Clinical Practice Guidelines: Respiratory/Croup

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Date	March, 2020
Purpose	To ensure consistent management of patients with croup.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Croup

March, 2020

Croup is a common viral inflammatory illness causing narrowing of the subglottic airway. It is characterised by a 'seal like' barking cough, inspiratory stridor and hoarseness of voice with or without respiratory distress.[1] It is the most common cause of respiratory illness in children[2] and accounts for 2.3% of paediatric presentations to emergency departments in Australian and New Zealand.[3] Many viruses can cause croup, the most common being parainfluenza and respiratory syncytial virus.

In 2016–17, the QAS attended 2610 suspected cases of croup with 84% of patients aged less than 5 years. The vast majority of cases were transported to hospital, with 81% of cases occurring at night between 2100 and 0600 hrs.[4]

Clinical features

- 'Seal like' barking cough, inspiratory stridor and hoarseness of voice with or without respiratory distress.[1]
- Predominately affects children 6–36 months of age with an incidence of 5% in the 2nd year of life.[2,5]
- Symptoms are usually mild to moderate.
- Duration usually 2–5 days with symptoms worse at night (often peaking on night two or three).

Risk assessment

- Oxygen saturations in isolation are an unreliable indicator of severity[6,7] and cannot be used alone to monitor response to treatment.[8]
- Risk factors for severe croup include subglottic stenosis, Down Syndrome, previous severe croup, less than 6 months of age, known structural airway abnormality, inadequate fluid intake, re-presentation to an emergency service within 24 hours of receiving a croup diagnosis, and diagnostic uncertainty.[9]
- Although infrequent, severe airway obstruction (less than 1% of presentations) and death (1:20 000) can still occur.[10]
- Differential diagnoses of acute stridor and respiratory distress include:
  - foreign body inhalation
  - retropharyngeal or peritonsillar abscess (quinsy)
  - bacterial tracheitis
  - epiglottitis.

The **Westley Croup Score (WCS)**[1] is a validated[2,3] and frequently used croup severity assessment tool based on clinical signs and symptoms. It is determined by allocating corresponding scores to five (5) observed criteria:

- level of consciousness
- cyanosis
- stridor
- air entry; and
- chest wall retractions.

PROCEDURE

Allocate the appropriate WCS (0–17) by determining the accumulative score associated with each criterion.

Westley Croup Score[1]

Criteria	Variable	Score
Level of consciousness	Disorientated	5
	Normal, including sleep	0
Cyanosis	At rest	5
	With agitation	4
	None	0
Stridor	At rest	2
	With agitation	1
	None	0
Air entry	Markedly decreased	2
	Decreased	1
	Normal	0
Chest wall retractions	Severe	3
	Moderate	2
	Mild	1
	None	0

Scoring: ≤ 2 = mild; 3–7 = moderate; ≥ 8 = severe

Additional information

- **ALL** patients with suspected croup should be transported to hospital for assessment, irrespective of clinical condition after initial management.
- Unnecessary interventions or procedures should be avoided to prevent further distress and the potential worsening of symptoms.
- There is no definitive treatment for the viruses that cause croup. Therapy is aimed at decreasing airway oedema and providing supportive care.[11]
- The appropriate administration of corticosteroids and nebulised epinephrine (adrenaline) have been shown to reduce the need for and duration of ETT intubation, length of hospital stay and re-presentation rates.[11] Oxygen therapy is not routinely recommended however, may be considered with significant oxygen desaturation (SpO2 < 93%).
- Steam inhalation has not be shown to improve croup's severity.[12]
- The WCS is to be assessed and documented every 15 mins and also on arrival at triage.

CPG: Clinician safety
CPG: Standard cares

- Keep patient calm – avoid unnecessary distress
- Assess and document Westley Croup Score (WCS)

MILD croup (WCS ≤ 2)

Consider:

Dexamethasone (PO)

MODERATE croup (WCS 3–7)

Consider:

Adrenaline (epinephrine) (NEB)

Administer:

Dexamethasone (PO)

SEVERE croup (WCS ≥ 8)

Administer:

- Adrenaline (epinephrine) (NEB)
- Dexamethasone (PO)

Reassess and document WCS (after 15 mins)

MILD croup (WCS ≤ 2)

Consider:

Dexamethasone (PO) if not previously administered

MODERATE croup (WCS 3–7)

Consider:

Adrenaline (epinephrine) (NEB) if not previously administered

Administer:

Dexamethasone (PO) if not previously administered

SEVERE croup (WCS ≥ 8)

Administer:

if not previously administered:

- Adrenaline (epinephrine) (NEB)
- Dexamethasone (PO)

Transport to hospital
Pre-notify as appropriate

Reassess and document WCS (on arrival at triage)

Note: *Clinicians are only to perform procedures for which they have received specific training and authorisation by the QAS.*