Inclusion Criteria:
Previously healthy children aged 6 months to 6 years with signs and symptoms of viral illness with associated barking cough and inspiratory stridor

Exclusion Criteria:
Alternative diagnosis should be considered if:
- Toxic Appearance: Pallor, lethargic, acute/abrupt onset and unimmunized status should prompt consideration for bacterial tracheitis / epiglottitis
- Drooling or difficulty swallowing (foreign body, retropharyngeal abscess)
- Expiratory wheezing
- Poor response to racemic epinephrine
- Known previous history: Laryngo/ tracheomalacia, or previously diagnosed vascular ring/sling/ tracheoesophageal fistula
- Prior non-elective intubation in past 6 months, or prolonged intubation

Croup Severity Score

<table>
<thead>
<tr>
<th></th>
<th>Air Entry</th>
<th>Chest Wall Retractions</th>
<th>Cyanosis</th>
<th>Level of Consciousness</th>
<th>Stridor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal (0)</td>
<td>None (0)</td>
<td>None (0)</td>
<td>Normal (0)</td>
<td>None (0)</td>
</tr>
<tr>
<td>Decreased (1)</td>
<td></td>
<td>Mild (1)</td>
<td>With Agitation (4)</td>
<td>Disoriented (5)</td>
<td></td>
</tr>
<tr>
<td>Markedly Decreased (2)</td>
<td></td>
<td>Moderate (2)</td>
<td></td>
<td></td>
<td>At Rest (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe (3)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Croup Pathway

Mild Croup
Score <2

Single dose of PO/IM/IV dexamethasone 0.6mg/kg (MAXIMUM dose 16mg)

Education regarding illness course, concerning symptoms and when to seek medical assessment.

Minimize intervention/stress
Place child in position of comfort *

Home treatment:
Antipyretics, cool-mist, oral fluids

May consider trial of racemic epinephrine (2.25% or 0.5ml in 2.5mL of saline). If racemic epi given, min 2 hour observation

Discharge home with follow up in 24-48hrs

Hospitalization is generally not needed, but may be warranted for persistent or worsening symptoms or if repeated doses of racemic epinephrine are needed.

Moderate Croup
Score 3 to 7

Minimize intervention/stress
Place child in position of comfort *

Repeated doses of nebulized racemic epinephrine may be needed

Hospital admission is warranted if < 2 hours between racemic epi nebulizers, oxygen requirement or stridor at rest.

Severe Croup
Score 8 to 11

Minimize intervention/stress
Place child in position of comfort *

Nebulized racemic epinephrine, repeated doses as needed.

Impending Respiratory Failure
Score >12

Minimize intervention/stress
Place child in position of comfort.
Hypoxemia is rare in croup and should be as a sign of impending respiratory failure. Give racemic epi neb (2.25% or 0.5ml in 2.5mL of saline).

Hospital admission is warranted if < 2 hours between racemic epi nebulizers, oxygen requirement or stridor at rest.

Mild Croup
Score <2

Hospital admission is generally not needed, but may be warranted for persistent or worsening symptoms or if repeated doses of racemic epinephrine are needed.

Impending Respiratory Failure
Score >12

Contact pediatric ICU or Anesthesiology for airway stabilization and for further management.

Call for transfer to tertiary care facility.

Update Pediatric ENT for assistance with further management.

*Place child in parents lap during exam, minimize agitation and intervention including IV, blood draws, etc. Involve parents in physical exam, placing nasal cannula and administering medications. Involve Child Life specialist if available.

Reviewed By: H. Greening, T. He  
Publication Date: September 2016  
Review Date:
**Hospital Admission Criteria:**

- Persistent stridor at rest AND any of the following symptoms: prominent retractions, tachypnea, agitation/restlessness, fatigue, difficulty feeding
- Significant symptoms after receiving 2 or more doses of racemic epinephrine, with interval period of observation, and return of stridor at rest (or significant symptoms)
- Hypoxemia < 90% on room air
- Inability to tolerate fluids

**Inpatient Clinical Recommendations**

- There is no indication for cool mist humidified oxygen therapy for the hospital treatment of croup.
- Most children show rapid improvement with racemic epinephrine, failure to respond should prompt consideration of alternative diagnosis.
- Lab testing, viral testing, and neck imaging do not alter the management of croup.
- No indication for home racemic epinephrine nebulizer treatments.
- No strong indication for repeat doses of steroids at time of discharge.

**ENT Consultation Criteria**

- Consider inpatient vs. outpatient ENT consultation for direct laryngoscopy if history of intubation, recurrent episodes outside normal age range (< 6 months, > 6 years), concern for airway anomalies, atopy or GERD.
- Consider consultation if fail to improve after 36 hrs hours of receiving 1st steroid dose, racemic epinephrine and observation.

**Discharge Criteria:**

- Minimal stridor at rest. No signs or symptoms of significant respiratory distress
- Adequate oral hydration
- Over 2 hours since last racemic epinephrine
- No oxygen requirement for several hours
- Appropriate follow up for the child in the outpatient setting

**References:**


Croup Clinical Pathways Referenced: Children’s Hospital of Colorado, Phoenix Children’s Hospital, Seattle Children’s Hospital