



# Clinical Practice Guidelines: Respiratory/Hyperventilation

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<b>Date</b>	February, 2015
<b>Purpose</b>	To ensure consistent management of patients with hyperventilation.
<b>Scope</b>	Applies to Queensland Ambulance Service (QAS) clinical staff.
<b>Health care setting</b>	Pre-hospital assessment and treatment.
<b>Population</b>	Applies to all ages unless stated otherwise.
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# Hyperventilation

February, 2015

**Hyperventilation** is an extreme form of tachypnoea resulting in significant hypocapnia and subsequent respiratory alkalosis.<sup>[1]</sup> If a patient has a rapid respiratory rate it is essential to rule out potentially life-threatening conditions, such as:<sup>[2]</sup>

## **Lung pathology**

- pulmonary embolism
- pneumothorax
- asthma
- pneumonia

## **Brain pathology**

- hypoxia
- brain stem injury

## **Systemic illness**

- heat stroke
- anaphylaxis
- toxidromes (e.g. tricyclic antidepressants or aspirin)
- metabolic acidosis (e.g. diabetic ketoacidosis)

## **Clinical features**



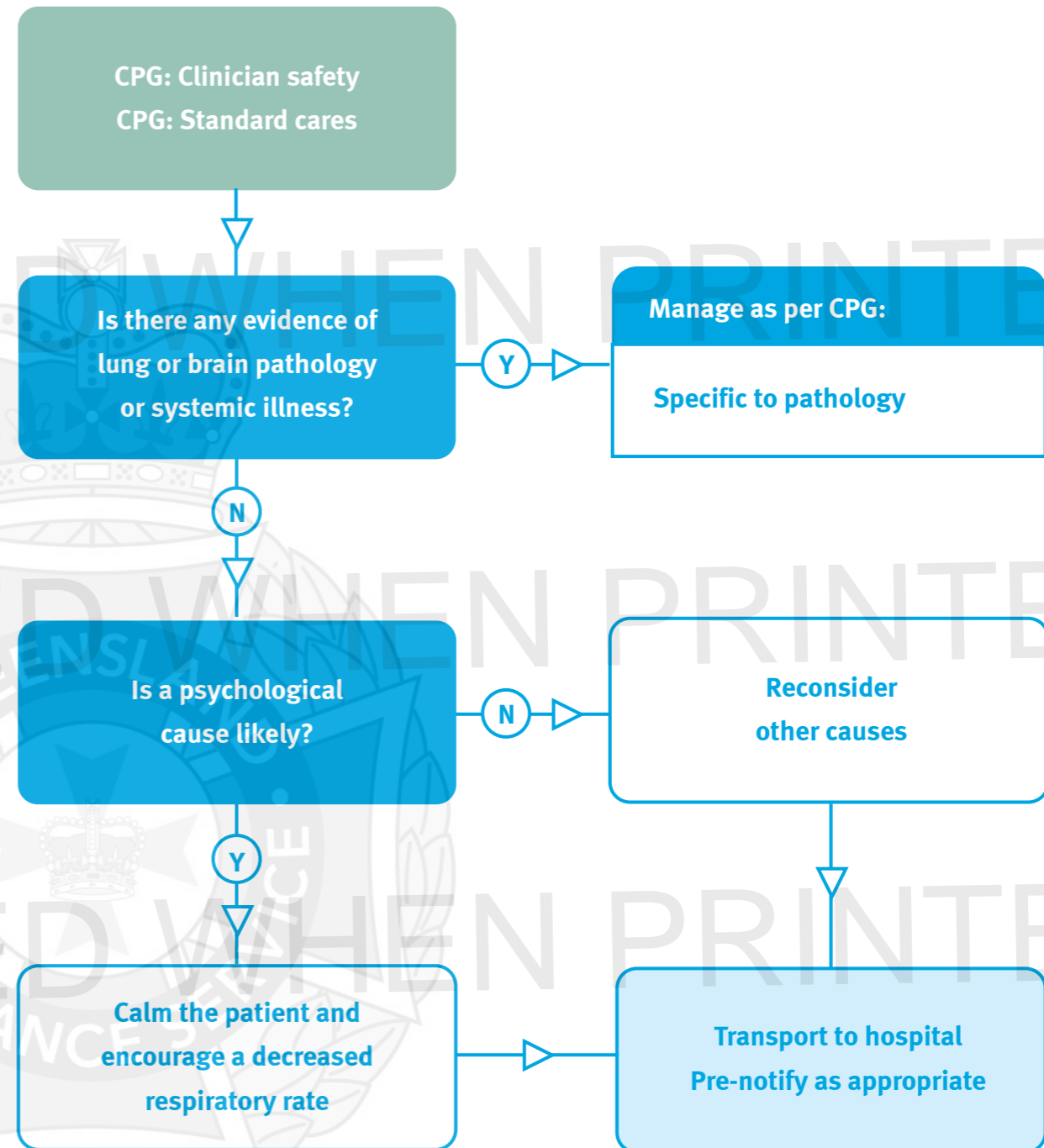
- Respiratory rate will depend on age and underlying comorbidities.
- Hypocapnia as a result of hyperventilation may lead to paraesthesia (pins and needles) around the mouth, hands and feet, restlessness, dyspnoea, pain, vertigo, carpopedal spasm and eventually unconsciousness.<sup>[3]</sup>
- Rapid breathing due to hypoxaemia will usually be reflected in low SpO<sub>2</sub> readings, with the notable exception of carbon monoxide poisoning.

**NOTE:** Hyperventilation syndrome (rapid breathing caused solely by emotional disturbance) should always be considered a diagnosis of exclusion.

## Risk assessment



- Hyperventilation due to emotional stress is rare in children and so the focus should be on finding the underlying cause for any rapid respiratory rate.<sup>[4]</sup>
- The use of a paper bag to treat hyperventilation has been discouraged for some time. This is due to the technique failing to reverse hypocapnia and actually causing mild hypoxia, which has had fatal consequences when cases of respiratory disease, PE and AMI have been misdiagnosed.<sup>[5]</sup>
- An often effective method of breathing control is encouraging the patient to read a passage of text out loud. This distraction technique also forces the patient to modulate their breathing in order to speak.



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