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## **Croup Guideline**

[Link to Croup Algorithm](#)

### **Aim**

To provide an evidenced base guide to assist in the management of those children with acute croup

### **Definition of terms**

Croup refers to a clinical syndrome characterised by barking cough, inspiratory stridor, hoarseness of voice and increased work of breathing. It results from viral inflammation and oedema of the upper airway, including larynx, trachea and bronchi; hence the term laryngotracheobronchitis. The symptoms are typically worse at night and peak on about the second or third night.

PICU/PICM: Paediatric Intensive Care Unit or Paediatric Intensive Care Medicine

### **Target Patient Population**

Those children presenting to the emergency department with evidence of acute laryngotracheobronchitis. This population is typically between 6 months and 6 years of age. An alternative diagnosis should be considered in those presenting with comparable symptoms beyond this age range.

### **Target Users**

This guide is directed at all emergency department health-care professionals engaged in the care of children presenting with croup.

### **Assessment**

#### **Initial acute**

- Harsh barking Cough
- Inspiratory stridor
- Generally fever <38.5
- No drooling
- Hoarse voice

#### **Consider other differentials**

The main differential diagnosis includes:

- Epiglottitis
- Bacterial tracheitis
- Laryngeal foreign body
- Retropharyngeal abscess
- Anaphylaxis

#### **Ongoing assessment**

- Pulse oximetry; severe hypoxaemia is a late sign of significant airway obstruction
- Work of breathing
- Level of consciousness
- Agitation or lethargy

## Investigations

Avoid distressing procedures e.g. examining throat, venepuncture - anxiety exacerbates croup. Nurse child on parent's lap. Blood tests, or O<sub>2</sub> mask are rarely indicated. A routine nasopharyngeal aspirate (NPA) is not required for children with a typical clinical picture of croup.

## Management

- Steroids (either dexamethasone oral/IM or nebulised budesonide) should be given as soon as practicably possible. However, there is no evidence of any clinical benefit with use of one over the other or indeed the use of both in tandem; Oral dexamethasone is generally preferred because it is considerably cheaper and less traumatic to administer but nebulised budesonide or IM dexamethasone is a reasonable alternative for those children who vomit the oral dexamethasone.
- There is a small body of evidence showing improved clinical outcomes with use of dexamethasone over prednisolone. In 2 studies, children who were randomized to receive dexamethasone were significantly less likely to have a return visit/readmission than those who were randomized to prednisolone. Prednisolone also needs to be repeated.
- The dexamethasone doses used in most clinical trials are 0.15mg/kg and 0.6mg/kg. Dexamethasone 0.15mg/kg has been shown to be effective in mild cases and there is some evidence suggesting that a higher dose could be more beneficial in children with severe disease though more research is needed in this area.
- Nebulised epinephrine is indicated for symptomatic management of children with airway compromise/severe croup; the PICU team or if unavailable, anaesthetists should be notified of any patient who requires more than one dose of nebulised epinephrine. If life-threatening airway compromise is present, engage PICM team/anaesthetists immediately.
- The **decision to admit** a child is made after initial treatment and observation. However, any child who has received nebulised epinephrine needs to be observed for at least 4 hours;
- The time of the day, parent's compliance, and ability to present for early review should be taken into account when deciding if admission is warranted;
- Children with resting stridor should not be discharged home until stridor has resolved; It is reasonable to consider discharging patients who have stridor only when exercising but who are otherwise well. Discuss with a senior doctor if any concerns.

## Special Considerations

Children with pre-existing narrowing of the upper airways e.g. subglottic stenosis, or children with Down Syndrome are prone to more severe croup and admission should be considered even with mild symptoms.

## Companion Documents:

[Link to Literature Search Strategy](#)

[References](#)

[Parental Advice Leaflet](#)