



## CLINICAL PRACTICE GUIDELINE

# Oxygen Therapy

This document should be read in conjunction with the [Disclaimer](#)

## Aims

- Information on administration of Oxygen Therapy for inpatients at KEMH
- To ensure compliance with the Western Australian Department of Health Operational Directive OD 0397/12.

## Key Points

1. This guideline applies to specific Obstetrics and Gynaecology clinical areas of KEMH- Wards 3, 4, 5 and 6 only.
2. No patient shall be denied oxygen therapy in an emergency. Patients in cardiac arrest and / or respiratory arrest shall be managed as per Clinical Guideline [Recognising and Responding to Clinical Deterioration](#)
3. All other patients with suspected or known tissue hypoxia shall have oxygen therapy initiated immediately by the attending health care professional (doctor, nurse, midwife or physiotherapist). See Clinical Guideline [Respiratory Support: Nurse/Midwife Initiated Oxygen Therapy](#).
4. Patients commenced on acute oxygen therapy shall be examined by a doctor as soon as possible and if possible, initial investigations may include an arterial blood gas, haemoglobin level and chest x-ray.
5. Initial and regular observations should include vital signs (pulse, blood pressure, respiratory rate, pulse oximetry, temperature and the level of consciousness).
6. Specialist medical advice shall be obtained promptly from the Anaesthetic Department if the patient cannot be stabilised.
7. Once the patient is stable, the oxygen therapy must be prescribed on the dedicated 'Oxygen Therapy Medication Chart' (MR 810.70) by a medical officer
8. The MR 810.70 shall define the indication, target oxygen saturation, oxygen therapy delivery device, range for oxygen flow or percent of inspired oxygen, and when oxygen is to be applied. The prescription shall be signed, dated and the name of the prescriber printed legibly. The prescription shall be reviewed **daily**.
9. A sticker shall be placed on the medication chart (MR 810) to indicate there is an Oxygen Therapy Medication Chart in use.

10. Patients receiving oxygen therapy shall be monitored by pulse oximetry at least as frequently as the observations of vital signs and clearly documented on the patient's observation chart with the inspired oxygen concentration.
11. Oxygen therapy shall be titrated to the lowest concentration that meets oxygenation goals:
  - 95-98% for all patients except those with / at risk of hypercapnoeic respiratory failure
  - 88-92% for those patients with or at risk of hypercapnoeic failure.
12. Urgent medical review and arterial blood gas measurement is required if the patient develops signs of deterioration including any of the following:
  - Acute breathlessness
  - Decreasing conscious state
  - Oxygen saturations  $\leq$  90% and falling
  - Oxygen requirements increasing

See Clinical Guideline O&G: Standard Protocols: [Recognising and Responding to Clinical Deterioration](#)
13. Refer to Reduction and Discontinuation of Oxygen Therapy on the next page.

### **Patients with severe chronic lung disease or other conditions at risk of Hypercapnoeic Failure**

Oxygen therapy shall be prescribed cautiously to patients with severe chronic lung disease and other conditions at risk of hypercapnoeic respiratory failure e.g. morbid obesity, neuromuscular disorders, and chest wall disorders.

1. These patients who require oxygen therapy shall be commenced on oxygen using a Venturi mask at 24-28%.
2. Titrate the oxygen requirement to maintain an oxygen saturation level of 88-92%.
3. In patients with hypercapnoea, non- invasive ventilation should be considered in patients with respiratory acidaemia (pH < 7.35) and arterial blood gases should be repeated within 4 hours.
4. Once stabilised, it may be possible to replace the Venturi mask with nasal cannulae at low flow (0.5 - 4L / min) to maintain an oxygen saturation of 88-92%.
5. If nebulised bronchodilators are required, the nebuliser is best driven by compressed air with oxygen therapy given concurrently by nasal cannulae at 2 – 4L / min to maintain an oxygen saturation of 88-92%. If compressed air is not available, the nebuliser can be driven by oxygen at a flow rate of 6-10L / min for 3-4 minutes.

6. All patients with chronic lung disease and other at-risk conditions who have an episode of hypercapnoeic failure shall be issued with an **oxygen alert card** and a 24% and 28% Venturi mask. The patient shall be instructed to show the card to their local doctor, ambulance crew and emergency department staff in the event of an exacerbation.

## Reduction and Discontinuation of Oxygen Therapy

- Oxygen therapy shall be reduced and discontinued in stable patients with satisfactory oxygen saturation. The oxygen saturation shall be above the target range or been at the upper end of the target range for at least 4 hours.
- Discuss with the medical officer prior to reduction or ceasing of oxygen therapy in patients with severe chronic lung disease or other conditions at risk of Hypercapnoeic failure.
- Oxygen therapy shall cease when the patient is able to maintain oxygen saturation in the target range when breathing room air. Oxygen saturation on room air shall be monitored for at least 5 minutes after discontinuing oxygen therapy and shall be rechecked at 1 hour. Oxygen therapy shall be recommenced if the oxygen saturation falls below the target range.

**Once discontinued, the Nurse/Midwife is to document 'Ceased' on the MR810.70**

## PREGNANCY

All women with hypoxaemia who are more than 20 weeks gestation should be managed with lateral tilt to improve cardiac output and oxygen therapy to maintain an oxygen saturation of 94-98%.

The use of oxygen therapy during labour in normoxic women has been associated with acidosis of cord blood.

## Posture and Oxygenation

To increase oxygenation patients should be nursed in the upright position unless:

- the upright position causes discomfort
- immobilisation is required for a medical/surgical condition
- the patient is hypotensive
- the patient is recovering from a seizure

## OXYGEN DELIVERY SYSTEMS

Delivery System	Flow (L/min)	Approx. FiO <sub>2</sub> (%)
Simple nasal cannulae	0.5 - 4	22 - 40
High flow (humidified) nasal cannulae		6 - 40
Simple (Hudson) mask	5 - 10	40 - 60
Venturi mask	Variable (See colour-coded mask attachment)	24 - 50

Reservoir (non-rebreathing) mask	10 - 15	60 - 90
Positive airways pressure mask, i.e. CPAP or NIV	0.5 - 60	22 - 60
Swedish nose	0.5 - 4	22 - 50

### **SIMPLE NASAL CANNULAE**

Simple nasal cannulae can be used to deliver low and medium dose oxygen concentration ( 22-40%).

The actual inspired oxygen concentration varies between patients because of differences in the pattern of breathing. Mouth breathing does not appear to reduce the efficacy of nasal cannulae. They are generally preferred by patients over face masks and have the advantages of improved comfort, less claustrophobia, ability to eat and speak freely, less easily dislodged, less inspiratory resistance and no risk of CO<sub>2</sub> rebreathing. Their disadvantages are that flow above 4L/min tends to cause nasal dryness and discomfort if maintained for several hours and they may not be effective in patients with severe nasal obstruction.

### **SIMPLE (HUDSON) MASK**

Simple face masks deliver oxygen concentrations up to 60%.The flow should be at least 5L/min because lower flows can cause resistance to inspiration and rebreathing of exhaled CO<sub>2</sub>. The mask is suitable for patients with hypoxaemic (Type 1) respiratory failure but not for patients with hypercapnoeic (Type II) respiratory failure.

### **VENTURI MASK**

Venturi masks provide a more predictable oxygen concentration to the patient. The masks are available in the following concentrations: 24%, 28%, 31%, 35%, 40% and 50% depending on the colour-coded mask attachment used. They are suitable for all patients needing a known concentration of oxygen. The 24% and 28% Venturi masks are particularly suited to those at risk of CO<sub>2</sub> retention. The oxygen low required to achieve the appropriate concentration is defined on the colour coded mask attachment. The accuracy of the oxygen concentration delivered is greatly reduced if the mask is not accurately placed on the patients face, the flow is too low or the diluter jet is obstructed. The latter may be caused by clothing and can be prevented by the use of a protective hood over the jet diluter.

### **RESERVOIR (NON REBREATHING) MASK**

Reservoir masks can be used to provide a higher FiO<sub>2</sub> than simple masks. They are most suitable in an emergency (e.g. shock, trauma) where CO<sub>2</sub> retention is less relevant. The bag must be fully inflated before application to the patients and should remain inflated. Deflation suggests a leak or inadequate oxygen flow and may be a sign of deterioration.

## **Documentation**

'Oxygen Therapy Medication Chart' (MR 810.70) plus 'Oxygen Therapy Medication Chart in Use' sticker

1. The Medical officer orders the oxygen therapy on the oxygen prescription form. This is then attached to the medication chart.
2. An 'Oxygen Therapy Medication Chart In Use' sticker is placed in the Medication Chart to indicate the patient has been prescribed oxygen therapy.

3. The registered nurse/midwife signs the chart once per shift to indicate the oxygen prescription has been checked.
4. The MR 810.70 is reviewed every 24 hours, or according to clinical state by the medical team.
5. Changed oxygen therapy is ordered and documented on the MR 810.70.
6. Record oxygen saturations on the observation chart MR 285.01/ MR 285.02.
7. Record commencement, completion and changes to oxygen therapy on the observation chart.
8. At the beginning of the shift the midwife / registered nurse will check the order for oxygen therapy with the oxygen therapy the patient is receiving, and then document the type and flow rate of the oxygen on the observation chart.

### Issuing of an Oxygen Alert Card

When a patient requires an 'Oxygen Alert Card' they must be informed to advise their general practitioner (GP), and also the ambulance crew and Emergency Department staff if these services are sought.



The discharge information letter to the GP should also indicate if the card has been issued.

#### Related policies

[OD 0397/12 Use of Acute Oxygen in Western Australian Hospitals](#)

#### Related WNHS policies, procedures and guidelines

[Nebulisations](#)

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