Clinical Practice Guidelines: Respiratory/Croup

Policy code	CPG_RE_CR_0924
Date	September, 2024
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.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
Review date	September, 2027
Information security	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
URL	https://ambulance.qld.gov.au/clinical.html

While the QAS has attempted to contact all copyright owners, this has not always been possible. The QAS would welcome notification from any copyright holder who has been omitted or incorrectly acknowledged.

All feedback and suggestions are welcome. Please forward to: Clinical.Guidelines@ambulance.qld.gov.au

Disclaimer

The Digital Clinical Practice Manual is expressly intended for use by appropriately qualified QAS clinicians when performing duties and delivering ambulance services for, and on behalf of, the QAS.

The QAS disclaims, to the maximum extent permitted by law, all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs incurred for any reason associated with the use of this manual, including the materials within or referred to throughout this document being in any way inaccurate, out of context, incomplete or unavailable.

Croup

September, 2024

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 Australia and New Zealand.[3] Many viruses can cause croup, the most common being parainfluenza and respiratory syncytial virus.

Annually, the QAS attends approximately 3,500 patients that present with suspected croup. The vast majority of these requests for service occur at night between the hours of 2100 and 0600.[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

- Patients that present with croup can be managed through varying disposition options depending on the severity of their symptoms and response to clinical interventions.
- 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 adrenaline (epinephrine) 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 ($SpO_2 < 93\%$).
- Steam inhalation has not been shown to improve croup's severity.[12]
- The WCS must 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

Does the patient meet ALL of the following criteria:

- Treated with steroids only;
- Steroids tolerated (did not vomit) within 15 mins of administration;
- Nil stridor at rest;
- Able to be left in the care of a responsible adult; and
- Capacity to follow up with own General Practitioner

Y

Consider:

Non-emergency department medical review (e.g., GP/Virtual ED) and leaving QAS Factsheet

MODERATE croup (WCS 3–7)

Consider:

Adrenaline (epinephrine) (NEB) if not previously administered

Administer:

Dexamethasone (PO) if not previously administered

N

Transport to hospital
Pre-notify as appropriate

Reassess and document WCS (on arrival at triage)

SEVERE croup (WCS ≥ 8)

Administer:

If not previously administered:

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

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

Croup Factsheet

In instances that all criteria for non-emergency department medical review (e.g. GP/Virtual ED) are met, the family and/or guardian can access the QAS Croup Factsheet through the below QR Code.