Cohen Children's Medical Center
Northwell Health

Inpatient Management of Viral Croup

Inclusion Criteria §

- Healthy child 6 months to 6 years of age with a presentation consistent with a primary diagnosis of croup

Exclusion Criteria §

- Toxic appearance
- Chronic lung disease/bronchopulmonary dysplasia or other serious lung disease
- Neuromuscular disease or other complex co-morbid conditions complicating care
- History of chronic/recurrent aspiration
- Recent airway instrumentation or intubation
- Known upper airway abnormality
  - Laryngomalacia
  - Tracheomalacia
  - History of vascular ring
  - History of TEF
  - Subglottic stenosis
  - Vocal cord paralysis

Previously healthy child with diagnosis of Croup age 6 months to 6 years §‡
(Refer to Table 1 on Page 2)

Initial assessment

Focused history:

- Age
- Duration of symptoms
- History of prior episodes
- Ability to feed/drink
- History of drooling

Focused physical exam:

- General appearance
- Respiratory rate
- O2 saturation
- Work of breathing (retractions, flaring, etc)
- Presence of stridor (at rest or with activity)

Admission Criteria‡

- Continued stridor at rest and any signs of moderate to severe respiratory distress
- Receiving 2 or more doses of racemic epinephrine in the ED or outpatient setting
- Supplemental oxygen requirement
- Dehydration and unable to maintain oral hydration
- Not otherwise meeting ED Discharge criteria

Mild Croup

- No stridor at rest (can have stridor with activity/agitation)
- No or mild WOB

Moderate Croup

- Stridor at rest
- Moderate work of breathing with tachypnea and retractions
- Difficulty with feeding/talking
- NO mental status changes

Severe Croup

- Stridor at rest
- Severe work of breathing with retractions, respiratory fatigue, self-positioning (tripoding, neck extension)
- Inability to talk or feed
- +/- mental status changes with decreased consciousness or agitation

Mild Croup →

- Give systemic corticosteroids* if not previously given (Refer to Tables 3 and 4 on page 2)
- Supportive care for viral process (Refer to Table 2 on page 2)

*** Dexamethasone injection for oral use**

Moderate / Severe Croup →

- Give racemic epinephrine (Refer to Tables 3 and 4 on page 2)
- Give systemic corticosteroids* if not previously given
- Supportive care for viral process (Refer to Table 2 on page 2)

→ Re-assess q1h x 2 (RN, RT)

→ Stridor and increased work of breathing persists and recurs?

NO → Symptoms improve → Repeat clinical assessment every 1-4 hours depending on disease severity

YES →

- MD evaluation at the bedside
- Consider repeat dose of racemic epinephrine q2h as needed for symptoms of moderate/severe

→ Re-assess q1h x 2 (RN, RT) after each additional racemic epinephrine

→ If symptoms persist/recur within 2 hours from last racemic epinephrine or signs of clinical deterioration (Refer to Table 5 on page 2):

- Consider an additional racemic epinephrine and/or parenteral steroids
- Call RRT for PICU evaluation (or transfer to CCMC)
- Consider alternative diagnosis (Refer to Table 1 on page 2)

→ Discontinue pathway

Discharge Criteria

- No stridor or mild stridor
- Received steroids
- No or minimal respiratory distress/retractions
- 6-8 hours from last racemic epinephrine
- Off supplemental O2 for 6-8 hours with normal O2 saturations
- Able to tolerate PO
- No social barriers to continued care on discharge
- Appropriate PMD follow up

PCEC Approval
Date: 2/12/2020

This document is intended as a general guideline. The healthcare professional must use the appropriate judgment dependent on the particular clinical situation

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Table 1	Table 2	Table 3	Table 4	Table 5
Consider alternative diagnosis: • Age < 6 months or > 6 years • Poor response to treatment • History of choking with acute onset of cough (consider foreign body) • Prolonged duration of stridor (> 4 days) or of cough (> 10 days) • Recent intubation (within the last 6 months) or history of intubation • Recurrence of croup symptoms (2nd episode within 30 days or > 3 or 12 months) • Hypoxia/cyanosis • Multiple cutaneous hemangiomas present • Asymmetry of the respiratory exam or expiratory wheeze • Drooling, difficulty swallowing • Toxic-appearance, rapid decompensation	**Supportive care:** • Avoid painful procedures and maintain a calm atmosphere • Antipyretics as needed • Maintain hydration • Placement on isolation precautions • Supplemental O2 as needed for hypoxia (Refer to Table 1)	**Treatment considerations:** • Mild Croup: dexamethasone* 0.3 mG/kG (max dose 10 mG) • Moderate/severe Croup: dexamethasone* 0.6 mG/kG (max dose 10 mG) • Can consider 0.6 mG/kG parenterally for severe croup • 2 mG budesonide should be considered if PO medications are not tolerated, IV access is unobtainable and the severity of symptoms makes IM dexamethasone* not optimal due to its delayed onset • Racemic epinephrine 2.25% inhalation solution (0.5 mL in 3 mL saline) • Supportive care of viral illness (Refer to Table 2)	**Therapies not routinely recommended:** • Testing with respiratory viral panel • Radiographs • Cool mist • Repeat dexamethasone dosing • Continuous pulse oximetry	**Signs of impending respiratory failure:** • Stridor may be present or absent (due to diminished air flow) • Severe work of breathing • Bradypnea or poor respiratory effort • Cyanosis/hypoxemia despite supplemental oxygen • Hypercarbia • Listlessness or decreased consciousness **PCEC Approval Date: 2/12/2020**