more.

REGION SOP Your pediatric arrest protocols: “The best airway is an effective airway with the least potential complications.”

Read now. We solve it at the end.

Dispatch

Child with difficulty breathing, 2110 hours.

On arrival

A 20-month-old boy on his mother's lap. She says he was playing with his older sister's toys about 40 minutes ago, started coughing hard, and has been "breathing funny" since. No fever that she has noticed. He had a runny nose last week.

First look: loud inspiratory stridor, suprasternal retractions, nasal flaring, crying and pushing the oxygen mask away. HR 170, RR 44, SpO₂ 90%.

Ten minutes later: he is quiet on his mother's lap and no longer fighting the mask. Stridor is softer. Retractions are less obvious. He looks pale. HR 96, RR 18, SpO₂ 84%.

Hold these questions:

- 1 He is calmer and quieter, and his stridor is softer. Is he better?
- 2 What does a heart rate falling from 170 to 96 mean in a hypoxic toddler?
- 3 Croup is the obvious answer. What in the history argues for something else?
- 4 What is the single most important intervention right now?

SECTION 1

Anatomy and Physiology

Fundamentally the same airway — with a short list of differences, and one consequence for each.

Head and airway · Chest and lungs · Physiology · Positioning

Every airway difference, and what it does to you

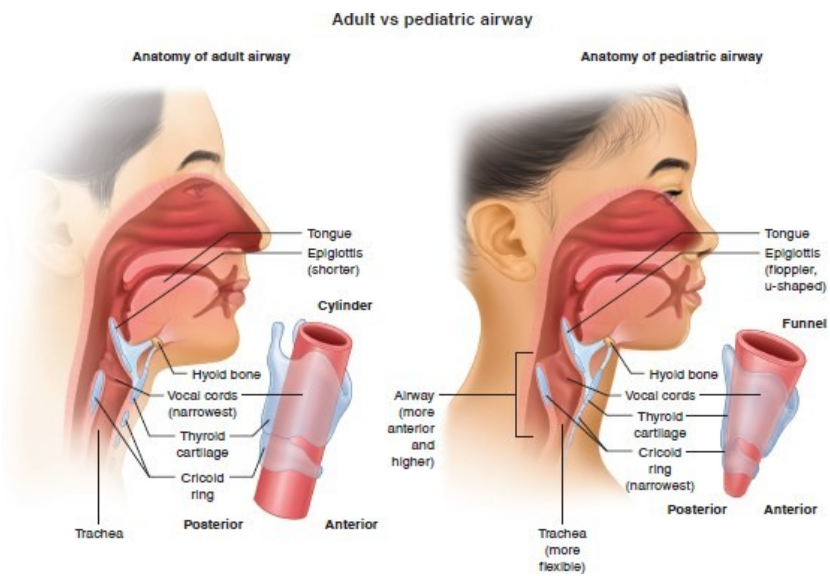


Figure 22-107 Adult versus pediatric airway.

Source: Paramedic Care: Principles & Practice, 6th ed. © Pearson Education.

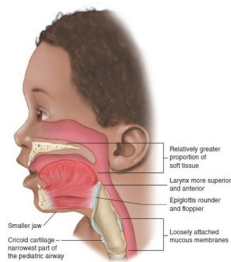


Figure 22-5 The pediatric airway.

The difference	What it does to you
Large occiput	Head flexes when supine on a flat surface — airway kinks. Needs padding
Narrower airway	A millimetre of swelling matters. Why croup obstructs a toddler and barely troubles an adult
Obligate nose breathers (infants)	Keep nares clear under 6 months. Congestion alone can cause distress; nasal suction helps
Proportionally large tongue	Obstructs easily; harder to control with a blade. Sizing of adjuncts matters
Soft, flexible trachea	Collapses if the neck is HYPEREXTENDED. The adult head-tilt instinct can obstruct
Higher larynx, floppy omega epiglottis	Different view. Straight blade usually preferred to lift the epiglottis directly
Cricoid ring is the narrowest point	A tube that passes the cords may still be too big. Devices can cause swelling

REGION SOP The pediatric airway protocols specify padding under the SHOULDERS for BVM ventilation — an instruction that exists because of the occiput.

Double the demand, half the reserve

1 Double the oxygen demand

Children need roughly TWICE the metabolic oxygen of adults — with SMALLER reserves. Desaturation is fast, and preoxygenation buys far less time.

2 Diaphragmatic breathers

The diaphragm does most of the work, and immature chest muscles tire easily. Anything that restricts the diaphragm restricts ventilation.

3 Prone to gastric distention

Crying and bag-mask ventilation fill the stomach. In an infant, a distended stomach can be the reason ventilation fails, not a nuisance.

4 Rate-dependent cardiac output

Infants cannot raise stroke volume much, so they raise heart rate. A FALLING heart rate in a sick child means compensation is failing.

Bradycardia in a sick child is hypoxia until proven otherwise

The treatment is oxygenation and ventilation first — many pediatric bradycardias resolve with a properly performed bag-mask. Infants also have greater vagal tone, so suctioning and laryngoscopy can trigger bradycardia directly: check the pulse frequently while you suction.

This is the most important physiologic fact in the session, and it is the answer to question two of the case study.

Neutral, not extended — and padding depends on age

1 Under 3 years: pad the BACK

A thin layer under the shoulders and back obtains neutral position — the large occiput is already lifting the head, so you raise the torso to meet it.

2 Over 3 years: pad the OCCIPUT

For a medically ill child, a folded sheet or towel under the occiput obtains the sniffing position. The child begins to position more like an adult.

3 Never hyperextend

The soft trachea can COLLAPSE when the head and neck are hyperextended. The adult head-tilt instinct is the wrong one in an infant.

4 Then look from the side

Ear canal level with the front of the shoulder. In an infant, the face parallel to the ceiling — not tipped back, not chin-to-chest.

The conscious child: position of comfort

Upright on a parent's lap is usually the right position. Do not lay a distressed child down to examine them.

Trauma

Padding from the shoulders to the HIPS for spinal motion restriction — the same occiput flexes the head on a board.

REGION SOP Pediatric airway protocols: padding under the SHOULDERS during BVM ventilation. The pediatric intubation sheet: padding between the scapulae to elevate the shoulders. Croup and epiglottitis: allow position of comfort.

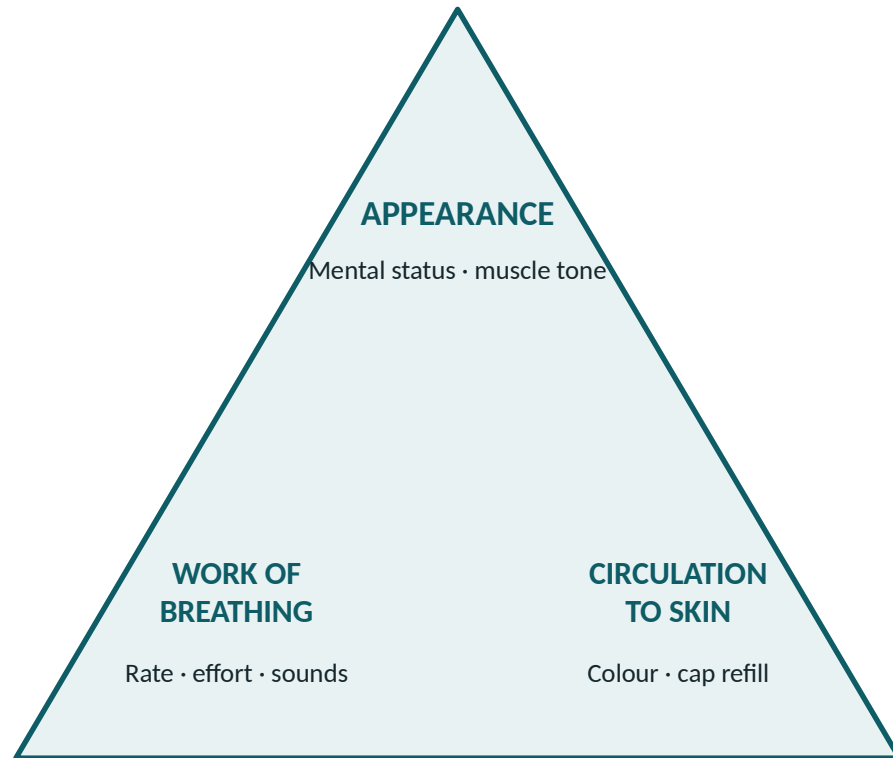
SECTION 2

Assessment

Most of what matters is visible before you touch the child — and the child is watching you too.

Pediatric Assessment Triangle · Distress, failure, arrest · Vital signs · Red flags

The Pediatric Assessment Triangle — from the doorway



Assessed by looking and listening, before you touch the child.

Abnormal sides	What it means
Work of breathing only	RESPIRATORY DISTRESS — compensating. Appearance and circulation are holding
Work of breathing + appearance	RESPIRATORY FAILURE — the brain is no longer getting what it needs
Circulation (± appearance)	Shock — compensated if appearance is normal, decompensated if not
Appearance only	Consider neurologic, metabolic, toxic causes
All three	CARDIOPULMONARY FAILURE — intervene now

Appearance matters most

It reflects brain oxygenation and perfusion. A child whose breathing seems to be easing while their appearance worsens has not improved — they have moved from distress to failure.

REGION SOP Pediatric Routine Medical Care: PRIMARY ASSESSMENT — PEDIATRIC ASSESSMENT TRIANGLE. Assess appearance, work of breathing, circulation to skin; then airway, breathing, circulation.

Distress, failure, arrest — and what each finding turns into

Finding	Respiratory distress	→ Respiratory failure	→ Respiratory arrest
Mental status	Normal, then irritability or anxiety	Deteriorating into LETHARGY	Unresponsive, deteriorating to coma
Respiratory rate	TACHYPNEA — an early sign	Deteriorating into BRADYPNEA	Absent
Effort	Retractions, nasal flaring, head bobbing, grunting	Deteriorating into agonal respirations	Absent chest wall movement
Heart rate	Tachycardia	Deteriorating into BRADYCARDIA	Bradycardia deteriorating to asystole
Colour / oxygenation	Cyanosis or hypoxia that IMPROVES with oxygen	Central cyanosis, hypoxia	Profound cyanosis
Muscle tone	Normal to poor	Poor	Limp

Read the table ACROSS. Every transition moves from a sign that looks bad to one that looks calmer.

Anxious becomes lethargic. Tachypnea becomes a slower rate. Retractions fade. Tachycardia slows. To an inexperienced eye every one of those reads as improvement — and every one of them is the child running out of reserve. That is the case study.

REGION SOP Pediatric Drug Assisted Advanced Airway: distress is “effectively compensating”; failure is “exhausted energy reserves, decreased respiratory rate, decreased effort, agitation or lethargy, cyanosis.”

Normal ranges, and the numbers that predict arrest

Weight band (SOP chart)	Approx. age	Resp. rate	Heart rate
3–5 kg	Neonate – 2 months	30–60	100–180
6–11 kg	3 – 18 months	30–60	100–160
12–14 kg	18 months – 3 years	24–40	90–150
16–22 kg	3.5 – 6.5 years	22–34	90–150
24–44 kg	7 – 16 years	18–30	70–120

Ranges summarised from the Region SOP Pediatric Reference Charts. Use the chart for the individual weight.

Arrest predictors — Chapter 47

RR > 60

HR > 180, or < 80 under 5 years

HR > 180, or < 60 over 5 years

Respiratory distress · trauma · burns

Cyanosis · altered LOC · seizures

Fever with petechiae

Count properly

Before the exam, for 30 seconds to a full minute.
Infants breathe irregularly — a 15-second count times four can be badly wrong.

The trend beats the number

A rate of 18 in a toddler is below range. A rate of 18 that came down from 44 is failure. Reassess continuously.

Hypotension is LATE

Children hold their pressure until they are close to arrest. It is an ominous sign, not an early warning.

REGION SOP Under 16 is pediatric. Determine weight with a LENGTH-BASED TAPE. All doses are weight based from the Pediatric Reference Chart; under 5 kg, contact OLMC for medication guidance.

SECTION 3

Basic Management

Where most children are saved — oxygen, suction, adjuncts, and a bag that fits.

Oxygen · Suction · Adjuncts · BVM · Choking

Oxygen — guided by the oximeter, delivered without a fight

1 Target: SpO₂ above 94%

Chapter 47 and your SOP agree: guide oxygen by pulse oximetry. Pediatric asthma targets 94–99%. Record SpO₂ and capnography before and during.

2 100% for resuscitation — except newborns

Newborn resuscitation starts with room air or low concentration and titrates to a target. Oxygen is a drug, and hyperoxia injures neonates.

3 Devices

Nasal cannula 2–6 L/min • non-rebreather 12–15 L/min • BVM 15 L/min.

4 BLOW-BY

Oxygen held near the face rather than strapped on — a mask a few centimetres away, or tubing held by the parent. Delivered by mask OR blow-by in your croup and epiglottitis protocols.

A screaming child inside a mask is often worse oxygenated than a calm one with blow-by

Agitation raises oxygen demand, and in croup and epiglottitis it can worsen the obstruction itself. Let the parent hold the oxygen. Keep the child on their lap.

REGION SOP Croup and Epiglottitis: “Keep patient calm — DO NOT AGITATE.” Humidified oxygen by placing 6 mL normal saline in the nebulizer, delivered by mask or blow-by.

Suction — gentler, shorter, and no deeper than you can see



Figure 22-128 Oropharyngeal suctioning.

Source: Paramedic Care: Principles & Practice, 6th ed. © Pearson Education.

Pediatric rule	Why it exists
Pressure under 100 mmHg	Fragile mucosa bleeds — and blood in a narrow airway is an obstruction you made
Under 10 seconds	Suction removes air too. A child’s small reserve empties fast
No deeper than you can see	Blind deep suction stimulates the vagus and the larynx
Check the pulse often	Greater vagal tone — suction readily triggers bradycardia

Bulb syringe

Squeeze BEFORE inserting, release to suction. Mouth first, then nose — or the infant may gasp and aspirate.

Nasal suction in infants

Obligate nose breathers. Clearing the nares can transform an infant’s work of breathing — Chapter 47 names it for bronchiolitis.

Catheter size — SOP chart

Soft suction 8 Fr to ~14 kg, 10 Fr ~16–38 kg, 12 Fr above. 12 Fr through the i-gel channel.

REGION SOP “Suctions the patient for more than 10 seconds” is a CRITICAL CRITERION on the pediatric intubation skill sheet as well as the adult sheets.

Oral and nasal airways — sized exactly, inserted differently



Figure 22-47 Oropharyngeal airway insertion.

Source: Paramedic Care: Principles & Practice, 6th ed. © Pearson Education.

1 Adjuncts for PROLONGED ventilation

Chapter 47 reserves them for prolonged artificial ventilation. For a short period, good position and a jaw thrust are often enough.

2 OPA: no gag, exact size, RIGHT SIDE UP

Tongue blade depresses the tongue and jaw; insert following the curve. No 180° rotation in small children — it damages the soft palate.

3 Size wrong either way and you obstruct

Corner of the mouth to the angle of the jaw. Too long pushes the epiglottis down; too short pushes the tongue back.

4 NPA: intact gag, no midface trauma

For prolonged ventilation in a patient with a gag. Small nares and large adenoids mean more bleeding and easy occlusion — check it often.

“Airway swelling can occur from airway device placement”

Every device placed in a narrow airway can cause the edema that narrows it further. In a child, gentle technique is not courtesy — it is airway management.

REGION SOP Nasal airway contraindicated with significant facial injury or possible basilar skull fracture — the same rule as in adults.

Bag-mask ventilation — the most important skill in this lecture



Figure 22-44 Two-person BVM ventilation.

Source: Paramedic Care: Principles & Practice, 6th ed. © Pearson Education.

1 1 breath every 2–3 seconds

On 100% oxygen, with adjuncts and padding under the shoulders — for at least 3 minutes before an advanced airway. About twice the adult rate.

2 Chest rise only, full recoil

Just enough volume to see the chest rise. Allow full exhalation. Over-inflation distends the stomach almost immediately.

3 The right mask

Bridge of the nose to the cleft of the chin, off the eyes. Too large leaks; too small cannot seal.

4 Know your pop-off valve

It can open before a stiff-lunged child gets an adequate breath. Chapter 47: avoid pop-off valves unless they can be occluded — and know how to close yours.

Two rescuers when you can

One holds the mask with a jaw thrust, one squeezes. Your epiglottitis protocol specifies two-rescuer BVM if the airway is obstructed.

Avoid hyperventilation

Use capnography to monitor and guide. Rescuers under stress bag children far too fast.

REGION SOP Ventilate with BVM for 100% OXYGEN with airway adjuncts and PADDING UNDER SHOULDERS, 1 breath every 2–3 sec., for ≥ 3 min. Two-rescuer pediatric CPR: 15:2.

The choking child — by age, and by severity

1 Mild or severe?

Coughing, crying or speaking means air is moving — let the child clear it, keep them calm, give oxygen, transport. Intervening can convert partial to complete.

2 Infant, 0–1 year

Cycles of 5 back blows and 5 CHEST thrusts. No abdominal thrusts — the large, poorly protected liver is at risk.

3 Child over 1 year

Repeated cycles of 5 back blows followed by 5 ABDOMINAL thrusts until relieved or unresponsive.

4 No blind finger sweeps

A blind sweep in a small mouth pushes the object deeper. Look, and remove only what you can see.

Unresponsive — your SOP ladder

CPR regardless of pulses; look in the mouth → video laryngoscopy and Magill forceps → past the cords and unremovable: intubate, push it into the right mainstem, pull back and ventilate the left lung → supraglottic and obscuring the view: suction ≤ 10 seconds → cricothyrotomy: NEEDLE under 10 years, surgical at 10 and above.

Foreign bodies can mimic croup — always ask about a possible choking event. Leading cause of in-home accidental death under six: hard candy, nuts, grapes, hot dogs, coins, balloons.

REGION SOP Textbook: children get abdominal thrusts. SOP: children over 1 year get 5 back blows FOLLOWED BY 5 abdominal thrusts. Follow the SOP.

SECTION 4

Advanced Management

Fewer children need it than you would think — and every one of them needs it done right the first time.

When to escalate · i-gel · Intubation · Drug-assisted airway · Cricothyrotomy

When a child needs more than a bag-mask

1 Cannot ventilate with BVM

Or a potentially impaired airway — despite adjuncts, padding, two rescuers and a correctly sized mask.

2 Distress progressing to failure

Retractions, nasal flaring and grunting that are leading to failure rather than compensating.

3 Ventilatory failure

Apnea, marked bradypnea or tachypnea, laboured breathing, hypoxia despite maximum oxygen delivery.

4 Glottic or supraglottic swelling

An airway that is going to close — burns, inhalation injury, anaphylaxis. Added for drug-assisted placement.

The gate

BVM on 100% oxygen with adjuncts and padding under the shoulders, 1 breath every 2–3 seconds, for at least 3 minutes.

If less invasive methods are ineffective or inappropriate: CALL OLMC for orders before drug-assisted placement — a control point the adult pathway does not have.

The stable child

Respiratory distress, effectively compensating: supplemental oxygen, head in neutral position, keep the child calm, allow caregiver access. No advanced airway.

The question is never “can I intubate this child,” but “does this child need it now.”

Do not delay transport for a procedure that can be done en route. A short transport with effective BVM may serve a child better than a difficult field intubation.

REGION SOP Pediatric Drug Assisted Advanced Airway: indications include “glottic or supraglottic swelling”; the unstable pathway includes respiratory failure due to burns, inhalation injury, anaphylaxis.

Equipment by weight — straight from your reference chart

Weight	Approx. age	ETT uncuffed	ETT cuffed	Depth at lips	i-gel	Soft suction
3–5 kg	0–2 mo	3.0 / 3.5 (see chart)		9–10.5 cm	1.5 blue	8 Fr
6–9 kg	3–13 mo	3.5	3.0	10–11 cm	1.5 blue	8 Fr
10–11 kg	14–18 mo	4.0	3.5	11–12 cm	1.5 blue	8 Fr
12–14 kg	18 mo–3 yr	4.5	4.0	12.5–13.5 cm	1.5 blue	8 Fr
16–18 kg	3.5–5 yr	5.0	4.5	14–15 cm	2.0 grey	10 Fr
20–22 kg	5.5–6.5 yr	5.5	5.0	15.5–16.5 cm	2.0 grey	10 Fr
24–28 kg	7–9 yr	—	6.0	15.5–16.5 cm	2.0–2.5	10 Fr
30–44 kg	9.5–16 yr	—	6.5	18.5–19.5 cm	2.5–3	10–12 Fr

Summarised from the Region SOP Pediatric Reference Charts (rev. 3/25/2024). Use the chart itself for the individual weight.

Weight, not age

Children of the same age vary enormously. Length-based tape → weight → chart.

Cuffed is half a size smaller

The cuff takes up space. From ~24 kg the chart lists cuffed only. Have a half size either side ready.

Depth cross-check

About 3 × the tube size in cm — a 4.0 tube sits near 12 cm.

The i-gel and pediatric intubation

i-gel — a first-line option in children

Adult OR PEDIATRIC, unresponsive, no gag reflex, BVM ineffective. Not with an intact gag, esophageal disease, or caustic ingestion.

Sizing by weight: 1.5 (5–12 kg) • 2 (10–25 kg) • 2.5 (25–35 kg).

Your pediatric drug-assisted protocol lists i-gel and ET tube as PARALLEL options at the same step. The textbook mentions the LMA; your system carries the i-gel.

1 Pad, oxygenate, position

Pad shoulders and neck, ventilate with 100% oxygen, head and neck optimal.

2 Straight blade, find the epiglottis

Left hand, right side of the mouth, toward the midline. Look for the tip of the epiglottis.

3 Cuff 2–3 cm past the cords

Pass through the right corner of the mouth under direct vision. Hold the tube.

4 Confirm, secure, recheck

CO₂ detector or waveform on the BVM. Secure, then recheck periodically.

No more than 30 seconds without ventilating — and watch the monitor, not just the view

Vagal bradycardia and rapid desaturation both happen fast. Stop and ventilate at 30 seconds or on desaturation. Auscultation misleads in a small chest — CAPNOGRAPHY is the gold standard. When a tubed child worsens, think DOPE: Displacement, Obstruction, Pneumothorax, Equipment.

REGION SOP Short tubes move with the head: flexion drives the tube deeper, extension pulls it out. Reconfirm with capnography after every move.

Drug-assisted airway and the needle cricothyrotomy

Step	Pediatric drug-assisted advanced airway (SOP)
Before	BVM 100% O ₂ , adjuncts, padding under shoulders, 1 breath q2–3 sec, ≥ 3 min
Gate	CALL OLMC for orders. Assess for a positive gag reflex
Induction 1	KETAMINE 1 mg/kg IVP/IO slowly over 1 min, max 300 mg
At 1 minute	Inadequate sedation: KETAMINE 0.5 mg/kg, max TOTAL 450 mg
Place	i-gel OR endotracheal tube. Verify with capnography; monitor throughout
After	At 15 min, as needed: KETAMINE 0.5 mg/kg — NO REPEAT DOSING

Two contrasts with the adult pathway

An OLMC CALL is required first. The adult pathway has no such gate.

Post-intubation sedation is ONE dose at 15 minutes with NO repeat. The adult dose repeats every 5 minutes with no maximum.

The textbook describes RSI with paralytics. Your system uses ketamine alone.

Needle cricothyrotomy — the last resort under 10 years

Chapter 47: rarely indicated, landmarks harder to find, and the only indication is failure to obtain an airway by any other method in complete occlusion. SOP: surgical cric is CONTRAINDICATED under 10. Needle: 10–14 G catheter, 45° toward the feet, aspirate air, advance, 3.0 ETT adapter, BVM, confirm with capnography. It buys oxygenation, not good ventilation — a bridge to hospital.

REGION SOP Pediatric ketamine is dosed in mg/kg from the length-based-tape weight (1, then 0.5, then 0.5 at 15 min) — not the adult height-based ideal-body-weight table.

SECTION 5

The Conditions

Upper airway, lower airway — and the one question that separates them: stridor or wheeze?

Croup · Epiglottitis · Tracheitis · Foreign body · Asthma · Bronchiolitis

Stridor — four causes, four different children

	CROUP	EPIGLOTTITIS	BACTERIAL TRACHEITIS	FOREIGN BODY
Cause	Viral	Bacterial (classically Hib)	Bacterial, often after croup	An object
Typical age	6 months – 4 years	3 – 7 years	1 – 5 years	Toddlers; under 6 highest risk
Onset	Gradual, after a cold	Rapid	Croup that suddenly worsens	SUDDEN, often while eating or playing
Fever	Low-grade	HIGH	HIGH	Usually none
Cough	Harsh, BARKING	NO cough (SOP)	Productive — pus and mucus	Choking episode
Key sign	Inspiratory stridor	DROOLING, tripod, pain swallowing	Hoarse voice, looks toxic	History of a choking event
Key rule	Do not agitate	DO NOT visualise the airway	May need high-pressure ventilation	Mild: let them cough

SOP — croup and epiglottitis share one pathway

Keep calm, position of comfort, humidified O₂ (6 mL NS in the neb) by mask or blow-by. Unstable: NEBULIZED EPINEPHRINE 1 mg/mL 0.5 mg/kg, may repeat, max 5 mg. BVM if deteriorating; consider drug-assisted airway.

Where the textbook differs

Chapter 47 recommends steroids for croup and mentions racemic epinephrine. Your SOP has NO steroid and uses 1 mg/mL epinephrine nebulized. It also gives neb epi in epiglottitis. Follow the SOP; tell the hospital what you gave.

REGION SOP Croup pearl: “Foreign bodies can mimic croup, it is important to ask about a possible choking event.”

Wheeze — asthma, bronchiolitis, pneumonia, foreign body

1 Asthma

Chronic inflammation, bronchospasm, mucus. Tripod, tachypnea, accessory muscles, wheeze — and NO wheeze heard is an OMINOUS sign. Status asthmaticus: absent sounds, exhaustion, acidosis.

2 Bronchiolitis

Viral, usually RSV, under 2 years. Looks like asthma — but asthma rarely occurs under 1 year. Humidified oxygen and NASAL SUCTION; bronchodilators often help less.

3 Pneumonia

Infants to preschoolers, mostly viral. Decreased breath sounds, crackles, rhonchi, tachypnea. Supportive care, oxygen, BVM if needed.

4 Lower airway foreign body

Something in the mouth that disappeared. UNILATERAL diminished sounds or wheeze. Transport to a centre with pediatric bronchoscopy.

Pediatric asthma (SOP)	Treatment
All	OXYGEN to SpO ₂ 94–99% · ECG, capnography
Mild / moderate	ALBUTEROL 2.5 mg NEB, may repeat 5 min · DuoNeb (albuterol 2.5 mg + ipratropium 0.5 mg)
Severe / impending failure	DuoNeb · MAGNESIUM 25 mg/kg over 15 min, max 2 g · consider BVM 1 breath q2–3 sec
Still deteriorating	Contact OLMC: EPINEPHRINE 1 mg/mL 0.01 mg/kg IM, max 0.3 mg

Unilateral wheeze in a toddler is a foreign body until proven otherwise — asthma is bilateral. And a quiet chest in an asthmatic child is the most dangerous finding on this slide.

Children with tracheostomies and home ventilators



Figure 22-127b Uncuffed tracheostomy set.

Source: Paramedic Care: Principles & Practice, 6th ed. © Pearson Education.

1 Usually UNCUFFED, no inner cannula

The adult first step — remove the inner cannula — does not exist. Blocked tube: suction; if it does not clear, **CHANGE THE TUBE**.

2 Ask for the go-bag

Parents carry spare tubes, often one a size smaller, and are trained to change them. They have usually done it many times.

3 Ventilating an uncuffed trach

Air leaks up through the mouth and nose. Covering them can improve volume. Consider an **INFANT OR CHILD** mask over the stoma.

4 Home ventilators and apnea monitors

Ventilator failure or power loss: disconnect and bag by hand. An apnea alarm is not a false alarm until you have assessed the child.

The parent is the expert in the room

Chapter 47: use the caregiver's knowledge and expertise. Ask for the child's baseline, normal saturation, suction depth and tube size — then ask them to help.

REGION SOP Functional Needs: evaluate for displacement, obstruction, pulmonary problem, equipment issue. "Consider infant/child mask over stoma for ventilation; seal mouth and nose if air escaping." Confirm the patient's baseline with the caregiver.

What to carry out of this lecture

1 Same airway, short list of differences

Large occiput, narrow airway, big tongue, floppy epiglottis, soft trachea, cricoid narrowest. Each has one consequence — learn the consequences.

2 Double the demand, half the reserve

Children desaturate fast. Bradycardia in a sick child is hypoxia until proven otherwise — ventilate first.

3 Read the triangle from the doorway

Appearance, work of breathing, circulation to skin. Appearance matters most, and it catches failure that the other findings hide.

4 Deterioration looks like improvement

Lethargy, a slower rate, fading retractions, a slowing heart. Every transition from distress to failure looks calmer.

5 Basic care saves most children

Position by age, oxygen without a fight, gentle suction, the right mask at 1 breath every 2–3 seconds. The best airway is an effective one.

6 Stridor is not wheeze

Upper airway: keep calm, humidified oxygen, nebulized epinephrine. Lower airway: bronchodilators. Unilateral wheeze is a foreign body.

Children rarely arrest from the heart. They arrest because nobody fixed the airway in time.

Equipment must fit the patient. Knowing when to use it is as important as knowing how. And the parent is usually the expert in the room.

Your 20-month-old — the whole lecture, applied

Is he better? No.

Distress has become FAILURE. His work of breathing looks easier, but his APPEARANCE is now abnormal — quiet, pale, uninterested. The SOP pearl: fatigue, pallor, decreased retractions and decreasing stridor mean impending failure.

The heart rate

170 falling to 96 is not improvement. Cardiac output is rate-dependent in small children, and bradycardia in a sick child is HYPOXIA until proven otherwise. He is close to arrest.

Why not croup

Croup is gradual, after a cold, with a barking cough and fever. This was SUDDEN, while playing with a sibling's toys, after a coughing fit, with no fever. Foreign bodies can mimic croup.

What now

VENTILATE: padding, correct mask, two rescuers, 1 breath every 2–3 seconds. Cannot ventilate: the obstruction ladder — and under 10, needle cric as last resort. Rapid transport to a centre with pediatric bronchoscopy.

Treated as croup, he would have looked reasonable for ten minutes and arrested en route. The history was the diagnosis — and the calm child was the warning.

Check your understanding

- 1 What is the most common cause of pediatric cardiac arrest, and why does its usual course give you an opportunity?
- 2 What does the large occiput do, and how does padding differ under and over 3 years of age?
- 3 Why must you avoid hyperextending an infant's neck?
- 4 Where is the narrowest point of a child's airway, and what are two consequences?
- 5 How does a child's oxygen demand and reserve compare with an adult's, and what does that mean for apnea?
- 6 A hypoxic toddler's heart rate falls from 170 to 96. What does it mean and what do you do?
- 7 Name the three sides of the Pediatric Assessment Triangle. Which matters most?
- 8 Describe four ways signs change from distress to failure — and why each misleads.
- 9 List the Chapter 47 heart and respiratory rate thresholds that predict arrest.
- 10 What SpO₂ does your SOP target, and which patients are the exception to 100% for resuscitation?
- 11 Give the four pediatric suction rules.
- 12 How is an OPA inserted in a small child, and why not by rotation?
- 13 State the SOP pediatric BVM rate, and what must accompany it before advanced placement.
- 14 Why does the pop-off valve on a pediatric bag matter?
- 15 Give the SOP choking sequence for an infant and for a child over 1 year. What must you never do?
- 16 What is the gate before pediatric drug-assisted airway, and how does post-intubation sedation differ from adults?
- 17 Below what age is surgical cricothyrotomy contraindicated, and what replaces it?
- 18 Distinguish croup from epiglottitis on four features. What must you not do in epiglottitis?
- 19 What single fact helps distinguish bronchiolitis from asthma, and what intervention helps most?
- 20 A toddler has unilateral wheeze. What should you suspect?

Answer these before the session and again after — that gap is the measure of what you learned.