# New Brunswick COVID-19 Pandemic

## Provincial Guidance for Aerosol Generating Medical Procedures (AGMPs) During COVID-19 Pandemic

Note: this guidance may be modified as new evidence is reviewed.

**BACKGROUND**:
SARS-CoV-2 is principally transmitted by contact and/or droplet spread. Entry points are therefore confined primarily to the mouth, nose and eyes.

Droplets are produced by coughing, sneezing, speaking and singing. More than 99% of the volume of expelled respiratory droplets during these activities are droplets >5µm in diameter. The majority of these droplets are spread over a distance of <1m and remain suspended for <10 minutes. Although there is evidence that a small fraction of droplets may be transmitted beyond 1m and remain suspended for more than 10 minutes, there is currently no evidence that this plays a significant role in transmission. This is supported by data documenting that under most circumstances, a surgical/procedure mask is as effective as an N95 respirator when in contact with patients with viral respiratory illnesses such as influenza, rhinovirus and SARS-CoV-2.

Unlike large respiratory droplets, aerosolized droplet nuclei can remain suspended in the air for prolonged periods of time. These droplets are smaller than 5µm and lead to infection through direct inhalation, rather than through viral contact with the mouth, nose or eyes. Although there is no evidence that SARS-CoV-2 is transmitted by airborne transmission under natural circumstances, it is possible that it could be transmitted by this route during AGMP's.

Given this evidence, the Public Health Agency of Canada (PHAC) and World Health Organization (WHO) recommend that all healthcare workers wear a procedure/surgical mask, eye protection (visor, goggles or face shield) and gloves and gown for all routine care for a person with suspected or confirmed COVID-19. The only exception to this guidance occurs when an AGMP is performed, in which case the healthcare worker (HCW) should use an N95 respirator in place of a surgical/procedure mask.

**STRATEGIES FOR AGMP RISK REDUCTION**:

1. Avoid performing unnecessary AGMP's.
2. Anticipate and plan for AGMP's.
3. Use sedation/paralytic agents to minimize the risk of aerosolization during some AGMP's such as intubation.
4. Utilize closed endotracheal suction systems for intubated patients and avoid opening the ventilator circuit.
5. Utilize an antibacterial/antiviral filter between the resuscitator bag and the endotracheal tube.
6. Minimize number of staff in the room during an AGMP and ensure all staff follow Full Precautions (which includes an N95 respirator, gloves, gown, and eye protection (face shield).
7. Clearly identify room entry sites with a Full Precautions isolation sign, if there is a possible or known risk of an AGMP for a patient admitted with COVID-19. Isolation signage is not to be removed until the room has been cleaned
8. Ensure signs describing appropriate donning and doffing of PPE are visible at the entryway for all rooms with COVID-19 patients.
9. Ensure point of care risk assessment (PCRA) is performed prior to every contact with a suspect/confirmed patient with COVID-19.
10. During an emergency situation where clinical assessment is impossible, an N95 respirator should be utilized for patients that may require an AGMP.

**TYPES OF AGMP's:**
AGMP's can be classified as high risk and moderate to uncertain risk.

**High risk AGMP's:**
(Full Precautions and the use of an Airborne Infection Isolation Room (AIIR) is the standard of care when performing an AGMP for suspect/confirmed COVID-19 patients)

- endotracheal intubation/extubation and related procedures (e.g. open endotracheal suctioning, manual ventilation)
- bag mask ventilation
- bronchoscopy/bronchoalveolar lavage
- surgical airway (tracheotomy)
- non-invasive positive pressure ventilation (BiPAP and CPAP)
- post-mortem procedures on respiratory tissue.
- nasopharyngeal endoscopy /procedures with irrigation or high-pressure suction
- sputum induction
- high-flow nasal cannula (OPTIFLOW, AIRVO or equivalent)
- specific dental procedures such as high-speed drilling
- oropharyngeal, trans-sphenoidal and chest surgery
- high frequency oscillatory ventilation
- cardiopulmonary resuscitation (CPR)- intubation or manual ventilation AGMP.

**Moderate to unknown risk AGMP's:**
(Full Precautions, single room acceptable when AIIR unavailable*)

- mechanical ventilation (e.g. procedures which increase risk for ventilator circuit disconnection)
- nebulizer therapy/aerosolized medication administration
- tracheostomy insertion/care
- chest physiotherapy (manual and mechanical cough assist device, breath stacking, cough assist or deep suctioning)
- needle thoracostomy/chest tube insertion for pneumothorax
- nasogastric tube insertion (if inserted in airways)
- upper GI endoscopy
- Transesophageal echocardiography
- laryngectomy management
- nasopharyngoscopy/laryngoscopy procedures

*If an AIIR is not available, a single room with the door closed should be used for the procedure. Transferring patient to AIIR can be associated with increased risk to the patient under care, HCW's, other patients and the healthcare environment. If patient is in a private room with door closed (not an AIIR), do not enter room if it has been confirmed that an AGMP has occurred until the number of air changes required per hour to remove airborne microorganisms following the AGMP have elapsed.

Staff may leave the single room before airway clearance is achieved but must open and close the door slowly to minimize air drag.

**Examples of procedures that are not AGMPs**:

- collection of nasopharyngeal or throat swab
- chest tube removal/insertion (except in setting of pneumothorax)
- coughing/sneezing
- oral suctioning/hygiene
- colonoscopy
- laparoscopy
- cardiac stress test
- procedures done under regional anesthesia
- bronchial artery embolization
- percutaneous biopsy of lung mass
- low-flow oxygen (e.g. nasal prongs at 1-6L/min, OxyMask at 1-15L/min)
- oropharyngeal dysphagia procedures
- cough reflex testing
- bone marrow aspiration

**AGMP ENVIRONMENTAL CONTROLS**:

1. Patients with suspected or confirmed COVID-19 should be cared for in a single room. The use of an Airborne Infection Isolation Room (AIIR) is the recommended standard of care when performing an AGMP. If an AIIR is not available, a single room with the door closed should be used for the procedure.
2. When a single room is unavailable and an AGMP urgently required, draw privacy curtains, remove shared equipment and minimize staff entry.
3. After an AGMP is performed avoid opening doorway until 99.9% aerosol dilution has occurred. This will vary from room to room and facility engineers should be contacted to determine air clearance time. Where unable to confirm, assume this is a 3-hour time period. Air clearance time may vary from 20 minutes to 3 hours depending upon ventilation system. When a supplemental HEPA scrubber is used the air clearance time must be determined by the facility engineer.
4. When an urgent AGMP must be performed on a suspect/confirmed COVID patient in an OR and no COVID OR pod is available, follow number 3 above. If possible, extubation should be performed in a COVID OR pod or an AIIR.

**References**

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