Clinical Practice Guidelines: Respiratory/Asthma

<table>
<thead>
<tr>
<th>Policy code</th>
<th>CPG_RE_AS_0120</th>
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<tbody>
<tr>
<td>Date</td>
<td>January, 2020</td>
</tr>
<tr>
<td>Purpose</td>
<td>To ensure consistent management of patients with asthma.</td>
</tr>
<tr>
<td>Scope</td>
<td>Applies to Queensland Ambulance Service (QAS) clinical staff.</td>
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<tr>
<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
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<tr>
<td>Population</td>
<td>Applies to all ages unless stated otherwise.</td>
</tr>
<tr>
<td>Source of funding</td>
<td>Internal – 100%</td>
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<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
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<td>Review date</td>
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All feedback and suggestions are welcome. Please forward to: Clinical.Guidelines@ambulance.qld.gov.au

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Asthma is an obstructive respiratory disease characterised by chronic airway inflammation, bronchial hyperresponsiveness and intermittent airway narrowing. In clinical practice, it is defined by the presence of both respiratory symptoms (e.g. wheeze, dyspnoea, chest tightness or cough) and excessive variation in lung function.[1] Asthma is estimated to affect 11% of Australia’s population and is prevalent in both paediatric and adult cohorts.[4] Typically, the clinical features of asthma may lay dormant when well managed however episodic exacerbations may occur in response to:[5–6]

- Allergen or irritant exposure
- Exercise
- Respiratory (viral) infections
- Poor compliance with prescribed medications
- Extreme weather events (‘thunderstorm asthma’).

There is no standardised criteria or single test that can be used to diagnose asthma; diagnosis is probability driven and based on:

- Respiratory symptoms
- Variation in expiratory airflow
- Past medical history
- Exclusion of other diagnoses

Acute asthma is classified into three severity categories:

1. Mild/moderate
2. Severe or
3. Life-threatening.
<table>
<thead>
<tr>
<th>Clinical Feature</th>
<th>Mild/Moderate</th>
<th>Severe <em>(any of the following)</em></th>
<th>Life-threatening <em>(any of the following)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conscious State</strong></td>
<td>Alert</td>
<td>Altered</td>
<td>Altered or unconscious</td>
</tr>
<tr>
<td><strong>General Appearance</strong></td>
<td>Mildly anxious</td>
<td>Distressed, agitated</td>
<td>Exhausted, catatonic</td>
</tr>
<tr>
<td><strong>Speech</strong></td>
<td>Sentences</td>
<td>Words</td>
<td>Unable to speak</td>
</tr>
<tr>
<td><strong>Ventilatory Rate</strong></td>
<td>&lt; 25/min in adults</td>
<td>&gt; 25/min in adults</td>
<td>Silent chest</td>
</tr>
<tr>
<td></td>
<td>≤ 30/min in paediatrics &gt; 5 years</td>
<td>&gt; 30/min in paediatrics &gt; 5 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤ 40/min in paediatrics 2–5 years</td>
<td>&gt; 40/min in paediatrics 2–5 years</td>
<td></td>
</tr>
<tr>
<td><strong>Ventilatory Rhythm</strong></td>
<td>Slightly prolonged expiratory phase</td>
<td>Marked prolonged expiratory phase</td>
<td>Marked prolonged expiratory phase, no respiratory pause</td>
</tr>
<tr>
<td><strong>Ventilatory Effort</strong></td>
<td>Accessory muscle use</td>
<td>Accessory muscle use, intercostal retraction, tracheal tugging</td>
<td>Poor respiratory effort; respiratory exhaustion</td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td>Pale</td>
<td>Pale, sweating</td>
<td>Pale, sweating, cyanosis (late sign)</td>
</tr>
<tr>
<td><strong>Pulse Rate</strong></td>
<td>≤ 110/min in adults</td>
<td>&gt; 110/min in adults</td>
<td>Hypotension/bradycardia, arrhythmia</td>
</tr>
<tr>
<td></td>
<td>≤ 120/min in paediatrics &gt; 5 years</td>
<td>&gt; 120/min in paediatrics &gt; 5 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤ 140/min in paediatrics 2–5 years</td>
<td>&gt; 140/min in paediatrics 2–5 years</td>
<td></td>
</tr>
<tr>
<td><strong>Breath Sounds</strong></td>
<td>Expiratory wheeze</td>
<td>Expiratory wheeze, inspiratory wheeze</td>
<td>Expiratory wheeze, inspiratory wheeze,</td>
</tr>
<tr>
<td><strong>O2 Saturation</strong></td>
<td>90–94%</td>
<td>&lt; 90%</td>
<td>&lt; 88%</td>
</tr>
</tbody>
</table>
**Risk assessment**

- Respiratory symptoms such as dyspnoea and wheezing are non-specific indications of asthma. Consider differential diagnoses such as cardiac failure, chronic obstructive pulmonary disease, foreign body or smoke inhalation in patients with no prior history of asthma.

- Pulse oximetry is not a reliable indicator of asthma severity and cannot be used to determine improvement in clinical condition.

- Patients presenting with acute asthma may deteriorate rapidly without any warning of sudden clinical decline.

- If IPPV is required, care should be taken to ensure the patient is not over-ventilated by allowing for a prolonged expiratory phase.

**Additional information**

A thorough patient history is important when managing acute asthma presentations. Pertinent questioning should determine:

- Previous asthma history – age of onset, frequency and severity of symptoms, number of previous hospital presentations in the last 12 months, previous ICU admissions

- Asthma triggers (if known)

- Cause of current episode (if known)

- Onset of symptoms (prolonged episodes may indicate exhaustion)

- Current prescribed medications (e.g. reliever, preventer, steroids)

- Concomitant medical conditions
Assess severity and consider differential diagnosis

MILD/MODERATE
Consider:
- Oxygen
- Salbutamol
- Ipratropium bromide
- Hydrocortisone

SEVERE
Consider:
- Oxygen
- Salbutamol
- Ipratropium bromide
- Hydrocortisone
- Adrenaline (epinephrine)
- Magnesium sulphate
- CPAP

LIFE-THREATENING
Consider:
- Oxygen
- Salbutamol
- Ipratropium bromide
- Hydrocortisone
- Adrenaline (epinephrine)
- Magnesium sulphate
- If RR < 10 and deemed inadequate, commence IPPV with nebulised medication
- CPAP

Transport to hospital
Pre-notify as appropriate

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