Bark Like a Seal: Croup

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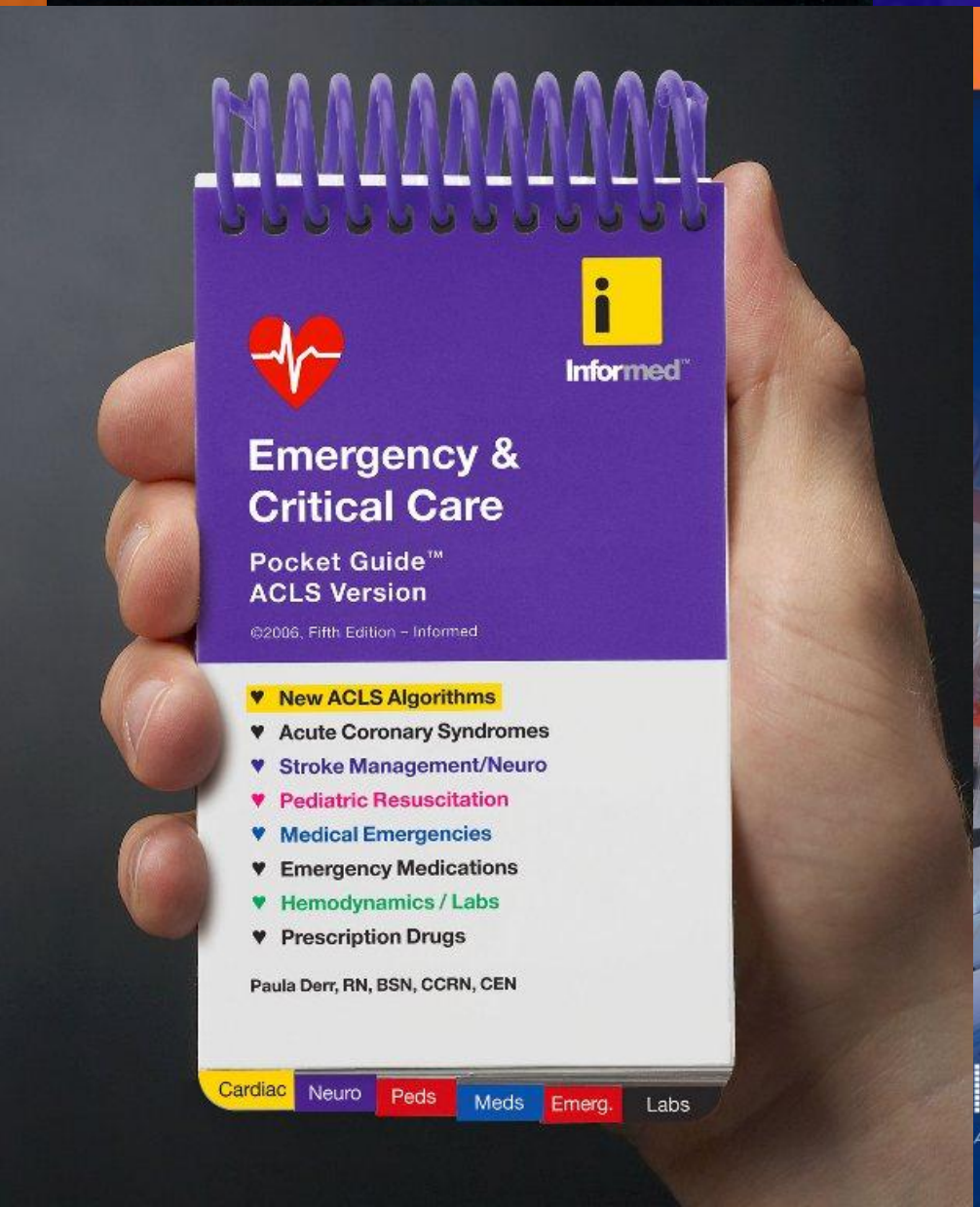

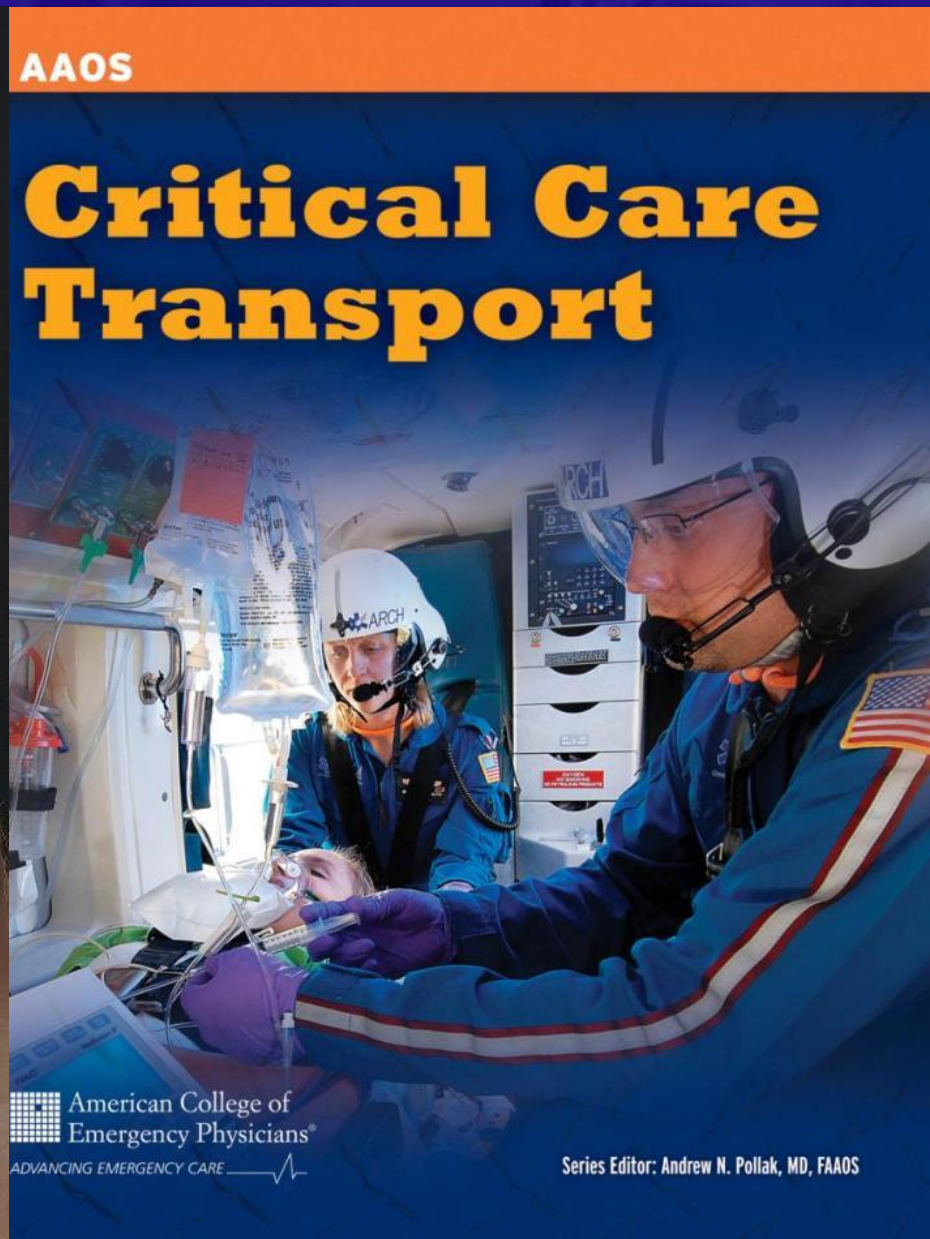

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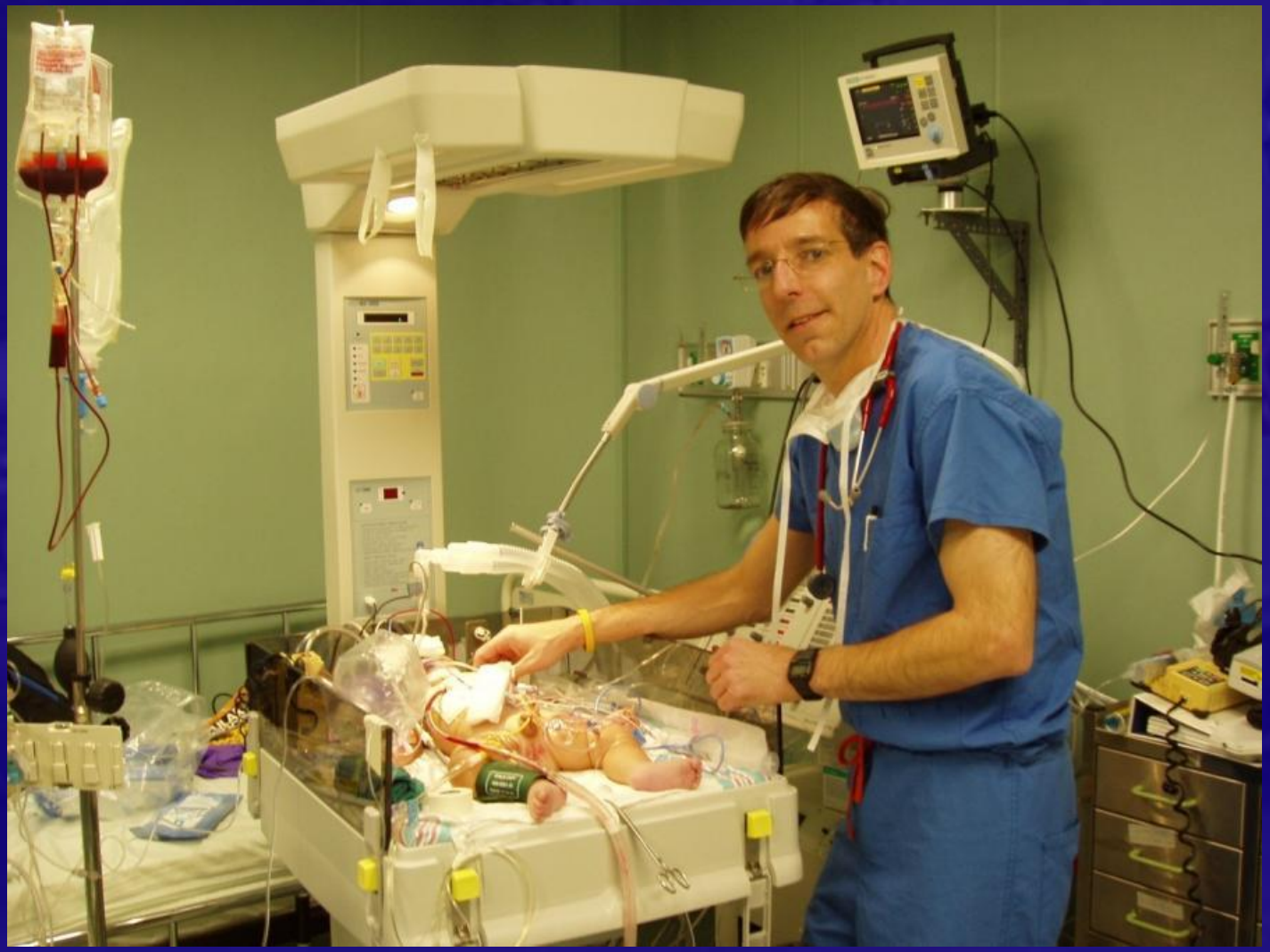


How Many Kids?

- Peds account for 5% EMS calls
  - Only 10% of pedi patients require ALS

Pediatric Patients

Pediatric Patient

- Often mimic provider
- Calm, matter of fact approach is best

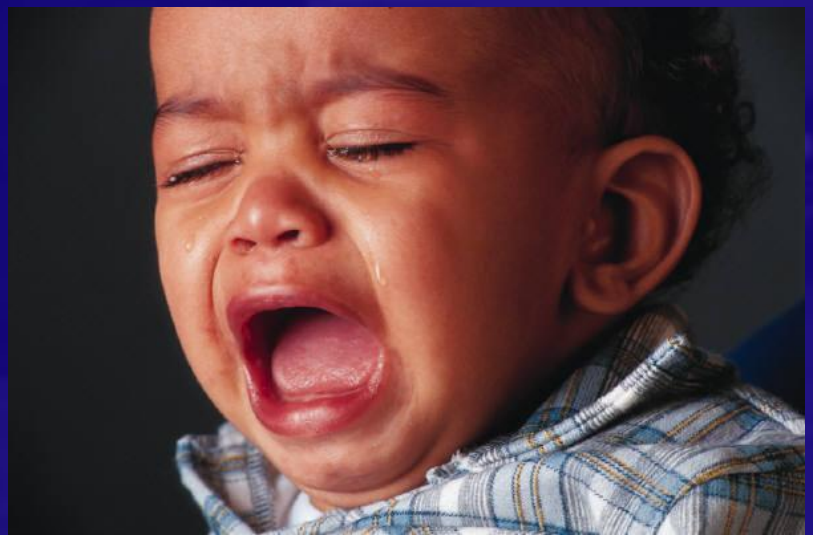
Respiratory Emergencies

Primary cause in children:

- Hospital admissions
- Death in first year of life (excepting congenital abnormalities)

Croup (laryngotracheitis)

- Viral respiratory illness characterized by inspiratory stridor, cough, hoarseness
  - Barking cough in infants & young children
  - Hoarseness in older children & adults
- Usually mild and self-limited illness
  - Upper airway obstruction & death can occur



Croup Confounders

Sometimes confused with:

- Laryngitis (hoarseness only)
- LTB (laryngotracheobronchitis) – extends into bronchi with resultant lower airway s/s (wheezes, rales, air trapping) increased risk for bacterial superinfection
- Bacterial tracheitis (croup) – thick, purulent exudate with s/s upper airway obstruction

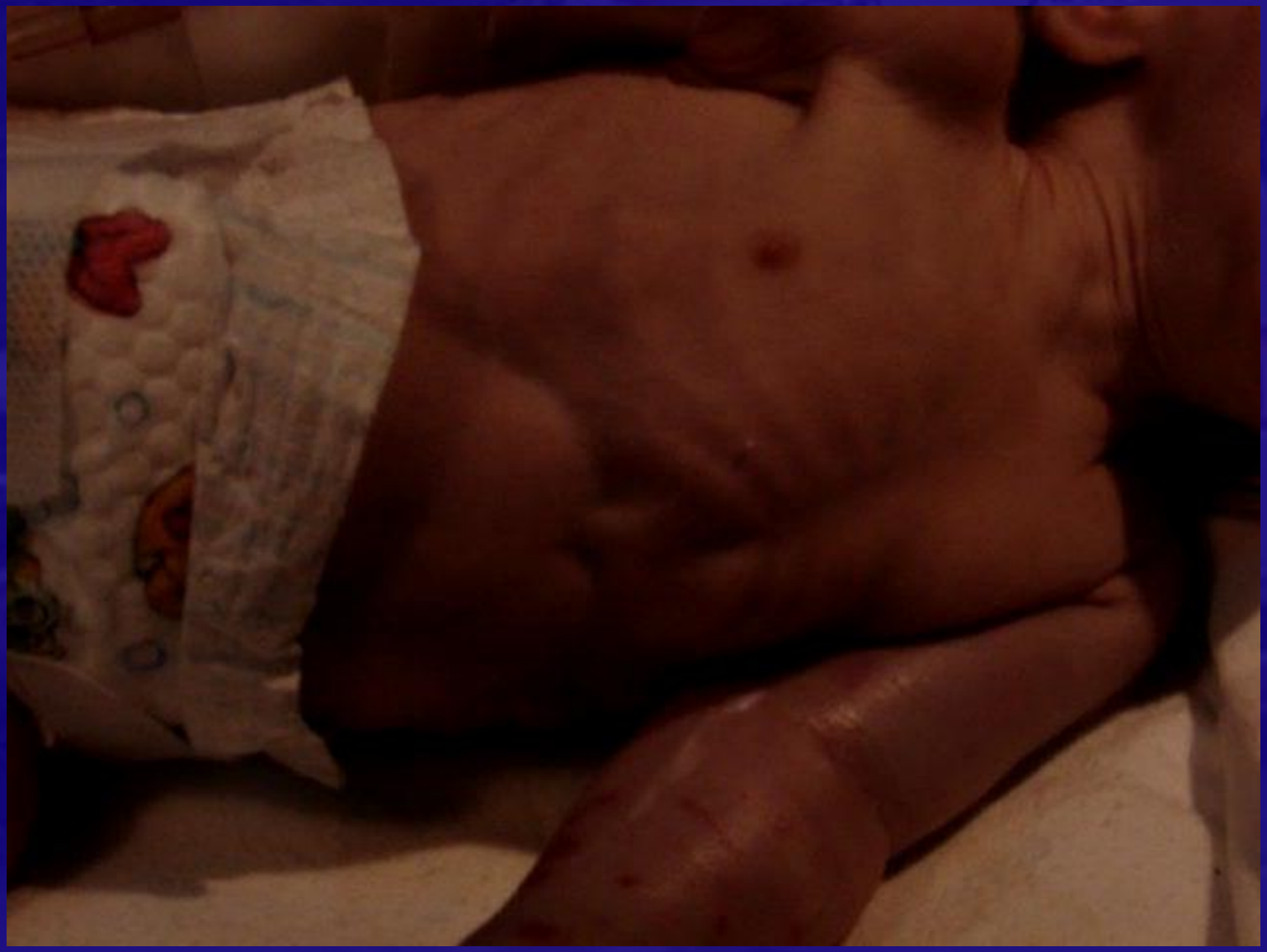
Croup Etiology/Epidemiology

- Kids 6 – 36 mo, rare > 6 yo, males 1.4:1
- Peak 10p – 4a
- RF: family hx, recurrent
- Viral – parainfluenza type 1 most common, esp. fall/winter (peak = Oct)
- Can be RSV, measles, or other viruses
- Incidence 6% (< 6 yo)

Croup Presentation

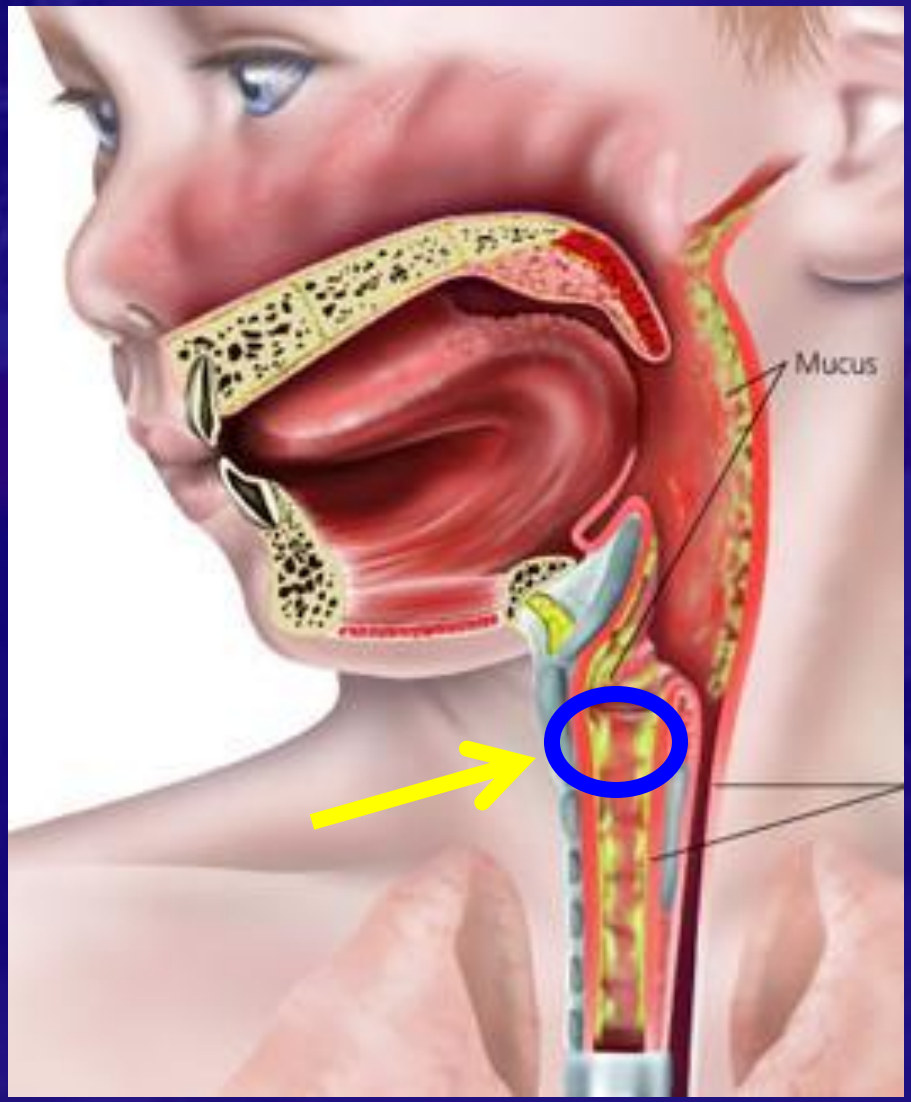
- Gradual onset 12 – 48 hours
  - Initially runny nose, congestion
  - Progresses to fever, cough, barking, stridor
- Persists 3 – 7 days, gradually normal
- ASSESSMENT KEY = stridor degree
  - Stridor at rest = significant upper ao
  - Others keys: retractions, restlessness
  - Tachypnea typically = hypoxia
  - ⬇ LOC = ominous sign

Respiratory Assessment



Croup Pathophysiology

- Narrowed subglottic trachea (edema and mucus)



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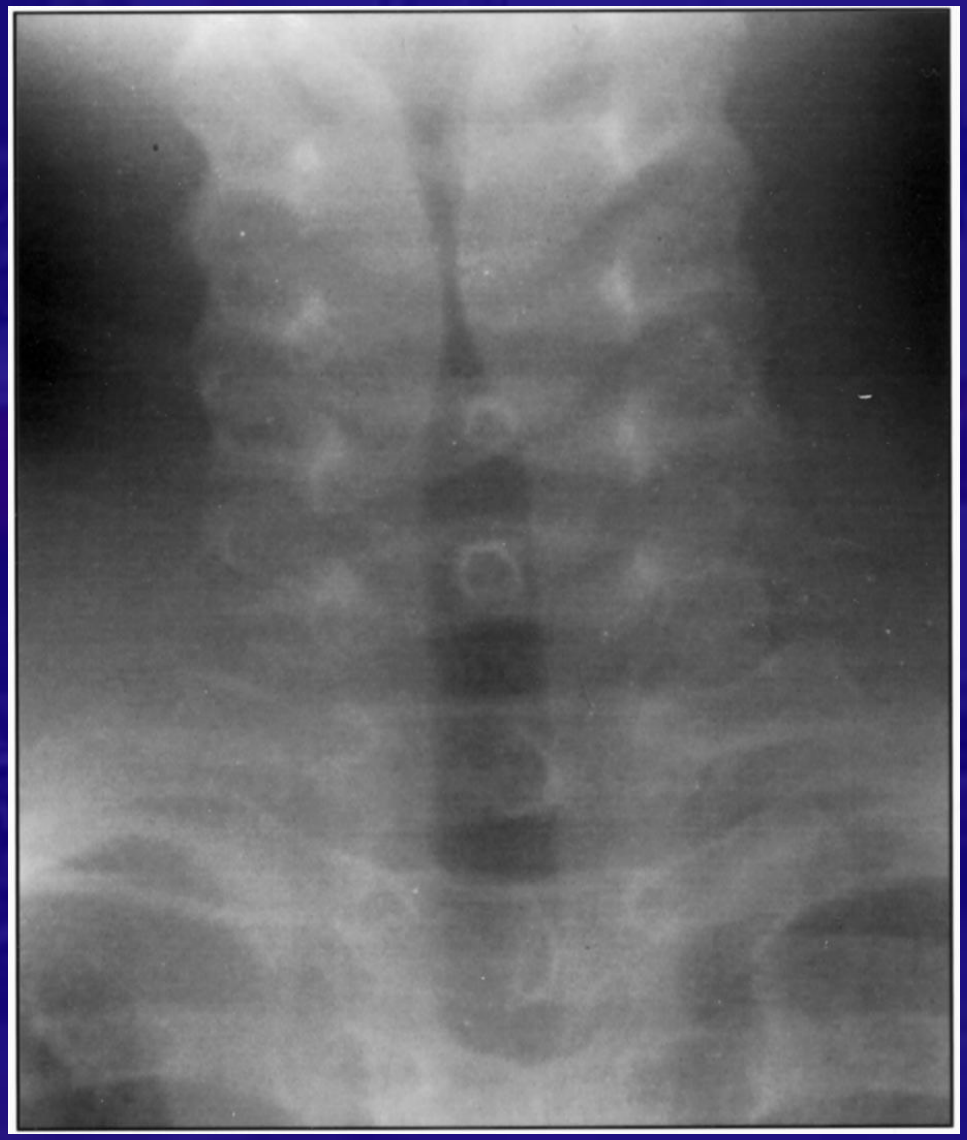

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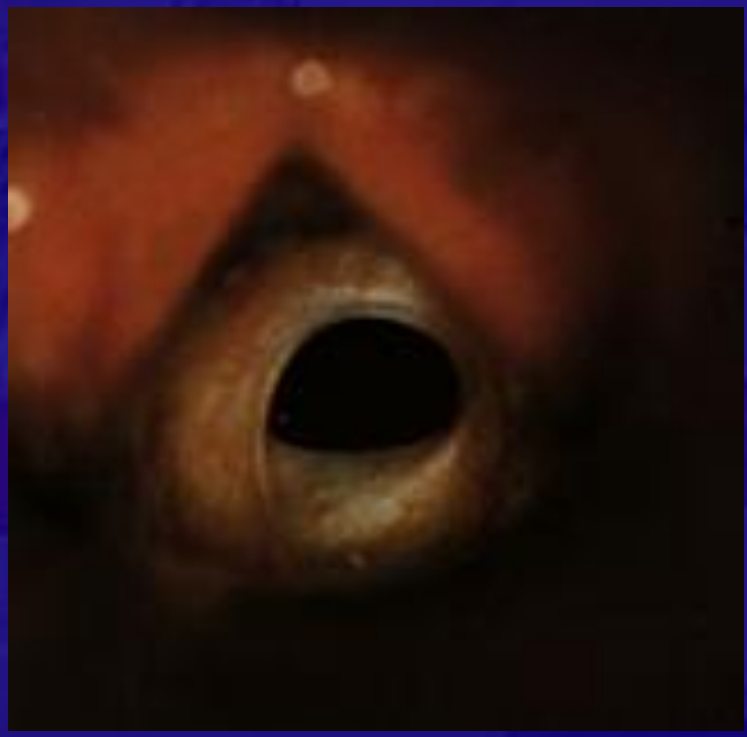
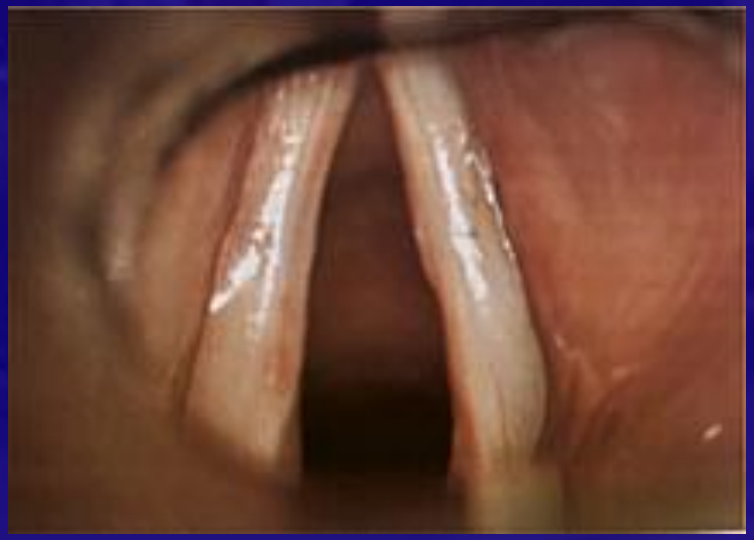




Concerns/History

- Sudden onset
- Rapid progression (< 12 hours)
- Previous croup history
- Underlying upper airway abnormality
- Respiratory comorbidities

Croup Differentials

- Fever – absence ? spasmodic croup
- Hoarseness/bark – absent in epi, FBOA
- Diff swallowing – present in epi, FBOA
- Drooling – rare in croup (10%), common in abscesses, epiglottitis (80%)
- Throat pain – more common in epi (60 – 70%) than croup (< 10%)

Wesley Croup Score (0 – 17)

- LOC: WNL/sleep = 0, altered = 5
- Cyanosis: none = 0, agitation = 4, rest = 5
- Stridor: none = 0, agitation = 1, rest = 2
- Air entry: normal = 0, ↓ = 1, marked ↓ = 2
- Retractions: none = 0, mild = 1, mod = 2, severe = 3

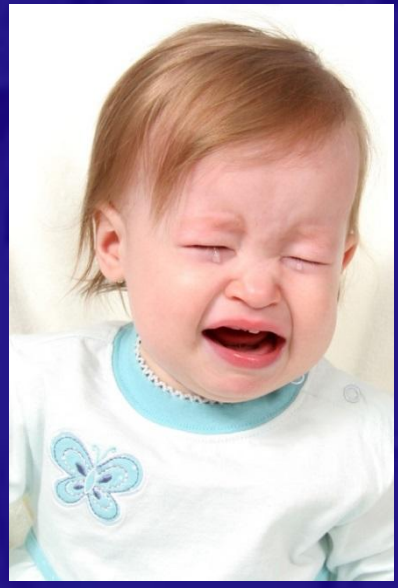
Score = Mild ≤ 2, Moderate 3 – 7, Severe ≥ 8

Wesley CR, Cotton EK, Brooks JG. Nebulized racemic epinephrine by IPPB for the treatment of croup: a double-blind study. Am J Dis Child 1978; 132:484.

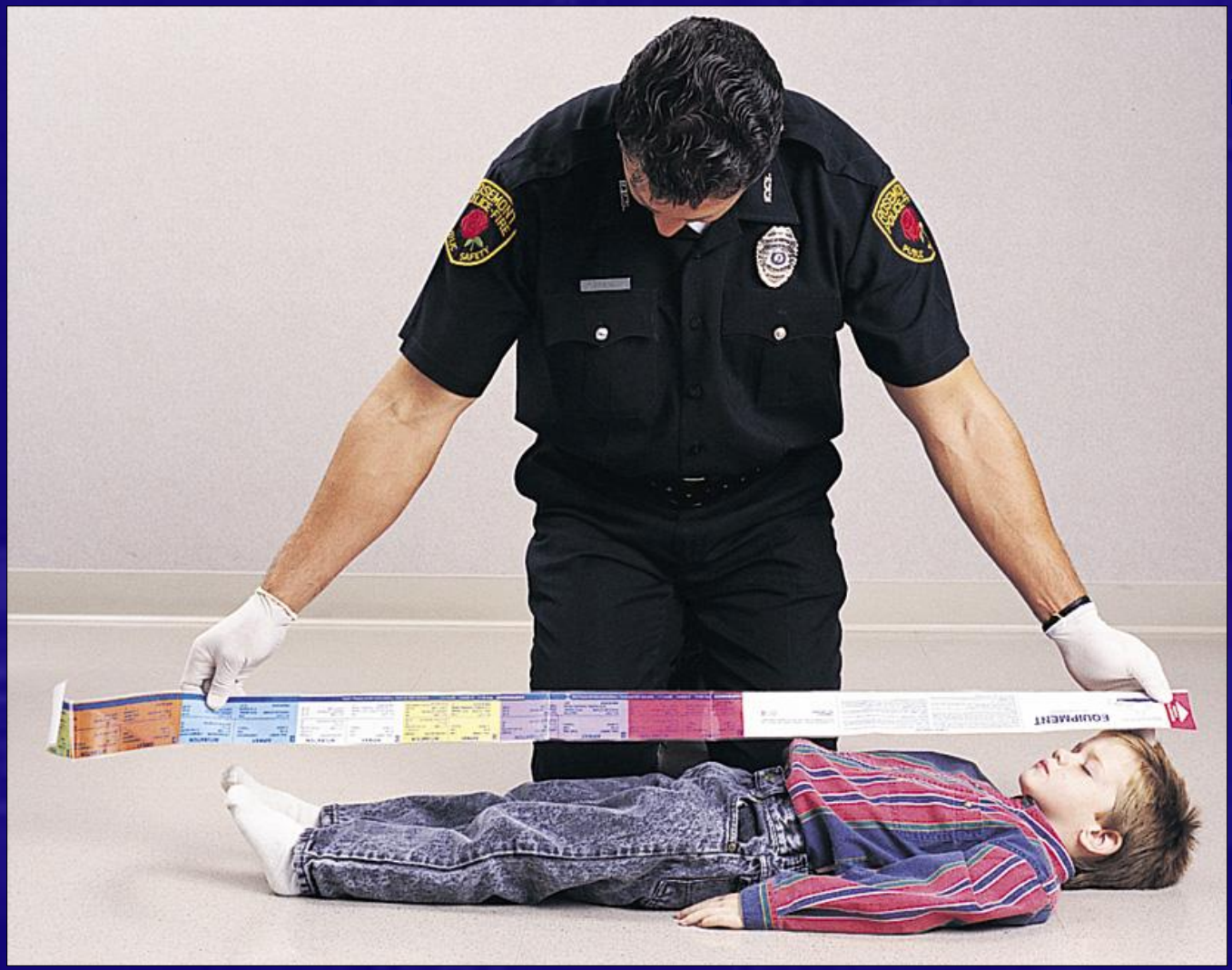
Croup Treatment

- Mild cases: humidity, ↓ fever, oral fluids
- Severe: Steroids and nebulized epi
  - Calm and avoid agitation
  - Humidified air or O_2 (keep sats > 92%)
  - Dexamethasone 0.6 mg/kg (max 10 mg)
    - Best orally (PO 1 mg/mL is foul, IV 4 mg/mL can be mixed with syrup). If NPO, IV or IM
  - Racemic epi 0.05 mL/kg (max 0.5 mL) of 2.25% soln diluted NS to 3 mL total volume
    - Repeat q 15 to 20 min
  - Usually improved in 30 min, epi lasts 2 hrs

Summary



- Be calm
- Croup = viral illness 6 mo-3 yo, onset 12-48 h with insp. stridor, barking cough
- Degree of stridor = severity
- Tx: humidity, fever, fluids (steroids/racemic epi)



Thanks for your attention!

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