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Title: MDU – Pulmonary Function Testing (PFT) and Exercise Testing During the COVID-19 Pandemic

Applies to: All staff working in the MDU performing pulmonary function testing and exercise testing during the COVID-19 Pandemic

1.0 Purpose

1.1 To confirm corporate guidelines and direction regarding Exercise and Pulmonary Function Testing (PFT).

1.2 To establish a regional approach (Hamilton, Burlington, Brantford, and Niagara).

2.0 Background Information

Staff are required to follow the existing PPE guidelines and Point of Care Risk Assessment (PCRA) to inform PPE selection. Staff are using the universal masking protocol (medical grade face mask and HHS approved face shield/eye protection); additional PPE (e.g., gown, gloves) based on the Point of Care Risk Assessment.
Most testing spaces are in private rooms, with the exception of the Exercise/PFT lab at MUMC and the Exercise Lab at JHCC.

2.1 Guiding Principles

2.1.1 This document applies to a COVID-19 prevalence setting, and must be re-visited if PFT or exercise testing continues during a significant increase in the local epidemiology.
2.1.2 All requests will be prioritized based on clinical indication and pandemic phasing
2.1.3 Pre-screening questionnaire completed at point of entry, day of appointment. Patients who do not pass the COVID-19 patient screen will be reviewed and a determination in consultation with the reading/supervising physician will be made as to whether the test should proceed or be rescheduled.
2.1.4 There is no value in testing patients who pre-screen negative
2.1.5 Point of care risk assessment (PCRA) will take place with every patient interaction.
2.1.6 Universal masking will be practiced; and patients will be reminded of cough etiquette

3.0 Recommendations and Rationale

3.1 See Appendix

4.0 External References

Ontario Health Infection Prevention and Control (IPAC) for Scheduled Surgeries and Procedures During the COVID-19 Pandemic

Public Health Ontario CODID-19: Aerosol Generation from Coughs and Sneezes

Recommendation from ERS Group 9.1 (Respiratory Function Technologists/Scientists) Lung Function Testing During COVID-19 Pandemic and Beyond

CSRT Position Statement on Procedures Creating a Heightened Risk of Infection During an Outbreak of a Communicable Respiratory Disease
Aeorosol Generating Medical Procedures (AGMPs): Guiding Principles in COVID-19

5.0 Developed By

Respirology Lead Physician
Cardiology Physician – Medical Diagnostic Physician

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7.0 In Consultation With
COVID-19 Subject Matter Expert Group

8.0 Approved By
COVID-19 Corporate Command Centre

9.0 Appendices
Recommendations and Rationale
Screening Log

Keyword Assignment	COVID-1FT, GXT, EXT

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Title: MDU – Pulmonary Function Testing (PFT) and Exercise Testing During the COVID-19 Pandemic

Modality – Testing	Exercise – Standard Stress Testing	Exercise-Cardiopulmonary Exercise Testing (CPET)	PFT – Spirometry	Methacholine Challenge
Risk considerations	**High ventilation rate, forced inhalation and exhalation will generate aerosols and droplets** **High likelihood of coughing with aerosol and droplet generation** **HCP require to be in close proximity (within 1m) for monitoring of vital signs and coaching of patients through the procedures** **Patient elevated above HCP increasing the risk of droplet exposure** **The added risk of pre-/post-exercise spirometry within close proximity to HCP and saliva production around mouthpiece** **Nebulization of agents intended to reach down to the level of the smaller airways and induce cough.** **Patient masking may impact on validity of results** **Closed system with mouthpiece (and filter) will reduce the risk of dispersing aerosols and droplets; however high frequency of becoming an open system when patient needs to cough** **Small enclosed area for testing with poor ventilation and airflow**			
Rationale	Evidence suggests that droplets are the primary mode of spread for human coronaviruses, including SARS-CoV-2. Activities such as exercise (rapid flow of air in and out of the lungs with increase ventilation), PFT (with forced inhalation and exhalation) and bronchoprovocation studies (methacholine test) can generate more aerosols and droplets than breathing in varying amounts and size. Furthermore, performing these tests can provoke coughing and sneezing which further increases aerosols and droplet generation. However, evidence to date suggests NO additional risk from aerosols from cough, sneezes, or increased ventilation with respect to COVID			

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	transmission, and that surgical masks provide adequate protection.
PPE	Surgical/procedural mask, face shield. Gloves and isolation gown based on PCRA.
HEPA filter + Negative pressure room	Not required
Other considerations	Signage is recommended (diagnostic tests in Process) when performing Methacholine challenge. Flow Sensor will be changed after each use with COVID +ve patients (if such testing is required in +ve patients) Booking template modifications to allow for appropriate cleaning, air exchange, patient flow, and PPE donning/doffing
Cleaning procedures	Wiping of all that the patient has come into contact with. Settling time not required between patients

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Appendix: Screening log adapted from MOH document version 4.0, June 11 2020

Patient Name: _____

Date: _____

1. Is the patient coming from an institution currently in outbreak or does the patient have a pending Covid-19 test because the patient is or was symptomatic?
   - ☐ NO
   - ☐ YES
2. Did you / the patient have close contact with anyone with acute respiratory illness or travelled outside of Ontario in the last 14 days?
   - ☐ NO
   - ☐ YES
3. Have you / the patient have a confirmed case of Covid-19 or had close contact with a confirmed case of Covid-19?
   - ☐ NO
   - ☐ YES
4. Do you / the patient have any of the following symptoms?
   Fever
   Sore Throat
   Headache
   Chills
   Nausea / vomit, diarrhea, abdominal pain
   Unexplained fatigue, malaise, muscle aches (myalgias)
   New onset cough
   Worsening chronic cough
   Shortness of breath
   Difficulty breathing
   Difficulty swallowing
   Decrease or loss of sense of taste or smell
   Pink eye (conjunctivitis)
   Runny nose / nasal congestion without other known cause
   - ☐ NO
   - ☐ YES – if yes, please circle the symptom(s)

5. If the patient is 70 years of age or older, are they experiencing any of the following symptoms: delirium, unexplained or increased number of falls, acute functional decline, or worsening chronic conditions?
   - ☐ NO
   - ☐ YES

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