

PEDIATRIC RESPIRATORY EMERGENCIES

Facilitator Cheat Sheet — Big-Ticket Items · Fall CME 2026

The Big Three at a Glance

	Bronchiolitis	Croup	Asthma / Bronchoconstriction
Age	< 24 mo (peak 2–6 mo)	6 mo – 6 y	Usually > 1 y
Airway level	Lower — bronchioles	Upper — subglottic	Lower — bronchi/bronchioles
Cause	Viral (RSV most common)	Viral (parainfluenza most common)	Chronic inflammation + trigger
Hallmark sound	Wheeze ± fine crackles	Inspiratory stridor, barking cough	Biphasic wheeze; silent chest if severe
History clue	First episode, infant + URI	“Seal-like” cough, worse at night	Personal/family history of asthma
1st-line field tx	Supportive care only (suction, position, O2)	Nebulized epi (if stridor at rest) + PO dex	Salbutamol MDI/NEB + PO dex

Universal Red Flags — Regardless of Diagnosis

Escalate on any of these

Falling respiratory rate/effort after a period of severe distress — this is fatigue, not improvement.

Silent chest in a child who was wheezing — no airflow left to make the sound, not better.

- One tip: if the child is well enough and you can't tell if there's wheeze you could encourage a large inspiration and rapid exhale (as if trying to clear the lungs without coughing) to trigger the wheeze sound or it may make the prolonged expiratory phase more obvious

Bradycardia in a distressed child — a pre-arrest sign, never reassuring.

Altered LOC — irritability progressing to lethargy/unresponsiveness.

Apnea, especially under 2–3 months — can be the presenting sign before the chest ever sounds sick.

Can't speak, feed, or cry due to respiratory effort.

Clinical gestalt always overrides the score — PRAM/Westley are shared language with the hospital, not a treat/don't-treat gate.

Key Formulas & Worked Math

Memorize these

Estimated weight (kg) = (age in years × 2) + 10

Pediatric hypotension: SBP < 70 + (2 × age in years)

Dex worked example (14 kg): 0.5 mg/kg × 14 kg = 7 mg → at 10 mg/mL = 0.7 mL PO.

Dex worked example (4 y/o, weight unknown): (4×2)+10 = 18 kg → 0.5×18 = 9 mg, capped at max 8 mg → 0.8 mL PO. Any child > 16 kg gets the full 8 mg.

PRAM worked example: suprasternal 2 + scalene 0 + wheeze 1 + air entry 3 + SpO2 1 = 7 → Moderate.

Croup — Big Ticket

- **Keep the child calm.** Crying/agitation increases turbulent flow through an already-narrow subglottic airway and worsens obstruction — this is treatment, not just comfort.
- **Epinephrine directive:** age ≥6 mo–<8 y, HR <200, AND stridor AT REST (not just with agitation). Nebulized 1:1,000, single dose — <10 kg: 2.5 mg; ≥10 kg: 5 mg. Effect is temporary — rebound stridor can occur in 1–2 h, so transport/monitor regardless of how good the child looks afterward. These children are observed in the ED for at least 2 hrs post epi neb.
- **Dexamethasone directive:** age ≥6 mo–<8 y, unaltered LOA, indicated for MILD/MODERATE/SEVERE croup (i.e., basically everyone). 0.5 mg/kg PO, max 8 mg, single dose. Contraindicated if steroids given in the last 48 h, allergy, or can't tolerate PO.
- **Order when both are given:** epi first, then dex. Epi acts faster, delivers O2 via the neb, and reduces aspiration/vomiting risk of a PO med in a severely distressed child.
- **Why NOT salbutamol:** it's a lower-airway drug; croup is upper-airway swelling. Beta-2 mediated vasodilation can worsen the edema, and increasing flow velocity through the narrowed segment (Bernoulli) can collapse the very pressure that's stenting the airway open.
- **Mimic — epiglottitis:** toxic-looking, high fever, drooling, tripod, refuses to lie flat, minimal/no cough. Hands off the oropharynx, don't agitate, blow-by O2, calm environment, rapid transport.

Asthma / Bronchoconstriction — Big Ticket

- **Three drivers of obstruction:** bronchospasm, airway inflammation/edema, mucus plugging — a bronchodilator only treats the first, so a severe attack may not fully resolve with salbutamol alone.
- **PRAM (0–12):** suprasternal indrawing (0/2) + scalene (0/2) + wheeze (0–3) + air entry (0–3) + SpO2 (0–2). Mild 1–3, Moderate 4–7, Severe 8–12. A silent chest / minimal air entry scores the MAXIMUM (3), not zero.
- **Salbutamol:** <25 kg — MDI up to 600 mcg (6 puffs) or NEB 2.5 mg; ≥25 kg — MDI up to 800 mcg (8 puffs) or NEB 5 mg. Repeat q5–15min, max 3 doses. MDI+spacer is preferred generally (equivalent efficacy, fewer side effects, shorter ED stay, better infection control) — switch to NEB if the child also needs supplemental O2.
- **Fever rule:** known/suspected fever or a febrile-illness outbreak → nebulization is contraindicated; use MDI + spacer instead.

- **IM epinephrine:** only if the child requires BVM ventilation AND has a history of asthma. 0.01 mg/kg IM, max 0.5 mg, single dose — give FIRST, before salbutamol; can be given simultaneously with BVM.
- **Dexamethasone:** 0.5 mg/kg PO/IM/IV, max 8 mg — give rescue bronchodilator first, then dex.
- **Why intubation is high-risk here:** poor ventilation → CO₂ retention/acidosis; hyperinflation/gas trapping → risk of pneumothorax/pneumomediastinum; positive-pressure ventilation on top of high intrathoracic pressure → impaired preload → risk of arrest.

Bronchiolitis — Big Ticket

- **Supportive care only** — position of comfort, gentle nasal suctioning, O₂ only if SpO₂ persistently <90% while awake, minimize handling. No dedicated Ontario directive.
- **No evidence for** salbutamol, ipratropium, inhaled/systemic corticosteroids, or antibiotics. Under 6 months, beta-agonist receptors essentially aren't present in the lungs yet.
- **Obligate nasal breathers:** nasal passages account for ~50% of total airway resistance in infants — suctioning can meaningfully ease distress and improve feeding.
- **Apnea can be the FIRST sign**, especially under 2–3 months, even before wheeze/crackles or obvious distress — a reassuring-sounding chest doesn't rule this out.
- **Clinical diagnosis:** auscultation is variable — wheeze, crackles, transmitted upper-airway sounds, or a clear chest can all occur. Age + viral prodrome + increased WOB is the pattern.

Don't-Miss Mimics

Anaphylaxis

Multi-system (respiratory + GI ± cardiovascular) + potential allergen exposure — you don't need hives. Treatment is IM epinephrine regardless of whether it looks upper or lower airway.

Dose: 0.01 mg/kg IM of 1:1,000 (thigh preferred over deltoid). IV epi (1:10,000) is reserved ONLY for cardiac arrest. Fluid bolus 20 mL/kg for hypotension; salbutamol PRN for bronchospasm.

Foreign body aspiration

Sudden onset during eating/play, often a unilateral wheeze ± choking history. Hands-off — don't agitate a partial obstruction into a complete one. No medication fixes this.

Never leave a child at home after a choking episode, even if they now seem fine — examine the scene for what the object could have been.