This SOP does not provide advice on the threatened airway. For airway issues please phone 2222 and ask for the senior Anaesthetic SpR and ODP

1. **Introduction and Who Guideline applies to**

This guideline is for all clinical staff working within the Children’s Hospital and the ED. Please follow this link to the interactive croup guideline. If the link does not work, please find all the information in text format below. http://insitetogether.xuhl-tr.nhs.uk/SP2007/Documents/Croup%20Scoring.xlsm

**Key Points:**

Croup is a common viral illness that typically presents with stridor, hoarse voice & barking cough. The majority have no or mild symptoms of respiratory distress however severe croup can result in significant airway compromise and needs expert airway management. Bacterial infection in the form of bacterial tracheitis or epiglottitis have clinical features similar to croup and are not always toxic looking on initial presentation.
Initial Assessment:

Regardless of severity all children with croup should be approached in a calm manner. Unnecessary upset will increase respiratory distress. Please calculate a Croup Score [1]. The numbers in brackets represent the score for each category. Please note these scores are a guide only and should be superseded by clinical judgement (especially if child tiring)

<table>
<thead>
<tr>
<th>Stridor</th>
<th>None (0)</th>
<th>When agitated/active (1)</th>
<th>At rest (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercostal recessions</td>
<td>None (0)</td>
<td>Mild (1)</td>
<td>Moderate (2)</td>
</tr>
<tr>
<td>Air entry on auscultation</td>
<td>Normal (0)</td>
<td>Mildly reduced (1)</td>
<td>Severely reduced (2)</td>
</tr>
<tr>
<td>Cyanosis</td>
<td>None (0)</td>
<td>When agitated/active (4)</td>
<td>At rest (5)</td>
</tr>
<tr>
<td>Level of consciousness</td>
<td>Normal (0)</td>
<td></td>
<td>Altered (5)</td>
</tr>
</tbody>
</table>

**Mild Croup <4**
- Give oral dexamethasone (0.15mg/kg)
- A score of 0 doesn’t need treatment
- If score less <2 can be discharged otherwise observe for one hour

**Moderate Croup 4-6**
- Prompt Senior Review
- Give oral dexamethasone (consider budesonide (2mg) if struggling to take oral medication)
- Oxygen if sats < 92%

**Severe Croup >6**
- ED Wards
- Manage in Resus Urgent Senior Review
- Give nebulised adrenaline 0.4mg/kg (max 5mg) Of 1:1000 solution (1mg=1ml)

**Respiratory Failure >12**
- Phone 2222: Ask for the Senior SpR, ENT & ODP
- ED Wards
- Manage in Resus Alert CICU
- Give adrenaline
- Do not gain IV access unless airway secure or with senior input

If improving discharge with safety net and explanation of natural history
Those with stridor at rest may be admitted to CSSU/ward for ongoing observation.

If improving observe over 2-3 hours & discharge if score <2
If ongoing respiratory concerns admit (CSSU/ward) for observation. A lack of response to treatment without deterioration does NOT require adrenaline.

Re-evaluate: is this definitely Croup?
Discuss with CICU if deteriorating and give further adrenaline with senior advice
Background
Croup is a respiratory illness characterised by a sore throat, barking cough, stridor, hoarseness and respiratory
- Most common in children between six months and three years of age but can occur in children as young as three months and in older children and teens.
- Most commonly viral aetiology e.g. influenza or parainfluenza

The infection results in inflammation of the upper airway, including the larynx, trachea and bronchi (laryngotracheobronchitis). Typically it has an abrupt onset, most commonly at night. Most cases of croup can be managed by primary care, but up to 30% require hospitalisation and, of these, less than 2% need intubation

Symptoms typically last 3-5 days but (as with all viral illnesses) can last up to 2 weeks.

Assessment
Assess the child where most comfortable, for example on parents lap. Avoid distressing the child. Assess the degree of airway obstruction; not the loudness of the stridor.

Keep the child comfortable and avoid unnecessary distress. Do not examine the throat. Children with Croup should not need an x-ray or IV access.

Mild respiratory distress and stridor is common. Please seek senior advice if you have not seen croup before. Assessment is about ensuring the child is currently stable.

| A | Biphasic stridor, dysphonia, drooling and dysphagia all concerning. Beware quietening stridor and increasing respiratory distress. |
| B | Assess work of breathing and effectiveness of respiration, look for recessions, tiring and falling of saturations. |
| C | Assess for shock and cardiovascular effects of impending respiratory failure. |
| D | Deteriorating or altering consciousness is a sign of severe upper airway obstruction. |

Turn over for differential diagnosis and management advice
## Differentials of acute airway issues

<table>
<thead>
<tr>
<th>Croup</th>
<th>Tracheitis</th>
<th>Epiglottitis</th>
<th>Foreign Body</th>
<th>Angioedema</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parainfluenza, Adenovirus, Influenza</td>
<td>Staph aureus, Streptococcus</td>
<td>HiB-check immunisation history</td>
<td>Foreign body</td>
<td>Allergic, hereditary, unknown</td>
</tr>
<tr>
<td>Age 6m-3yrs</td>
<td>Any Age</td>
<td>Age 2-6 yrs</td>
<td>Any age</td>
<td>Any age</td>
</tr>
<tr>
<td>Abrupt onset (usually)</td>
<td>Gradual onset</td>
<td>Very sudden onset</td>
<td>Sudden onset</td>
<td>Sudden onset</td>
</tr>
<tr>
<td>Mild Pyrexia</td>
<td>Temp &gt;38</td>
<td>Temp &gt;38, look toxic</td>
<td>Apyrexial</td>
<td>Apyrexial</td>
</tr>
</tbody>
</table>

### Management

Children with a croup score >0 should receive a single dose of oral dexamethasone (0.15mg/kg).

[Oral prednisolone (1-2 mg/kg) is another alternative if dexamethasone is not available]

A second dose should be considered if residual symptoms of stridor are still present if the patient returns (may be given 12 hours after first dose).

Paracetamol or Ibuprofen should be considered for distress if the child is uncomfortable.

IV fluids may be necessary in some children where respiratory distress prevents adequate fluid intake. In most cases oral fluids will be adequate.

If dexamethasone is not tolerated orally consider 2 mg nebulised Budesonide

If a child with Croup receives nebulised Adrenaline they will need at least a 3-4 hour period of normal observations prior to discharge home.

**Further nebulisers may be given but this is unusual & senior staff must be involved**

Investigations are rarely needed

Consider a CXR and Lateral Neck only if there is a potential for Foreign Body ingestion as the cause of respiratory distress (see Foreign Body ingestion SOP)

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Turn over for discharge advice
Discharge
Assess the child frequently (every 30 minutes) and only discharge when he or she meets criteria for discharge

Criteria for discharge
Absent/mild intermittent stridor with saturations above 93%
And other diagnosis considered (i.e. foreign body, epiglottis etc) and excluded
And parents confident that they can manage the child

Dexamethasone given unless score 0. Steroids should not routinely be given as a TTO

There should be a period of at least 3 hours observation following adrenaline

Take care with children with pre-existing narrowing of the upper airways (e.g. subglottic stenosis) and note children with Down’s syndrome are prone to more severe croup. Admission should be considered even with mild symptoms in these groups of patients. Children with recurrent Croup should be referred to the ENT department.

Discharge Advice

Explain natural history is generally that croup peaks for 24 hours and this should be the worst the child gets. However concerns with breathing, lethargy or intake should prompt a medical review.

Highlight Red Flag features of:

Stridor at rest
Difficulty breathing/suprasternal recession
Pallor or cyanosis
Severe coughing spells
Drooling or difficulty swallowing
Fatigue
Prolonged symptoms (longer than 7 days)

Ensure parents have been given parent information leaflet :
https://yourhealth.leicestershospitals.nhs.uk/

Turn over for Education and Audit Requirements
2. **Education and Training**

No new training required

3. **Monitoring Compliance**

<table>
<thead>
<tr>
<th>What will be measured to monitor compliance</th>
<th>How will compliance be monitored</th>
<th>Monitoring Lead</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation of Croup Score and correct prescribing of dexamethasone and adrenaline</td>
<td>Audit of discharge records</td>
<td>Audit Lead</td>
<td>Annual</td>
<td>Departmental clinical practice group</td>
</tr>
</tbody>
</table>

4. **Supporting References**


5. **Key Words**

Croup, Respiratory, Stridor

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs. As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

<table>
<thead>
<tr>
<th>CONTACT AND REVIEW DETAILS</th>
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<tbody>
<tr>
<td>Guideline Lead (Name and Title)</td>
</tr>
<tr>
<td>D Bronnert – Consultant</td>
</tr>
<tr>
<td>D Roland - Consultant</td>
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</tbody>
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Details of Changes made during review:
Combined previous separate Children’s & Paed ED guidelines
No change to practice