



Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



HOW YOU CAN SLOW THE SPREAD OF COVID-19

Take care of others by taking care of yourself.

Wash your hands, don't touch your face, and stay home if you are sick.

Stay at Home and Physically Distance

Stay at home whenever you can. Maintain 2 meters distance from those outside of your household.

Guidelines for Intubation of Suspected and Confirmed COVID-19 Patients

May 11, 2020

Target Audience

Health care workers (HCW) required to provide advanced airway management to suspected or confirmed COVID-19 adult patients.

Definitions

- Aerosol-Generating Medical Procedures (AGMP) – includes intubation, non-invasive positive pressure ventilation, nebulizer treatments, suctioning, high flow nasal cannula (Optiflow)
<http://www.bccdc.ca/Health-Info-Site/Documents/Respiratory-protection-COVID19.pdf>
- Personal protective equipment (PPE) – recommended during intubation, includes fluid resistant or impermeable gown, gloves, fit tested N95 respirator and eye protection (face shield or goggles)
- Confirmed COVID-19 patient – a patient with lab confirmation (PCR NAAT assay) of SARS-CoV-2 virus infection
- Suspected COVID-19 patient – a patient with COVID-19 like symptoms or risk factors for COVID-19 (recent travel outside Canada, close contact of confirmed case, close contact of known outbreak)

General Principles for Pre-Intubation Management

- 1) The use of appropriate PPE and effective hand hygiene must be followed to ensure staff protection.
- 2) Transport of unstable patients with unsecured airways is discouraged.¹
- 3) Early controlled intubation is favoured over intubating a rapidly deteriorating patient.
- 4) HCW safety is to be prioritized while optimizing the likelihood of rapidly and skillfully achieving first attempt success.
- 5) Use the most experienced intubation specialist available and minimize staff exposure.
- 6) Where possible, minimize your routine and limit pre-intubation interventions to limit generation of aerosols (Nebulization, CPAP).
- 7) Carefully individualize and consider the risks and benefits of the following approaches while ensuring appropriate droplet, contact and airborne PPE is worn:
 - a. CPAP may be used in certain situations with precautions.² BIPAP is not recommended.

¹ Consult with Patient Transfer Network (PTN) for higher level of care transfers.

² CPAP with PEEP allows for passive oxygen delivery as a pre-oxygenation or re-oxygenation technique during intubation efforts. Active ventilation is discouraged unless absolutely necessary and if it is to be employed a minimum number of breaths should be delivered to achieve goal. This is often 6 or less breaths over the course of a minute.



- b. High flow nasal cannula may be used to optimize preoxygenation or during re-oxygenation but should not be used during laryngoscopy.
- 8) Use the minimal oxygen flow rates possible to achieve adequate preoxygenation and be aware of flow decay that occurs with viral filters in place.
- 9) When possible, a negative pressure room should be used during intubation. Follow and implement additional measures outlined in local health authority guidelines to minimize risks related to AGMPs.
- 10) Try to maximize distance of intubator from the patient during laryngoscopy and consider using video laryngoscopy to improve first pass success.
- 11) Use Airway Checklist (Appendix 1).
- 12) Minimize introduction of reusable, portable equipment into room.

Prepare in Advance

- 1) Slow down and prepare team staff as safety trumps urgency to provide care.
- 2) Review correct procedures for donning and doffing PPE.
- 3) Ensure that you have updated fit testing for respirator masks.³
- 4) Undertake simulations in your local department using BC Airway Checklist.

Setting

- 1) Airway management should occur in the ED/HAU/ICU/OR when possible.
- 2) The patient (if stable) should be transferred to a negative pressure isolation room (if available) or a single room with the door closed before intubation is initiated. If the previous is not possible, place patient in area with at least 2 metres of separation from other patients if they cannot be moved. Also follow and implement additional measures outlined in local health authority guidelines to minimize risks related to AGMPs.

Planning

- 1) Clarify the level of care for the suspected and confirmed COVID-19 patient.
- 2) Discuss your comprehensive airway plan in advance with the team, including clear delegation of roles.
- 3) Limit the number of HCWs in the room – RT, MD and RN are ideal.
- 4) Follow Airway Checklist to ensure all equipment is available and functioning (Appendix 1).
- 5) Have an additional HCW wearing PPE available outside of room during performance of intubation who is capable of passing equipment, providing assistance, and managing the airway including performing a surgical airway when appropriate.
- 6) Have all necessary equipment available in the room prior to starting the intubation.

Process

- 1) Everyone in room should use appropriate PPE and perform hand hygiene for all patient care.
 - a. For intubation wear gown, gloves, a fit-tested respirator and eye protection (face shield, or goggles). Additional PPE based on risk and familiarity with donning and doffing.
 - b. Use PPE donning and doffing observer to monitor and coach.
- 2) Optimize preoxygenation with oxygen 100% to avoid manual ventilation.
- 3) The HCW most experienced with airway techniques should attempt the intubation to maximize chances of first pass success.
- 4) Rapid sequence induction (RSI) with video laryngoscope is recommended.

³ If fit test for N95 has failed, then consider PAPR.



- 5) Reduce induction dose in patients with high shock index.
- 6) Avoid manual ventilation and those maneuvers that provoke aerosolization (e.g. awake intubation and use of atomized local anaesthetic).
- 7) Only when experienced with its use, and if required (anticipated difficulty or not a straight forward intubation), high free flow apneic oxygen pre-intubation may be used in conjunction with bag-valve-mask (BVM) and PEEP using VE grip⁴. This is a form of CPAP. Turn off flows during laryngoscopy.
- 8) Manual ventilation is discouraged, but if clinically indicated, small tidal volumes may be applied if an excellent facemask seal can be obtained. Consider capnography for real time breath to breath feedback. Be aware of pulse oximetry lag.
- 9) If available, high efficiency hydrophobic filter should be interposed between facemask and breathing circuit or between facemask and BVM bag.
- 10) Immediate cuff inflation and connection to circuit with filter is recommended.
- 11) Clamping the tube during the switch from bagging an intubated patient to connecting with a ventilator is recommended.
- 12) Consider standard airway rescue procedures in the event of a failed intubation.
- 13) Ensure proper handling, cleaning and disinfection of contaminated equipment.
- 14) Correct doffing (removal) of PPE to avoid self-contamination (use PPE Observer).
- 15) Conduct a team debriefing post airway management.

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⁴ VE grip is a term used to describe how an operator will achieve an adequate face seal with the mask of a BVM. It is a two-handed technique whereby the thumbs and thenar eminence cover the mask and remaining four fingers hook the mandible and pull the face into the mask. The V shape is created by the thumb and index finger and the E shape is the remaining three fingers. The term VE is used as a mental aid. This results in a very aggressive jaw thrust as the face is lifted into the mask forming a tight seal. This grip can be used to create a tight seal even with nasal prongs applied underneath.

<https://vimeo.com/402164953>

