Providence HEALTH CARE	**RESPIRATORY SERVICES**	DATE CREATED: March 2011 DATE REVIEWED/REVISED: **September 2015**
PROCEDURE	TITLE: Pulmonary Diagnostics: Walking Oximetry (Respiratory Therapy) NUMBER: B-00-12-12117	RELATED DOCUMENTS:

SITE APPLICABILITY:

ST. PAUL'S HOSPITAL

GENERAL INFORMATION:

Exercise testing for home oxygen therapy using pulse oximetry may be performed to determine the degree of oxygen desaturation and/or hypoxemia that occurs on exertion. Continuous non-invasive measurement of arterial oxyhemoglobin saturation by pulse oximetry can provide qualitative information and an approximation of oxyhemoglobin saturation.

Patients should perform test wearing comfortable clothing and shoes. If patient normally uses a walking aid (i.e. walking cane or walker) it should be used during their test. The test should be performed on a flat and unobstructed corridor.

INDICATIONS:

- Assess and quantify the adequacy of arterial oxyhemoglobin saturation during exercise in patients clinically suspected of desaturation (i.e. dyspnea on exertion, decreased DLCO, decreased PaO_2 at rest)
- Quantitate the response to therapeutic interventions (e.g. oxygen prescriptions, medications, smoking cessation)
- Titrate the optimal amount of supplemental oxygen to treat hypoxemia or desaturation during activity
- Pre-operative assessment for lung resection or transplant
- Assess the degree of impairment for disability evaluation (e.g. pneumoconiosis, asbestosis)

CONTRAINDICATIONS:

- Serious cardiac dysrhythmias (including bradydysrhythmias, tachydysrhythmias, sick sinus syndrome, multifocal PVC)
- Unstable angina
- Recent myocardial infraction or myocarditis (within previous four weeks)
- Aortic or cardiac aneurysm
- Uncontrolled systemic hypertension
- Acute thrombophlebitis or DVT
- Recent systemic or pulmonary embolus
- Acute pericarditis

RELATIVE CONTRAINDICATIONS:

- Situations in which pulse oximetry may provide invalid data (e.g. elevated HbCO, HbMet, or decreased perfusion)
- Non-compliant patient or one not capable of performing test because of weakness, pain, fever, dyspnea, or psychosis
- Severe pulmonary hypertension
- Known electrolyte disturbances (hypokalemia, hypomagnesaemia)
- Neuromuscular, musculoskeletal, or rheumatoid disorders that are exacerbated by exercise
- Uncontrolled metabolic disease (i.e. diabetes, thyrotoxicosis, myxedema)
- SpO_2 less than 85% on room air
- Untreated or unstable asthma
- Resting diastolic BP greater than110 mmHg or resting systolic BP greater than 200 mmHg
- Complicated or advanced pregnancy
- Hypertrophic cardiomyopathy or other forms of outflow obstruction

REQUIRED SUPPLIES & EQUIPMENT:

- Portable pulse oximeter
- Head probe (if applicable)
- Stopwatch
- Measuring device
- Blood pressure monitor
- Walking Oximetry worksheet

PROCEDURE:

1. Review the patient requisition to ensure the correct test is ordered and there are no contraindications to performing a walking oximetry.
2. Take a resting blood pressure prior to starting the walking oximetry.
3. Explain the test to the patient and place the orange cones at either end of the hallway. Return distance from cone to cone is 50 m.
4. Attach the oximeter to the patient and record the patients resting SpO_2.
    - Please use an OxiMax head probe with all Scleroderma patients and all other patients with peripheral circulation problems (PACH Clinic).
5. If the patient arrives on oxygen, remove the oxygen for 5-10 minutes and watch SpO_2. If the SpO_2 drops to less than 88% for greater than 1 minute, walk the patient on O_2. If the patient SpO_2 is greater than 88%, complete the walk on room air.
6. Have the patient walk up and down the hallway at their regular pace for 6 minutes, allowing the patient to rest if needed.
7. Record the patient SpO_2 and heart rate every 30 seconds and for 2 minutes post exercise on the *Oxygen Saturation Study* form. Record the distance walked by the patient.
8. If the SpO_2 stays greater than 88%, the test is complete.
9. If the SpO_2 drops less than 80% for greater than 1 continuous minute, stop the test and record the distance. Retest the patient starting on 6 LPM O_2 after allowing the patient an adequate rest time between walks.
10. If after 6 minutes of walking the SpO_2 is between 80-87%, retest the patient starting on 4 LPM O_2 after allowing the patient adequate rest time between walks.
11. Titrate the O_2 as needed – either increasing or decreasing to keep SpO_2 greater than 90%.
12. If two walk tests are completed (room air and oxygen), calculate the % difference between the two distances.

EQUATION: $\frac{(O_2 \text{ distance}) - (\text{RA distance})}{(\text{RA Distance})} \times 100 =$ _____ % change

13. Ensure that the patient SpO_2 is back to an appropriate level before allowing the patient to leave.

STOP THE TEST IMMEDIATELY IF:

- There is severe desaturation (SpO_2 less than 83%) on 5 L/min oxygen
- Angina
- Hypotensive response
- Dysrhythmias (change in pulse rate and/or irregular pulse)
- Lightheadedness
- Request by a patient to terminate a test
- Mental confusion or headache
- Cyanosis
- Nausea or vomiting
- Muscle cramping

Include any of the above signs or symptoms in the comments section if noted during test.

REFERENCES:

1. ATS Pulmonary Function Laboratory Management and Procedure Manual, 2005.

REVIEWED BY:

1. Respiratory Therapist, Pulmonary Diagnostics, PHC
2. Pulmonary Diagnostics Coordinator, Respiratory Services, PHC
3. Medical Director, Pulmonary Diagnostics, PHC