

 <p>BAY OF PLENTY DISTRICT HEALTH BOARD HAUORA A TOI</p> <p>CLINICAL PRACTICE MANUAL</p>	<p>OXYGEN THERAPY – COMMUNITY SUPPLY</p>	<p>Protocol CPM.O2.7</p>
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PURPOSE

- Provide a clear working protocol outlining the minimum standard expected from clinical professionals for safe patient physiological assessment for long-term oxygen therapy (LTOT), appropriate provision of LTOT, patient review, follow-up, oxygen ordering and documentation.
- LTOT is prescribed to patients with a variety of chronic respiratory disorders (Exclusion criteria listed in [Appendix 1](#)).
- Assessment of all patients for LTOT will be completed safely and effectively (process as refer to flowchart on [FM.O3.1 Oxygen Prescription and Patient Consent](#)).
- Oxygen is delivered in timely manner to ensure it is available to patients on arrival in community.

EXCLUSIONS

- **Any person who is currently smoking and/or vaping.** However, patients who continue to smoke and/or vape and fit the criteria for LTOT should be offered smoking cessation advice and be reassessed in 3 months after smoking or vaping ceases.
- Parents who smoke or vape and have children who require oxygen should be strongly discouraged from smoking and/or vaping.
- The assessment of the service user's home environment demonstrates that family and whanau who smoke and/or vape in the presence of the service user's oxygen usage contravenes the safe use of oxygen by the service user.
- Patients who do not meet the criteria for LTOT ([Appendix 1](#)).

INDICATIONS

- LTOT should be considered in COPD patients with:
 - very severe airflow obstruction (FEV1 < 30% predicted)
 - cyanosis
 - peripheral oedema
 - oxygen saturations < 90% breathing air.
 - LTOT should be considered for neonates, to reduce pulmonary hypertension, reduce intermittent desaturations, reduce airway resistance and promote growth.
 - All neonates, infants and children to have oxygen must have the oxygen prescribed by a Paediatrician
- Long-term oxygen therapy is indicated for patients with **COPD** when the PaOR₂R is consistently at or below 7.3 kPa, breathing air during a **period of clinical stability**. Clinical stability is defined as the absence of an acute exacerbation of COPD.
- LTOT can also be prescribed in chronic hypoxemic patients when the clinically stable PaO₂ is between 7.3 and 8 kPa together with one of the following:
 - secondary Polycythemia
 - clinical and / or echocardiographic evidence of pulmonary hypertension
 - peripheral oedema due to pulmonary hypertension.
- **LTOT should not be prescribed in patients with chronic hypoxemia with a PaOR₂R value above 8 kPa.**
- **LTOT should not be prescribed for symptoms of breathlessness alone.**

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<p>Protocol Steward: Clinical Nurse Specialist, Respiratory</p>	<p>Authorised by: Medical Director</p>	

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TYPES OF LONG TERM OXYGEN THERAPY

1. Long term oxygen therapy

- 1.1 LTOT refers to oxygen therapy for continuous use at home for patients with chronic hypoxemia.
- 1.2 LTOT, when prescribed, is likely to be given lifelong, and is given for at least 16 hours daily to include night-time due to the presence of worsening arterial hypoxemia during sleep.
- 1.3 LTOT in neonates is reviewed within 24 hours of discharge and at the least no less than 4 weekly thereafter or as required by the Paediatrician. All infants / children with oxygen are to be reviewed at home within 24 hours of discharge and 4 weekly thereafter, or as required by the Paediatrician.

2. Ambulatory oxygen therapy

- 2.1 Ambulatory oxygen therapy refers to the provision of oxygen therapy during exercise and activities of daily living.
- 2.2 Ambulatory oxygen should be prescribed for patients already on LTOT who want to continue with therapy away from home.
- 2.3 Ambulatory oxygen may be prescribed for patients not receiving LTOT who desaturate <90% on exercising.
- 2.4 Neonates, infants and children will need ambulatory oxygen considered in order to accommodate daily living / mobility needs.

3 Short burst oxygen therapy

- 3.1 Prescription of Short Burst oxygen may be at Physician discretion.
- 3.2 Short burst oxygen therapy refers to the intermittent use of supplemental oxygen at home, usually for periods of 3 - 5 minutes at a time to relieve breathlessness.
- 3.3 Short-burst oxygen therapy should only be considered for episodes of severe breathlessness not relieved by other treatments.
- 3.4 Despite extensive prescription of short burst therapy, there is no adequate evidence available for firm recommendations and further research is required.

EQUIPMENT

- [Bay of Plenty District Health Board Form FM.O3.1 Oxygen Prescription and Patient Consent](#)
- District Nursing referral form
- [Bay of Plenty District Health Board Form FM.E4.1 Notice of Potential Medically Dependent Consumer \(MDC\) Status form](#)
- [Bay of Plenty District Health Board Form FM.E4.2 WINZ Application for Physical Disability Allowance, financial assistance, related to electrical running costs of Medical electrical equipment](#)
- [Getting Started on Home Oxygen booklet](#) – *viewable only. Order via Design & Print Centre*
- All equipment is supplied by Air Liquide Tauranga / Bob's Gases Whakatane

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STANDARDS TO BE MET

STEP	ACTION	RATIONALE
1.	<p>Assessment for long term oxygen therapy:</p> <ul style="list-style-type: none"> • Patients who may require or benefit from provision of LTOT should be referred to Respiratory Nurse Team who are trained in the assessment of home oxygen provision. • Patient assessment for LTOT requires the measurement of arterial blood gases, without supplementary oxygen (on air) and is only completed when patient is clinically stable, receiving optimum clinical management and preparing for discharge (refer to flowchart on FM.O3.1 Oxygen Prescription and Patient Consent). • An arterial blood gas is not a requirement for the prescription of oxygen for neonates / infants / children • Appropriate assessment for long term oxygen therapy requires consideration of three factors: <ul style="list-style-type: none"> – A confident clinical diagnosis associated with chronic hypoxaemia. – Optimum medical management of the particular condition and clinical stability. – Arterial blood gas tensions must be measured (adults only) – Children are assessed for O₂ and established on the prescribed regime as an inpatient. • If prescribed in Outpatient Clinic follow-up in 3 months by a Respiratory Physician or District Nursing (adults only). • When prescription is signed by admitting physician in Whakatane, patient must return for review in one month in Clinical Nurse Specialist Clinic. 	<ul style="list-style-type: none"> • A Respiratory Physician is the required prescriber for LTOT or the admitting Physician in Whakatane may prescribe 1 month's supply with follow-up arrangements in Clinical Nurse Specialist clinic. • A Paediatrician is the required prescriber for all oxygen requirements for neonates / infants / children. • All patients must have an accurate diagnosis, be receiving optimum medical management and be clinically stable. • Patients with borderline blood gases for LTOT prescription should be considered for reassessment in three months' time. • Ensure patient meets criteria for LTOT and that prescription is appropriate to meet patient's needs
2.	<p>Assessment process for Adult LTOT patients who are clinically stable:</p> <ul style="list-style-type: none"> • Assessment to be completed (refer to flowchart on FM.O3.1 Oxygen Prescription and Patient Consent) • Blood gases must be measured with the patient breathing air for at least 10 minutes after he/she last received any supplemental oxygen. • If it is considered that LTOT would benefit the patient, monitor SpO₂R with the patient breathing supplemental oxygen for at least 30 minutes to measure effectiveness. 	<ul style="list-style-type: none"> • Ideally, provision of LTOT should be avoided on hospital discharge, when patients are recovering from an acute episode of exacerbation. Patients should be reviewed 4-5 weeks later to assess blood gases when they are clinically stable and receiving optimum medical management. • Blood gases and not oxygen saturations (SpO₂R) must be measured because assessment of hypercapnia and its response to oxygen therapy is required for safe prescription of LTOT. • To enable Medical Team to safely

STEP	ACTION	RATIONALE
		assess oxygen requirements and prescribe appropriately for discharge.
3.	<p>Assessment of Palliative patients</p> <ul style="list-style-type: none"> LTOT may be prescribed for palliation in terminally ill patients with disabling dyspnoea receiving optimum medical management and SpO_{2R} <90% on air. 	<ul style="list-style-type: none"> If management of dyspnoea is not adequately controlled with medication e.g. narcotics / anxiolytics.
4.	<p>Assessment process for Adult Ambulatory oxygen</p> <ul style="list-style-type: none"> Patients must be clinically stable and in absence of exacerbation Patients with only moderate hypoxaemia (PaO_{2R}>7.3 - 8 kPa) and who are not on LTOT, may show exercise desaturation with a fall in SpO_{2R} of 4% or to a value <90%. Ambulatory oxygen should only be prescribed if there is evidence of exercise de-saturation that is corrected by the proposed device. The walking test assessments should be performed by an appropriately trained health care professional and may take the form of 6 minute walk test or shuttle walk tests or as part of Pulmonary Rehabilitation sessions. A gap of at least 30 minutes for rest is recommended between the various walk tests. The walking test should ideally be performed on the oxygen equipment that will be provided by the contractor. The walking test may require repeating if higher oxygen flow rates are required. The following measurements should be obtained: <ul style="list-style-type: none"> i. SpO_{2R} during the exercise test. (many oximeters can record the whole test) ii. Supplemental oxygen flow rate that is required to maintain the SpO_{2R} above 90% <u>where possible</u> during exercise iii. Walking distance and measurement of resting/end exercise dyspnoea using an instrument such as the Borg Score or a Visual Analogue Score. 	<ul style="list-style-type: none"> The purpose of assessment is to evaluate the oxygen flow rate to correct exercise de-saturation and to introduce the technology. The assessment for exercise desaturation as described is based on current recommended practice and it is likely that as further information is obtained from research studies, then these recommendations for assessment for ambulatory oxygen therapy will be amended.
5.	<p>Short Burst Oxygen Therapy:</p> <ul style="list-style-type: none"> Short burst oxygen therapy refers to the intermittent use of supplemental oxygen at home usually for periods of about 3 to 5 minutes at a time to relieve dyspnoea. Short burst oxygen should only be prescribed if an improvement in breathlessness and / or exercise tolerance can be documented. 	<ul style="list-style-type: none"> It is important to differentiate short burst therapy from the provision of continuous oxygen with exercise and termed ambulatory oxygen therapy.

STEP	ACTION	RATIONALE
6.	<p>Adult Patients not meeting criteria for LTOT prescription:</p> <ul style="list-style-type: none"> Patients with borderline blood gases for LTOT prescription should be reassessed with repeat arterial blood gases if advised by respiratory physician. 	
7 a)	<p>Oxygen Prescription (Adult)</p> <ul style="list-style-type: none"> Oxygen prescription is completed by a Respiratory Physician in Tauranga or by the admitting Physician in Whakatane who are supported by a multidisciplinary team, trained in the assessment of home oxygen provision. When prescription is signed by admitting physician in Whakatane, patient must return for review in one month in Clinical Nurse Specialist Clinic. Expected date of delivery must be clearly documented i.e. urgent or 3 – 5 days. Patient consent is obtained by medical team on prescription form. Ensure patient / family signs prescription form and a copy is given to the patient. 	<ul style="list-style-type: none"> To ensure appropriate oxygen prescription. To ensure patient understands responsibilities related to treatment / equipment.
7 b)	<p>Oxygen Prescription (Neonate / Infant / Child):</p> <ul style="list-style-type: none"> Oxygen prescription in Tauranga and Whakatane is completed by a Paediatrician and are supported by a multidisciplinary team trained in assessment of home oxygen provision. 	
8.	<p>Patient education:</p> <ul style="list-style-type: none"> Refer to Respiratory Nurse Team. Following a decision to provide LTOT and / or ambulatory oxygen therapy, it is recommended that the patient receives education and some written information about the reason for oxygen prescription and principles of oxygen therapy. It is important that a spouse / family member or carer attends the education sessions with the patient and that the carer's needs are adequately addressed within the education programme. Ongoing support and education is given by the District Nurse (Adult). Ongoing support for neonates (Neonate Outreach Nurse), infants and children (Homecare Nurse) 	<ul style="list-style-type: none"> To ensure education given to patient / carers and reassurance of patient. To provide written reinforcement for managing oxygen at home e.g. Getting Started on Home Oxygen booklet with the checklist signed by nurse and patient and a copy is retained in the patient's health record.
9.	<p>Discharge arrangements for all age groups: Tauranga</p> <ul style="list-style-type: none"> When discharge date confirmed, fax prescription form and referral to District Nursing 24 hours prior to discharge. If patient discharged to Level 5 Hospital Level care the prescription is to be faxed directly to the 	<ul style="list-style-type: none"> District Nursing (DN) provide follow up education and assessment in the community for Adults Neonate Nurse or the Homecare Nurse provides follow up education and support for Neonates/infants and

STEP	ACTION	RATIONALE
	<p>Residential Care Facility and not District Nursing.</p> <ul style="list-style-type: none"> Nurse / patient or family to contact Air Liquide to arrange time of equipment delivery to patient's home or delivery to the hospital for family to collect. Provide MDC consumer form and WINZ electricity application form and inform patient it is their responsibility to inform Electricity Company of dependency on oxygen equipment. <p>Whakatane</p> <ul style="list-style-type: none"> 24 hours' notice required, Orderlies deliver concentrator to Ward and provide oxygen cylinder, if required for travel home. District Nursing notify Air Liquide who contact the Agent, Bob's Gases Whakatane for planned delivery of any required oxygen cylinders to the home 	<p>children and their families.</p> <ul style="list-style-type: none"> To co-ordinate delivery of all equipment to patient's home before or at the patient's expected time of arrival home. Patient safety in case of power cut or other emergency situations
<p>10 a)</p>	<p>Patient follow up (Adult):</p> <ul style="list-style-type: none"> All patients should be reviewed by an appropriate specialist 3 months after initial LTOT prescription, with arterial blood gas measurements on air or monitor SpOR₂R and with supplemental oxygen at the prescribed flow rate, using the same equipment as provided in the home. Patients should be referred for reassessment to the hospital specialist when there is clinical deterioration, under-correction of the SpOR₂R with LTOT or symptoms of worsening hypercapnia e.g. morning headache. All patients on LTOT should be visited at home within 2 weeks of LTOT prescription. For satisfactory correction of hypoxaemia, the SpOR₂R should be at 90% or above with oxygen therapy. Results of the home oximetry should be sent to the hospital specialist and general practitioner. All LTOT patients should be followed up 6-monthly at home with measurement of SpOR₂R home on air and on LTOT. Where the SpOR₂R is noted to be at a level of 90% or above on air, the patients should be visited again in 4 weeks for repeat oximetry. If the SpOR₂R level is still at 90% or above, then this information should be discussed with hospital specialist to assess the requirement for LTOT. 	<ul style="list-style-type: none"> Formal arrangements are required for the follow-up of LTOT patients to ensure that oxygen prescription adequately corrects hypoxaemia, that there is good compliance with LTOT and ambulatory oxygen therapy, to detect clinical deterioration and to ensure continuing requirement for domiciliary oxygen. Measurement of SpOR₂R is a guide as to whether further assessment is required with blood gas measurement. The aim of home visits is to provide further education and support for the patient and carer and to record the SpOR₂R with oximetry on air and on the prescribed oxygen flow rate. In patients, where the SpOR₂R is under-corrected, the patient will need to have repeat blood gas assessment on oxygen therapy to adjust the LTOT. Although the oxygen flow rate can be adjusted using oximetry at home, there is a risk of worsening hypercapnia with increasing supplemental oxygen flow rate.

STEP	ACTION	RATIONALE																		
10 b)	<p>Patient follow up (Neonate / Infant / Child):</p> <ul style="list-style-type: none"> • Neonate - within 24 hours by the Neonate Outreach Nurse and as requested by the Paediatric Team • Infants and children - within 24 hours of discharge and no less than 4 weekly or as requested by the Paediatrician. 																			
11.	<p>Contact details:</p> <p><u>Tauranga</u> Air Liquide can deliver to the hospital or during normal delivery hours and days as below (0800 – 1630 hours):</p> <table border="1" data-bbox="204 689 911 936"> <tr> <td>Monday</td> <td>Tauranga / Mount</td> </tr> <tr> <td>Tuesday</td> <td>Katikati / Waihi Beach / Tauranga / Mount</td> </tr> <tr> <td>Wednesday</td> <td>Papamoa / Te Puke / Tauranga / Mount</td> </tr> <tr> <td>Thursday</td> <td>Tauranga / Mount</td> </tr> <tr> <td>Friday</td> <td>Tauranga / Mount</td> </tr> </table> <p><u>Whakatane</u> Bob's Gases delivery days Whakatane township – 4 times / week</p> <table border="1" data-bbox="204 1048 911 1193"> <tr> <td>Tuesday</td> <td>Ohope</td> </tr> <tr> <td>Wednesday</td> <td>Edgecumbe, Ruatoki, Matata</td> </tr> <tr> <td>Thursday</td> <td>Taneatua, Waimana, Opotiki, Ohope</td> </tr> <tr> <td>Friday</td> <td>Kawerau</td> </tr> </table> <p><u>Waikato DHB</u> NB: <u>Waihi</u> residents are supplied from Waikato DHB</p> <ul style="list-style-type: none"> • Physician to contact Respiratory Physician in Hamilton and arrangements made for complete handover of their care. • Please discuss with Waikato District Nursing if patient is likely to require an oxygen cylinder for travel home. Patient is not to be discharged until Waikato District Nurse has confirmed delivery of equipment. • Fax oxygen prescription and District Nursing referral to Waikato DHB Community Equipment & Supplies: <ul style="list-style-type: none"> - Fax 07 834 3662 / 07 839 8770 (alternative) - Ph 07 839 8899 Ext 7686 - Mob 021 930 544 <p><u>Other DHBs:</u></p> <ul style="list-style-type: none"> • All other patients being discharged to another DHB – please discuss with District Nursing of relevant DHB. 	Monday	Tauranga / Mount	Tuesday	Katikati / Waihi Beach / Tauranga / Mount	Wednesday	Papamoa / Te Puke / Tauranga / Mount	Thursday	Tauranga / Mount	Friday	Tauranga / Mount	Tuesday	Ohope	Wednesday	Edgecumbe, Ruatoki, Matata	Thursday	Taneatua, Waimana, Opotiki, Ohope	Friday	Kawerau	<ul style="list-style-type: none"> • To co-ordinate delivery of all equipment to patient's home before or at the patient's expected time of arrival home. • To provide efficient service – <u>extra charge for delivery out of stated hours</u> • Variation of protocols and suppliers within different DHBs • Prevent loss of equipment to Out Of Town areas • To provide a safe and effective discharge for patients to other DHBs and ensure appropriate personnel are aware of patient's discharge to enable them to arrange appropriate follow-up.
Monday	Tauranga / Mount																			
Tuesday	Katikati / Waihi Beach / Tauranga / Mount																			
Wednesday	Papamoa / Te Puke / Tauranga / Mount																			
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REFERENCES

- [The Australian and New Zealand Guidelines for the management of Chronic Obstructive Airways Disease](#)
- Adult Domiciliary Oxygen Therapy Clinical Practice Guideline March 2014
- BTS Guidelines for Home Oxygen Use in Adults 2015 [brit-thoracic.org.uk/document-library/clinical-information/oxygen/home-oxygen-guideline-\(adults\)/bts-guidelines-for-home-oxygen-use-in-adults/](http://brit-thoracic.org.uk/document-library/clinical-information/oxygen/home-oxygen-guideline-(adults)/bts-guidelines-for-home-oxygen-use-in-adults/)
- Global Strategy for the Diagnosis, Management, and Prevention Chronic Obstructive Pulmonary Disease 2018 Report
- [Notice of Potential Medically Dependent Consumer \(MDC\) Status form](#)
- [WINZ Application for Physical Disability Allowance, financial assistance, related to electrical running costs of Medical electrical equipment](#)
- BTS Guidelines for Home Oxygen in Children August 2009
- Community Health, Transitional Support and Services- Community Oxygen Nov 2012
- [Medsafe](#)
- [Quitline](#)

ASSOCIATED DOCUMENTS

- [Bay of Plenty District Health Board Form FM.O3.1 Oxygen Prescription and Patient Consent](#)
- [Bay of Plenty District Health Board policy 1.1.1 Informed Consent](#)
- [Bay of Plenty District Health Board policy 6.5.1. protocol 0 Discharge Planning – Inpatient Standards](#)
- [Bay of Plenty District Health Board policy 6.5.1 protocol 5 Discharge - Issuing Medical Electrical Equipment to Medically Dependent Electricity Consumers](#)
- [Bay of Plenty District Health Board Clinical Practice Manual protocol CPM.M3.5 Medication – Administration](#)
- [Bay of Plenty District Health Board Form FM.E4.1 Notice of Potential Medically Dependent Consumer \(MDC\) Status form](#)
- [Bay of Plenty District Health Board Form FM.E4.2 WINZ Application for Physical Disability Allowance, financial assistance, related to electrical running costs of Medical electrical equipment](#)
- [Getting Started on Home Oxygen booklet – viewable only. Order via Design & Print Centre](#)
- [Bay of Plenty District Health Board Policy CPM.O2.11 Oxygen - Management of New Patients](#)
- Bay of Plenty District Health Board District Nursing Referral

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Appendix 1: Contraindications / exclusion for BOPDHB Community Oxygen Supply:

- **Any person who is currently smoking, and/or vaping.** However patients who continue to smoke and/or vape and fit the criteria for LTOT should be offered smoking and/or vaping cessation advice and be reassessed in 3 months after smoking and/or vaping ceases.
- Any person who desaturates but with rest resaturates to above 90% within 5 minutes.
- Used with caution in persons with intercurrent hypercapnia e.g. Lower oxygen flow rate.
- Persons whose reversible problems not treated e.g. reversible airways obstruction, pleural effusion, airway infection, heart failure.
- If arterial oxygen is above approximately 8 kpa (60 mmHg) whilst breathing room air at sea level.

NB. Temporary supply of LTOT may be prescribed as advised by Respiratory Physician.

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