



# Clinical Practice Procedures: Respiratory/Non-invasive ventilation – CPAP

<b>Policy code</b>	CPP_RE_NIV_0123
<b>Date</b>	January, 2023
<b>Purpose</b>	To ensure a consistent procedural approach for non-invasive ventilation – CPAP.
<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.
<b>Source of funding</b>	Internal – 100%
<b>Author</b>	Clinical Quality & Patient Safety Unit, QAS
<b>Review date</b>	January, 2025
<b>Information security</b>	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
<b>URL</b>	<a href="https://ambulance.qld.gov.au/clinical.html">https://ambulance.qld.gov.au/clinical.html</a>

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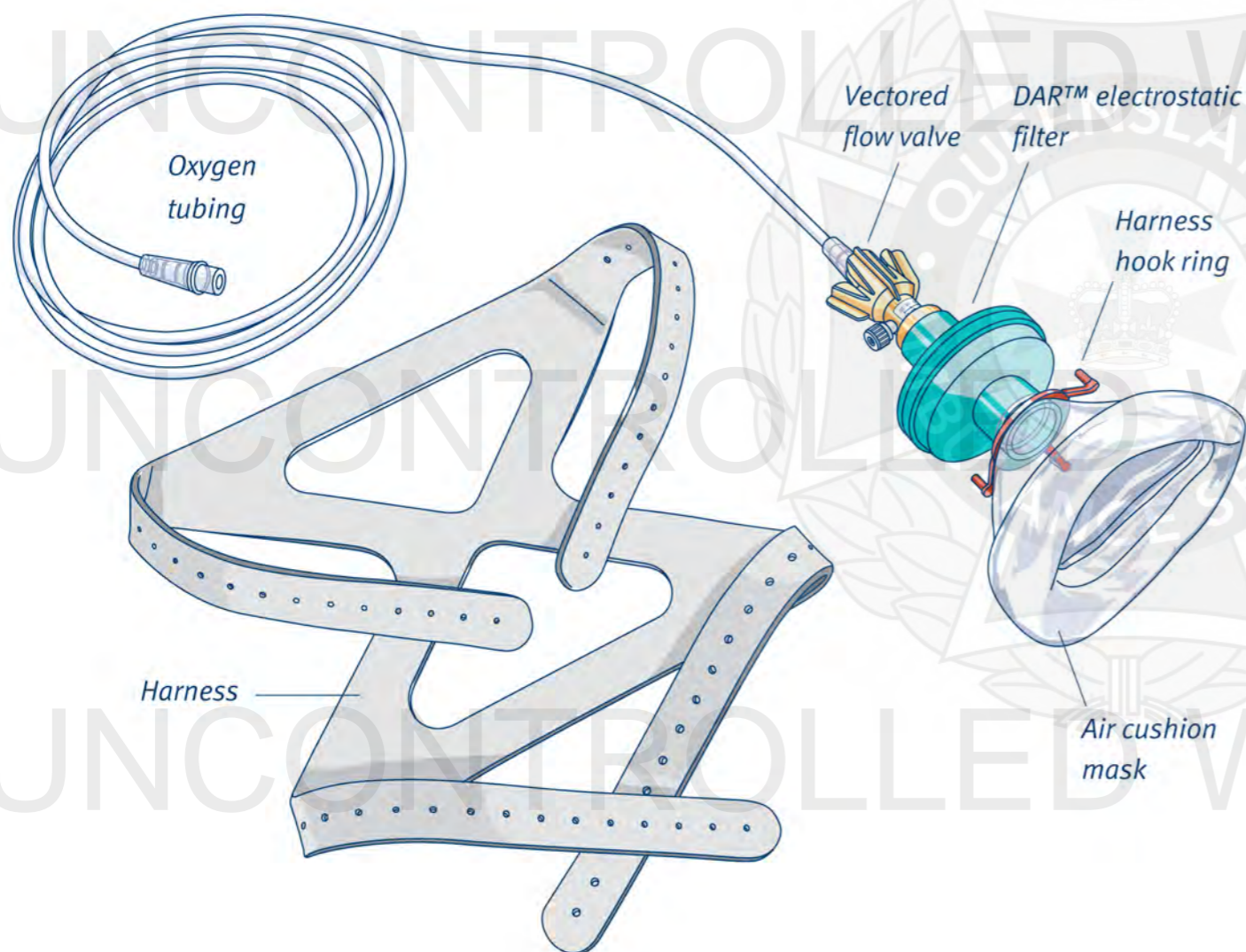
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# Non-invasive ventilation – CPAP

January, 2023

**Continuous positive airway pressure (CPAP)** is a form of non-invasive ventilation used in spontaneously breathing patients. CPAP reduces the work of breathing, improves pulmonary gas exchange and is associated with decreased intubation rates and hospital length of stays.<sup>[1]</sup>

When CPAP is administered to patients with acute cardiogenic pulmonary oedema, the increased intra thoracic pressure leads to reduced venous return (preload), reduced afterload and improved cardiac function.



The o\_two<sup>®</sup> is a single use, open CPAP system that uses a vectored flow valve to create additional flow during inspiration and resistance with expiration. By varying the oxygen flow, the baseline airway pressure can be increased or decreased to maintain a constant accurate positive airway pressure.

## Indications

### CCP

- Acute pulmonary oedema
- Severe **OR** life-threatening asthma (only in patients who are unresponsive to 3 x 5 mg continuous salbutamol NEBs)

### ACP2

- Acute pulmonary oedema

## Contraindications

- Patients < 16 years
- GCS ≤ 8
- Inadequate ventilatory drive
- Hypotension (SBP < 90 mmHg)
- Pneumothorax
- Facial trauma
- Epistaxis

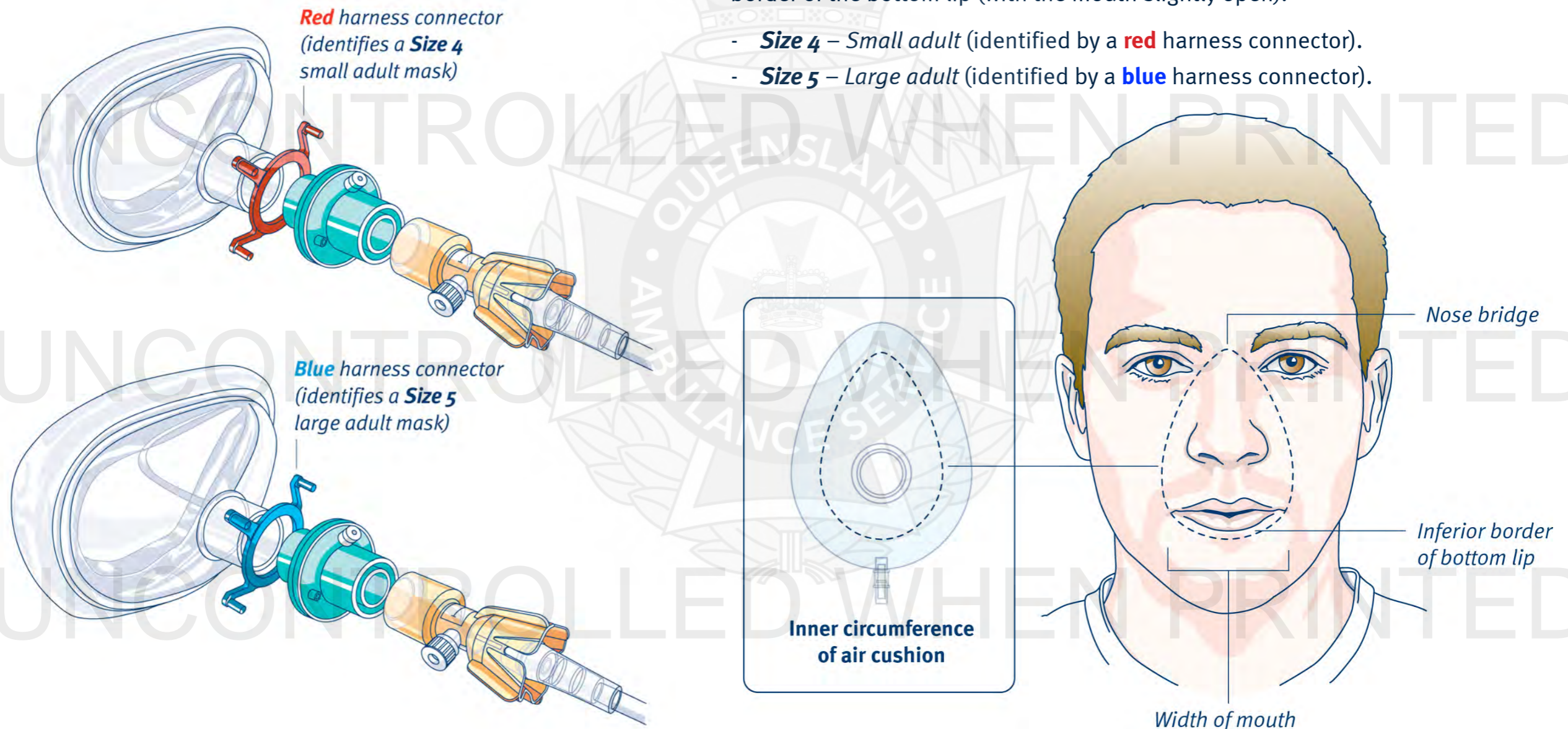
## Complications

- Aspiration
- Gastric distension
- Hypotension
- Corneal drying
- Barotrauma

## Procedure – Non-invasive ventilation – CPAP<sup>[2]</sup>

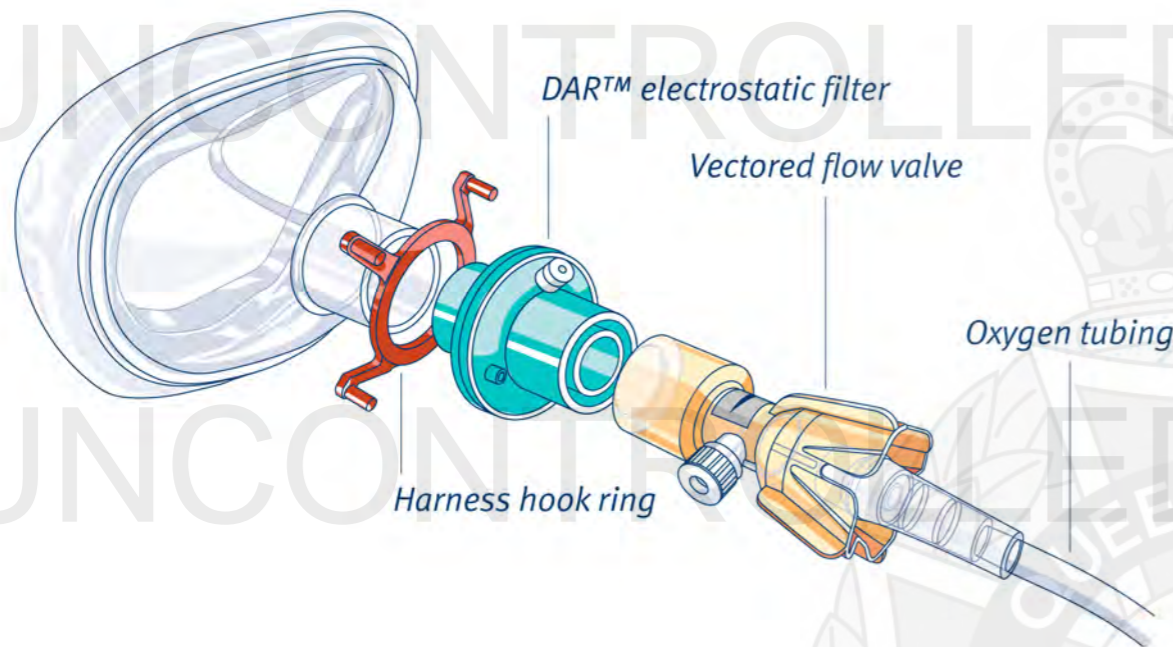
1. Place the patient in a seated position.
2. Explain the procedure to the patient (their understanding and cooperation is essential for successful CPAP).
3. Prepare the equipment.
4. Select the appropriate size face mask ensuring the inner circumference of the air cushion encompasses the bridge of the nose, side of the mouth and inferior border of the bottom lip (with the mouth slightly open).

- **Size 4** – Small adult (identified by a **red** harness connector).
- **Size 5** – Large adult (identified by a **blue** harness connector).

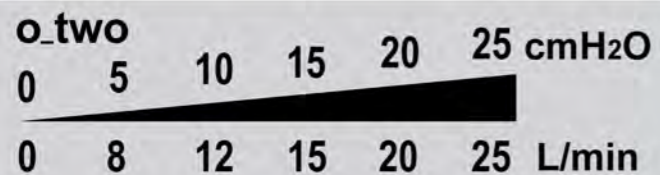
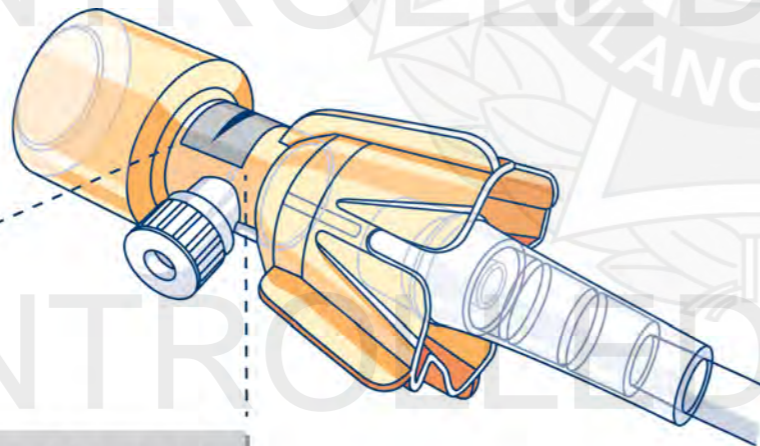


## Procedure – Non-invasive ventilation – CPAP

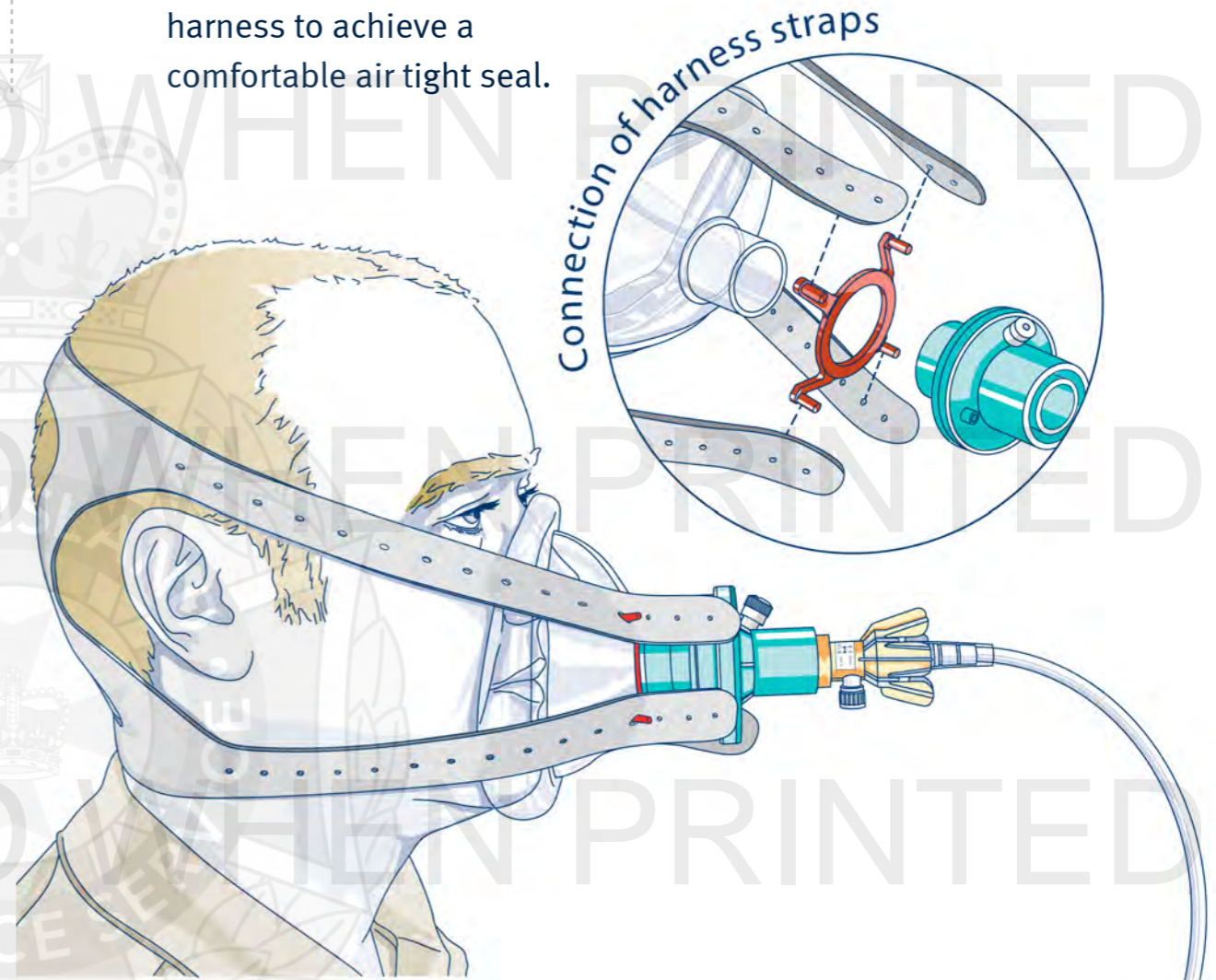
- Attach the vectored flow valve to the mask and the oxygen tubing, ensuring the harness connector remains in place.



- Adjust the oxygen flow rate to 8 or 10 L/min to generate continuous positive airway pressure (refer to the scale on the vectored flow valve).



- Position the mask on the patient's face and secure using the supplied harness to achieve a comfortable air tight seal.

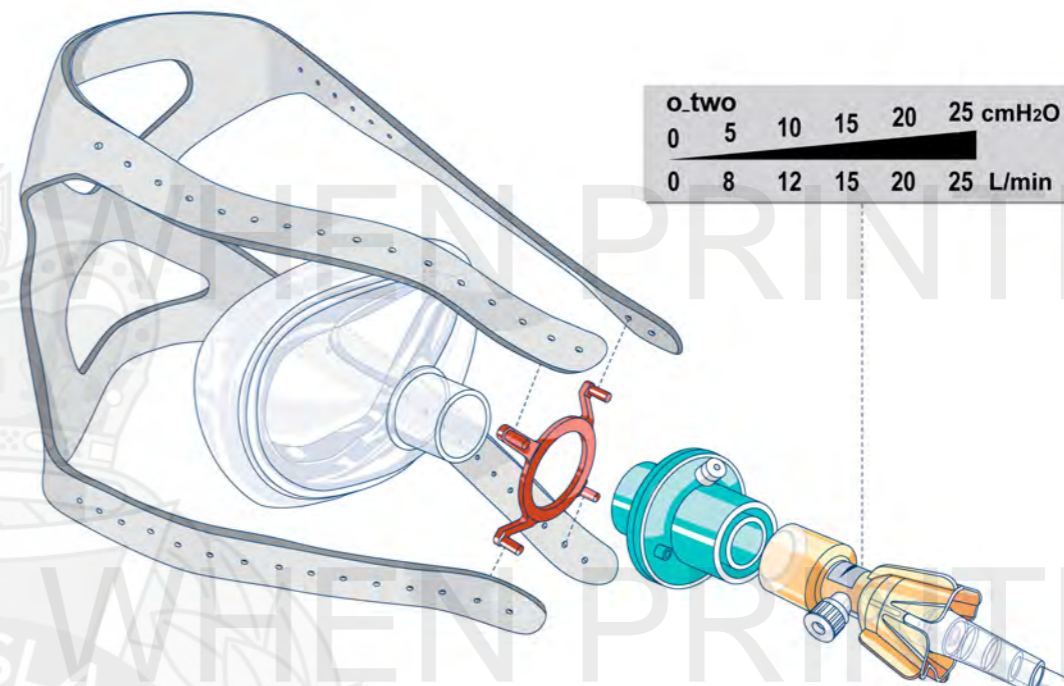


- Monitor the patient's response to treatment (i.e. respiration rate, SpO<sub>2</sub>, blood pressure, chest sounds & work of breathing) and increase the airway pressure every 3–5 mins (as required) to a maximum of 15 cmH<sub>2</sub>O.
- If the patient shows evidence of deterioration, discontinue CPAP immediately and treat in accordance with the appropriate CPG.

## + Additional information

- Do not deny the patient oxygen therapy prior to equipment preparation or CPAP procedure.
- At no time should the vectored flow inlet of the CPAP device be occluded connected to a patient.
- The brief interruption of CPAP is authorised for the administration of sublingual medications as indicated.
- Metered Dose Inhaler (MDI) medications may be administered by authorised ambulance clinicians using an in-line connector. When the MDI canister is not in position, the medication port MUST be capped to ensure airway pressures are maintained.
- CPAP O<sub>2</sub> concentration according to flow rate:

O <sub>2</sub> L/min	cm H <sub>2</sub> O	O <sub>2</sub> % (approx.)
8	5	54
10	8	59
12	10	62
15	15	67



**o\_two® configuration**

### o\_two® CPAP with MDI medication configuration

