GUIDELINE

Recommended actions for respiratory support of suspected/confirmed COVID-19 patients

Island Health Respiratory Services

island health

Purpose:	To provide clinicians caring for patients with suspected/confirmed COVID-19 coronavirus with a clear guideline for oxygen therapy, Bilevel Positive Airway Pressure (BiPAP), aerosolized respiratory medication delivery, intubation, ventilation management and extubation

Scope:	• Island Health Critical Care Staff andPhysicians
	• Environment
	  ○ Island-Wide
	  ○ Acute Care
	• Indications: when a patient is suspected of having COVID-19 and needs advanced respiratory care
	• Exceptions: Code status precludes intervention, COVID-19 is not suspected

Outcomes:	Standardized approach to oxygen delivery in patients with suspected and confirmed COVID-19

1.0 Introduction

- COVID-19 is an easily transmissible, potentially serious viral respiratory infection with pandemic capabilities.
- Strict handwashing, N95 respirator certification, proper PPE donning/doffing procedures remain the most important barrier to prevent infection of healthcare workers and patients.
- This guide is meant to supplement the standard Island Health approved procedures for oxygen therapy, high/low flow oxygen, BiPAP, inhalation medication administration, intubation, ventilation management, and extubation.
- **There will be no restriction for oxygen therapy / respiratory support: Low flow O2, Metered Dose Inhaler (MDI), Nebulizers, High flow O2, Continuous Positive Airway Pressure (CPAP), BiPAP in patients in whom there is *no clinical suspicion* of COVID-19. MRP to be consulted for Covid-19 risk assessment to confirm that these therapies are appropriate and will not present an infection control risk.**
- **The COVID-19 swab is not 100% sensitive, so if there is a high clinical suspicion of COVID-19 despite a negative swab, the patient should still be managed as if they are suspected to have COVID-19.**

2.0 Personal Protective Equipment (PPE) and Patient Infection Precautions

- General care of COVID-19 cases remains **Droplet+ Contact precautions**
- Refer to Island Health intranet Covid PPE site for updated information: **Island health Covid-19 PPE standards**
- Any patient procedure that is Aerosol Generating or Aerosol Distributing (AGMP) requires **AGMP Precautions**
- AGMPs include, but are not limited to,
  - Intubation and extubation
  - Bag mask ventilation
  - Bronchoscopy, laryngoscopy, tracheostomy and tracheostomy care
  - Open Suctioning (suctioning an ETT with a closed system is not aerosol generating)
  - High flow Oxygen (greater than 15 liters/minute (lpm)
  - CPR
  - Nebulized administration of medications
  - BiPAP or CPAP, high flow nasal cannula (HFNC) oxygen (ex. Optiflow)
  - Breaking closed ventilation systems intentionally or unintentionally in ventilated COVID positive patients

- **PPE for Different Respiratory Interventions: (SpO2 target ≥92%)**

Low Flow Oxygen Therapy (1-15 lpm)

- Does not require negative pressure room and **Droplet+Contact Precaution PPE** are sufficient in patients with suspected or confirmed COVID-19
- Nasal Prong (NP) 1-6 lpm
- High flow Oxygen set at less than 15 lpm
- Oxygen Mask/Non-Rebreather Mask 6-15 lpm
- Oxymizer NP 6-15 lpm

High Flow Oxygen Therapy (> 15 lpm)

- High flow nasal cannula (Optiflow/Airvo) is appropriate for use in Covid-19 confirmed or suspected patients providing HCWs are using **AGMP PPE** and the patient is in a private room. A negative pressure isolation room is preferred but is not essential. Signage to indicate AGMP is required.
- Patients with a MOST of (CO or M3) may receive HFNC in a private room (with or without a negative pressure) if the HCWs enter the room in **AGMP PPE**.
- Includes face mask (FM) with oxygen greater than 15 lpm and any use of Optiflow/Airvo/ > 15 lpm
- An ICU consult is recommended for COVID-19 patients who require high flow O2 since they have a high risk of rapid deterioration.

BiPAP

- BiPAP/CPAP are AGMPs that can only be used in patients suspected or confirmed to have COVID-19 *if they are in a negative pressure room* and if all HCWs entering the room use **AGMP PPE**.
- BiPAP should not be used in suspected or confirmed COVID patients with a MOST of C1 or C2. BiPAP use seldom prevents intubation in these patients and can injure the lungs.
- MOST (C0 or M3) COVID suspected or confirmed cases can receive CPAP or BiPAP but they must be *in a negative pressure room* and HCWs must use **AGMP PPE**.

**** SEE ATTACHED OXYGEN THERAPY FLOW CHART FOR FURTHER INFORMATION ****

3.0 ICU Admission

COVID-19 Patients should have an ICU Consult and be considered for ICU admission if they present with:

- Greater than 6 L/min by NP or a FM to maintain a $SpO_2 \geq 92\%$
- Frequent desaturations despite oxygen
- Significantly increased work of breathing, are tiring, or have a decreased level of consciousness
- Hypotension with a MAP < 65 mmHg
- Hypercarbia with associated acidosis

4.0 Inhalation Medication Delivery

- Nebulized medications require AGMP PPE + negative pressure room for suspected/confirmed Covid-19.
- Consider MDI if available and indicated for all confirmed or suspected COVID-19 cases.
- Once intubated, consider discontinuing routine inhaled medications (MDI) if appropriate.
- Closed circuit nebulization may be considered using vibrating mesh (Aerogen nebulizer), or standard jet nebulizer if aerogen unavailable. Minimize circuit disconnects/interactions. Insure filtration in situ pre ventilator expiratory valve.

5.0 Intubation

- All Health Care Workers must wear appropriate AGMP PPE.
- Intubation should occur in a controlled manner (e.g. Intensive Care Unit, Operating Room).
- A negative pressure room is preferable but not essential.
- Limit personnel in room to the MD and RT. A RN should have AGMP PPE on but remain outside the room during the intubation and be ready to enter the room or as required. Refer to local intubation procedures.

- **Equipment** – Limit in room intubation supplies.
  - In room supply:
    - Standard intubation equipment
    - Resuscitation Bag with filter, CO2 detector, and PEEP valve
    - Glidescope with #3 and #4 blade
    - Styletted ETTs of appropriate sizes
    - Blue bougie
    - Appropriate Drugs
  - Outside of room supply:
    - LMA
    - Emergency Cric kit

- **Intubation Procedure**
  - Most skilled operator performs intubation
  - 5 min pre-oxygenation low flow only no assisting of breaths
  - Give induction agent and paralytic and wait 45 sec to 1 minute
  - Intubate with Glidescope or available video laryngoscope with face as far from the patient as possible
  - Avoid auscultation – ETCO2 / Colorimetric available for confirmation of ETT placement
  - Avoid bag mask ventilation if possible between drugs and intubation

6.0 Ventilation Management

- Follow ARDSnet lung protective strategy unless otherwise indicated.
- Consider early sedation / paralysis to facilitate lung protective ventilation.
- Only use recruitment maneuver and inhaled vasodilators only for refractory hypoxemia (FiO2 of 0.9 or greater).
- HCWs are required to use **AGMP PPE** during any procedure where a disconnect may occur.
- Prone only for refractory hypoxemia due to the risk to HCWs.
- Avoid disconnects, consider pre check of all circuit connections, disconnects and clamp ETT prior to any circuit disconnect.

7.0 Extubation

- Extubation is an AGMP that may stimulate aerosol generating events
- Minimize staff in room RT, registered nurse
- Extubate to low flow
- Avoid post extubation auscultation where possible

Oxygen Therapy Decision Tree