

Inclusion Criteria

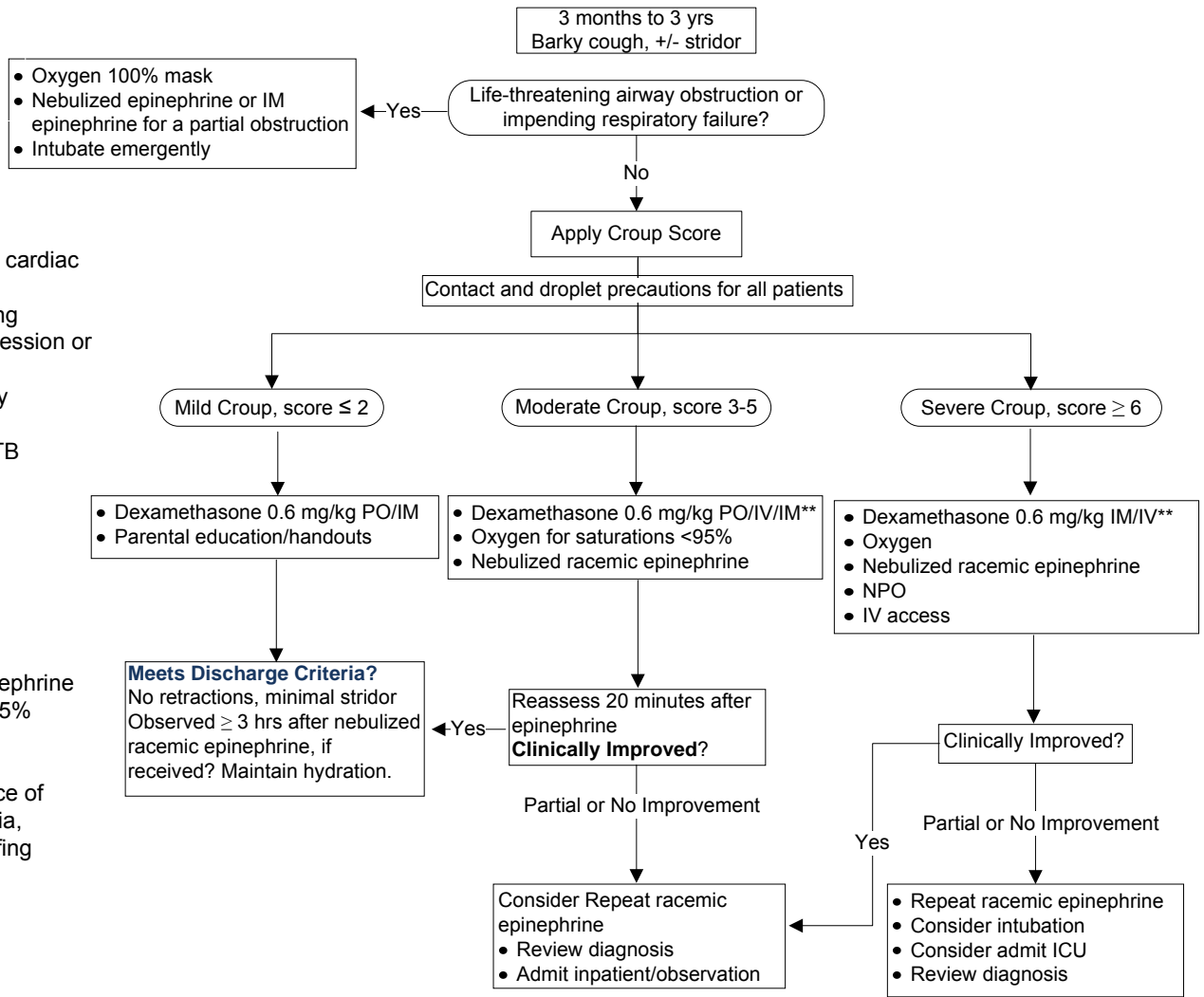
- 3 months to 3 years
- Croup Diagnosis

Exclusion Criteria

- Congenital or acquired cardiac disease, neurological impairment, chronic lung disease, immunosuppression or immunodeficiency
- History of recent airway instrumentation
- Varicella exposure or TB
- Suspicion of tracheitis
- Toxic appearance
- History of foreign body aspiration
- Suspect SBI

Red Flags

- Poor response to epinephrine
- Oxygen saturation < 95% (severe pathway)
- Toxic appearance
- High fever with absence of barking cough, dysphagia, drooling, anxious, sniffing position



Westley Score

Feature	0	1	2	3	4	5
Chest wall retraction	None	Mild	Moderate	Severe		
Stridor	None	With agitation	At rest			
Cyanosis	None				With agitation	At rest
Level of consciousness	Normal					Disoriented
Air entry	Normal	Decreased	Markedly decreased			

Westley Score

- Total possible score 17
- Score ≤ 2 *mild* croup
- Score 3-5 *moderate* croup
- Score 6-11 *severe* croup
- Score ≥ 12 impending *respiratory failure*

**Consider using Nebulized budesonide (2 mg) for all croup pathways.

Nebulized racemic epinephrine dose:
 2.25% solution in 2.5mL normal saline via nebulizer over 15 min
 <5 kg = 0.25 mL
 ≥ 5kg = 0.5 mL



Discharge Criteria

- Maintaining adequate hydration
- Croup score ≤ 2
- Parental education
 - Anticipated course of illness
 - Respiratory distress
 - Follow-up

Pertinent History

- Immunization Status: Hib, pneumococcal, tetanus
 - Consider epiglottitis
 - History of TB or exposure to varicella

Laboratory and Radiology Studies

- Croup clinical diagnosis, usually no testing needed
- CBC **not indicated** unless concerned for SBI or bacterial super-infection
- ABG suspected/impending respiratory failure
- Soft tissue neck X-ray and CXR indicated only in atypical illness; poor response to epi, oxygen saturations, 95%, toxic, high fever with no barking cough, dysphagia, drooling, anxious, sniffing position.

Other Therapies Not Indicated

- Mist Humidified air with or without oxygen
 - Controversial, no supporting evidence
- Anti-tussive or decongestant
 - Not useful
- Antibiotics
 - No role in uncomplicated croup

Westely Score

- 85% of children presenting to the ED have mild disease; severe croup rate (<1%)
- *Mild croup*, score 0-2: occasional barking cough, no stridor at rest, noisy breathing, but not strido, mild to suprasternal tugging or retractions.
- *Moderate croup*, score 3-5: frequent barking cough, easily audible stridor at rest, suprasternal and sternal wall retraction at rest, but no or little distress/agitation
- *Severe croup*, score 6-11: frequent barking cough, prominent inspiratory and (occasionally) respiratory stridor at rest, marked sternal wall retractions decreased air entry on auscultation, significant distress and agitation
- *Impending respiratory failure*, score > 11: barking cough (often not prominent), audible stridor at rest (may be hard to hear), sternal wall retractions (may not be marked), usually lethargic/decreased LOC, often dusky without supplemental oxygen.

Pathways

Mild Croup

- Croup score ≤ 2
- Oral dexamethasone 0.6 mg/kg IM/PO/IV 1 time, maximum dose 12 mg (preferred PO)
- Educate parents
 - Anticipated course illness
 - Respiratory distress
 - Follow-up
- Discharge home

Moderate Croup

- Croup score 3-5
- Supportive care; position of comfort, minimize stress
- Dexamethasone 0.6 mg/kg PO/IM/IV (max 12 mg) (preferred PO).
- Nebulized racemic epinephrine; racemic, 0.25 ml (wt <5 kg) or 0.5 ml (wt ≥ 5 kg) (2.25% soln)
 - may repeat every 20 minutes (CR monitor)
- Clinically improved; score ≤ 2 , observed ≥ 3 hours after nebulized racemic epinephrine, meets discharge criteria, discharge home.
- No improvement, consider repeat racemic epinephrine, reconsider diagnosis, admit inpatient/observation.

Severe Croup

- Croup score ≥ 6
- Position of comfort, minimize stress, oxygen with racemic epinephrine
- Dexamethasone 0.6 mg/kg IM/IV, (max 12 mg)
- Nebulized racemic epinephrine; racemic, 0.25 ml (wt <5 kg) or 0.5 ml (wt ≥ 5 kg) (2.25% soln)
 - repeat every 20 minutes as needed (CR monitor)
- NPO
- IV Access
- No improvement, repeat racemic epinephrine, reconsider diagnosis, contact ICU consider intubation
- Clinically improved, consider repeat racemic epinephrine, consider admit ICU