All staff using the Fluid & Medication Management policies must first familiarise themselves with the contents of:

- Roles & Responsibilities Policy,
- Basic Infection Prevention & Control Principles related to Fluid & Medication
- Patient Identification Policy (Volume 11)

## Oxygen Therapy

1. Contraindications
   - Oxygen, if contraindicated, must be discontinued immediately.
   - Other treatments, where appropriate, should be commenced.
   - Oxygen should never be used as a substitute for adequate ventilation.

2. Precautions
   - Oxygen should only be administered by trained personnel, and their choice of therapy should be based on the patient's clinical condition.
   - Oxygen should not be administered to patients with severe respiratory or cardiac disease.

3. Policy Requirements
   - Oxygen should be administered in a manner that minimises the risk of complications.
   - Oxygen should be administered at a flow rate that is appropriate to the patient's clinical condition.

4. Blood Gas Monitoring in Adult Patients only
   - Oxygen therapy should be titrated to maintain the patient's oxygen saturation within a target range.

5. Transferring and transportation of patients receiving oxygen therapy
   - Oxygen therapy should be maintained during transportation.

6. Nebuliser therapy
   - Nebuliser therapy should be administered in a manner that minimises the risk of complications.

7. Humidification
   - Oxygen therapy should be humidified to prevent respiratory symptoms.

### Device Selection –refer to CSU website

**Policy**

Patients who require supplementary oxygen therapy will receive therapy that is appropriate to their clinical condition and in line with international guidance.

Oxygen will be prescribed according to a target saturation range to achieve a specified outcome, rather than solely specifying a delivery device and flow rate.

### Definitions

**EWS (Early Warning Score)** For the purposes of this policy when the term EWS is used, this encompasses the Adult Early Warning Score, Modified Early Obstetric Warning Score and Paediatric Early Warning Score.

### Scope

Medical Practitioners, Nurses and Midwives, Student nurses/midwives as per Students Responsibility policy Vol 12, Physiotherapists
Associated documents

- CDHB Early Warning Management Protocol
- Patients Medication Chart QMR0004.
- Oxygen Therapy Training document – via Clinical Skills Unit website
- Blue Book
- Respiratory Services Protocols and Guidelines http://respiratory.streamliners.co.nz/
- Child Health-Volume Q 3.2 Pulse Oximetry for Infants and Children

1.1 Contraindications

- There are no absolute contraindications to oxygen therapy if indications are judged to be present.
- Supplemental oxygen should be used with caution in patients suffering from
  - Paraquat poisoning
  - Acid inhalation
  - Previous Bleomycin use

1.2 Precautions

In patients with chronic carbon dioxide retention, oxygen administration may cause further increases in carbon dioxide and respiratory acidosis. This may occur in patients with COPD, neuromuscular disorder, morbid obesity or musculoskeletal disorders.

High concentration O₂ (70%-100%) may damage the alveolar membrane when inhaled for greater than 48 hours. This risk can increase after chemotherapy/Bleomycin administration.
1.3 Policy Requirements

- Oxygen should be used to treat hypoxia not dyspnoea or breathlessness
- A prescription for Oxygen therapy must include
  - Indication
  - Target saturations
  - Starting device and flow rate/FiO$_2$
  - PRN/Continuous route
- The patient’s oxygen saturations and delivery system must be recorded on the observation chart with each set of EWS observations taken. This includes all oxygen saturation observations when patients are being weaned from oxygen therapy or trialled on room air.
- Oxygen therapy should be decreased if the saturation is above the desired range (and eventually discontinued as the patient recovers).
- Pulse oximetry must be available at each location that oxygen is used.
- All peri-arrest and critically ill patients should be given 100% oxygen (15 litre/min reservoir bag) whilst awaiting medical review.
- Patients with COPD and other risk factors for hypercapnia who develop critical illness should have the same initial target saturations as other critically ill patients pending the results of blood gas measurements. These patients may then need controlled oxygen therapy or supported ventilation if there is severe hypoxaemia and/or hypercapnia with respiratory acidosis confirmed by Arterial blood gases (ABGs).
- Any qualified nurse/health professional can commence oxygen therapy in an emergency situation.
- Patients receiving oxygen therapy are not permitted to smoke with oxygen insitu.
- A low flow meter is used for a flow rate of less than 1Lpm.
- Check for correct setting of flow meter at the beginning of every shift and periodically during oxygen therapy.
- All oxygen cylinders must be appropriately restrained at all times including in transit.
1.4 Blood Gas Monitoring in Adult Patients only

Arterial blood gases are the gold standard for monitoring ventilation and should be checked in the following situations:

- All critically ill patients.
- Unexpected or inappropriate hypoxaemia or any patient requiring additional supplementary oxygen to achieve a prescribed target range.
- Deteriorating oxygen saturation or increasing breathlessness in a patient with previously stable hypoxaemia.
- Any previously stable patient who deteriorates and requires a significantly increased fraction of inspired oxygen (FiO₂) to maintain constant oxygen saturation.
- Any patient with risk factors for hypercapnic respiratory failure who develops acute breathlessness, deteriorating oxygen saturation or drowsiness or other symptoms of CO₂ retention.
- Breathless patients who are thought to be at risk of metabolic conditions such as diabetic ketoacidosis or metabolic acidosis due to renal failure.
- Acutely breathless or critically ill patients with poor peripheral circulation in whom a reliable oximetry signal cannot be obtained.
- Any other evidence from the patient’s medical condition that would indicate that blood gas results would be useful in the patient’s management (e.g. an unexpected change in the EWS observations)

1.5 Transferring and transportation of patients receiving oxygen therapy.

- All children requiring oxygen therapy requiring transfer/transport are to be accompanied by an RN.
- Patients who are transferred from one area to another must have clear documentation of their ongoing oxygen requirements and of their oxygen saturation.
- Unstable adult patients requiring oxygen therapy whilst being transferred should be accompanied by a Registered Nurse (RN)/Midwife.
- Clear instructions regarding delivery device and flow rate are required for stable patients requiring oxygen therapy whilst being transferred.
1.6 Nebuliser therapy

- Nebuliser Therapy is required to be run at 4 Lpm (Oxygen/Medical Air) for treatment of upper airways and 6 Lpm (Oxygen/Medical Air) to treat lower airways.
- All patients requiring 35% oxygen or greater should have their nebuliser therapy by oxygen at a flow rate of > 6 litres per minute.

Device Selection –refer to CSU website

1.7 Humidification

Reasons for use

Humidified oxygen is helpful to improve patient comfort and tolerance of therapy and to maintain optimal mucocilliary clearance in the airways. It is indicated in the following situations.

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Reason for use of heated humidification</th>
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<tbody>
<tr>
<td>High concentration oxygen. (FiO₂ &gt; 40%)</td>
<td>Some patients find the effects of prolonged treatment (&gt;24 hours) with high inspired oxygen concentration uncomfortable, because of drying of the upper airway.</td>
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<tr>
<td>Conditions affecting mucociliary transport</td>
<td>Patients with severe inflammatory conditions of the oropharyngeal mucosa may obtain comfort from humidification therapy even in the absence of high inspired oxygen concentrations. Example: Patients with head and neck cancers undergoing radiation or chemotherapy treatment who develop Mucositis.</td>
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<tr>
<td>Hypothermia</td>
<td>In cases of hypothermia heating inspired gas may help increase core body temperature in some patients if used in conjunction with other devices.</td>
</tr>
<tr>
<td>Endotracheal Intubation</td>
<td>Humidification of inspired gas during mechanical ventilation is mandatory</td>
</tr>
<tr>
<td>New Tracheostomy</td>
<td>Tracheostomy and Laryngectomy stoma patients requiring supplementary oxygen must have humidification provided.</td>
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</tbody>
</table>

Paediatric Considerations

Humidification for infants/children is to be used when Oxygen Therapy is required for extended period more than 24 hours at >2 litres per minute

If the child is too hot, a blue extension set can be added to the circuit between the patient end and mask.

If humidification is required for infants use Fisher & Paykel humidifier continuous low flow circuit as this circuit is designed for gas flows between 0.3-7 Lpm.
References


Guide to Oxygen Delivery System, by Brenda Swant BSN, RN

Policy Owner

Manager, ????