

## Provincial Guidance for Aerosol Generating Medical Procedures (AGMPs)

**Note: latest updates will appear in blue**

As the COVID-19 situation evolves and more data becomes available this guidance will be modified as the new evidence is reviewed.

### STRATEGIES TO REDUCE RISK FROM AGMPs

1. Carefully analyze risks and benefits to AGMPs; avoid performing unnecessary AGMPs.
2. Consider alternative to AGMPs.
3. Anticipate and plan for AGMPs.
4. Depending on the procedure, sedation may be appropriate for the person requiring the AGMP, to minimize excessive and/or prolonged and/or forceful coughing etc.
5. Paralytics to minimize the risk of aerosolization (for intubation or if the patient's breathing is already supported by mechanical ventilation) can be used when appropriate.
6. Use closed endotracheal suction systems whenever possible.
7. Use the minimum required number of staff in the room when performing an AGMP.
8. Ensure appropriate PPE is worn by all staff present in the room during the procedure.
9. Choose an appropriate space for an AGMP. The appropriate space for an AGMP will vary depending on the patient and the circumstances in which the AGMP is taking place and is further described in this document.

### ACCOMMODATION AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

To categorize risk and allocate appropriate accommodation for persons confirmed or suspected of being infected with COVID-19, a classification system has been created to designate the type of PPE required for interacting with patients, residents and clients who are receiving care/being assessed or managed in specific settings or specific zones. The specifics can be found in the [COVID-19 Personal Protective Equipment Supply Management and Stewardship Planning and Guidance Framework](#) and the [Provincial Personal Protective Equipment Requirements](#) document. **Note:** PPE recommendations for AGMPs are also available in the [Provincial Personal Protective Equipment Requirements](#) document.

### PROCEDURE

#### 1. Medical Procedures Considered to Be AGMPs

- The following medical procedures outlined in Table 1 have been considered as AGMPs after review of existing data and separated by potential risk of infection transmission:

**TABLE 1: Medical Procedures Considered to be AGMPs**

Endotracheal intubation and extubation, manual bag mask ventilation, insertion of laryngeal mask airway (LMA)
Bronchoscopy and bronchoalveolar lavage
Tracheostomy procedure (open or percutaneous)
Laryngoscopy (with instrumentation below the vocal cords)
Non-invasive positive pressure ventilation (BiPAP and CPAP)
High flow nasal cannula oxygenation (e.g. Optiflow) - should only be used in patients with COVID-19 following consultation with an Attending Intensivist * Note: Oxygen delivered via nasal prongs and/or non-rebreathe masks are not considered AGMP, regardless of flow rate
Some dental procedures (e.g., high speed drilling, ultrasonic scalers etc.)
Autopsy of lung tissue
Sputum induction using hypertonic saline
Cardiopulmonary resuscitation (with manipulation of the airway) *Note: Chest compressions are not considered AGMP
Open deep suctioning via endotracheal tube/tracheostomy tube
Administration of nebulizing medications, does not include administration of a metered dose inhaler (MDI)

**CLARIFICATION:** *Collection of nasopharyngeal swabs and/or nasopharyngeal aspirates are not considered AGMPs, there is no published literature documenting transmission of respiratory infections, including TB, SARS, influenza, and COVID-19 by collection of these specimens.*

## 2. Guidance for Patient/Resident/Client Populations

For patients, residents, clients designated in the following categories:

- Designated as **“RED”** or **“ORANGE”** zone
- Designated as **“GREEN”** Zone
- Designated as **“GREEN”** Zone where there is clinical concern of infection with an airborne pathogen such as *Mycobacterium tuberculosis*; OR
- Designated **“GREEN”** Zone where the patient/resident/client is demonstrating new onset of respiratory symptoms of an infectious nature and is being assessed for COVID-19 testing and as a result, their status is being changed to **“ORANGE”**.

For all AGMPs performed on patients/residents/clients in the above categories, health care workers in the room during the AGMP are **required to wear eye protection** (NOTE: eye protection is required during all patient/resident/client interactions, and is therefore required during an AGMP regardless of the category of the patient receiving an AGMP). An N95 respirator is required for AGMPs performed on patients/residents/clients who are designated as Red or Orange zone. In circumstances involving Green Zone patients where there is no clinical concern of infection with an airborne pathogen, staff may perform a Point of Care Risk

Assessment (PCRA), prior to selecting to wear a medical mask rather than an N95 respirator.  
Limit the number of health care workers in the room to only those necessary for the procedure.

**TABLE 1: AGMP PPE Requirements / Advice / Point of Care Risk Assessment**

Patient/Resident/Client Population	PPE and PCRA
<b>RED</b>	<p>Eye Protection during patient/resident/client interactions (e.g. while in the room/care environment)</p> <p>N95 Respirator</p>
<b>ORANGE</b>	<p>Eye Protection during patient/resident/client interactions (e.g. while in the room/care environment)</p> <p>N95 Respirator</p>
<b>GREEN</b> with clinical concern of infection with an airborne pathogen such as <i>Mycobacterium tuberculosis</i>	<p>Eye Protection during patient/resident/client interactions (e.g. while in the room/care environment)</p> <p>N95 Respirator</p>
<p><b>Green</b>, no other infectious concerns</p> <p>*includes Green zone undergoing continuous or intermittent AGMP</p>	<p>Eye Protection during patient/resident/client interactions (e.g. while in the room/care environment)</p> <p>N95 respirator or medical mask after Point of Care Risk Assessment (PCRA); *PCRA may be completed, following which staff may choose to wear a medical mask rather than an N95 respirator.</p>

Refer to Table 3 for AGMP Accommodation Requirements.

**TABLE 3: AGMP Accommodation Requirements, Cohorting Recommendations**

Patient/Resident/ Client Population	AGMP Accommodation Requirements / Cohorting Recommendations
<b>RED</b>	<p>AllIR or Private Room with door closed wherever possible.</p> <p>Cohorting with another RED or COVID-19 recovered patient/resident is only acceptable if no alternative exists and the patient/resident is not on additional precautions for other organism(s).</p> <p>COVID-19 recovered patients/residents/clients: refer to guidance here <a href="https://sharedhealthmb.ca/files/covid-19-ipc-guidance-recovered-covid-19.pdf">https://sharedhealthmb.ca/files/covid-19-ipc-guidance-recovered-covid-19.pdf</a></p>
<b>ORANGE</b>	<p>AllIR or Private Room with door closed wherever operationally feasible.</p> <p>If AllIR/Private Room is not feasible then cohorting with COVID-19 Recovered patient/resident is acceptable.</p>
<b>GREEN</b> with clinical concern of infection with an airborne pathogen such as <i>Mycobacterium tuberculosis</i>	<p>AllIR/Private Room with door closed required</p> <p><b>Do not cohort</b></p>
<b>Green, no other infectious concerns</b>	<p>AllIR/Private Room Door Closed Preferred, Not Required*</p> <p>*A private room is NOT required if: the AGMP is a single episode or one time treatment that is not continuous in nature (i.e., not CPAP/BIPAP/Optiflow AND not recurrent such as nebulized medications occurring twice or three times daily, etc.)</p> <p>Best options for cohorting:</p> <ul style="list-style-type: none"> <li>• First choice - Cohort with COVID-19 Recovered patient/resident</li> <li>• Second choice – Cohort with Green Zone</li> </ul>
<b>Green (COVID-19 Recovered), no other infectious concerns</b>	<p>AllIR/Private Room Door Closed Preferred, Not Required</p> <p>Best options for cohorting:</p> <ul style="list-style-type: none"> <li>• First choice - Cohort with <a href="#">Green Zone</a></li> <li>• Second choice – Cohort with <a href="#">COVID-19 Recovered patient/resident</a></li> <li>• Third choice – Cohort with a red zone patient. Refer to guidance here <a href="https://sharedhealthmb.ca/files/covid-19-ipc-guidance-recovered-covid-19.pdf">https://sharedhealthmb.ca/files/covid-19-ipc-guidance-recovered-covid-19.pdf</a></li> </ul>

For patients or residents designated in the following categories, follow the guidance below:

- For patients and residents designated as **“GREEN”** zone, all health care workers in the room during an AGMP **are required to wear eye protection and advised to wear a N95 respirator**, with the following potential exception. For Green zone patients without concern for airborne pathogens, staff may elect to perform a PCRA following which they may choose to wear a medical mask rather than a N95. The number of health care workers in the room should be limited to only those necessary for the procedure. **Air clearance time is not required post-AGMP. Refer to chart for AGMP Accommodation Requirements.**
- For long term patients and residents on continuous AGMPs designated as **“GREEN”** zone admitted to hospital or long-term care (e.g., long-term ventilated residents on CPAP), all health care workers in the room **are required to wear eye protection and advised to wear a N95 respirator** with the following potential exception. For Green zone patients without concern for airborne pathogens, staff may elect to perform a PCRA following which they may choose to wear a medical mask rather than a N95. The number of health care workers in the room should be limited to only those necessary for the procedure. **Air clearance time is not required post-AGMP.** These patients/residents are able to pass through common areas to visit outside; they **are not permitted to stop or sit in the cafeteria or other common areas.**
- For long-term patients and residents on continuous AGMPs designated as **“GREEN”** zone admitted to hospital or long term care (e.g., long-term ventilated residents on CPAP) in outdoor settings, staff may perform a PCRA following which they may choose to wear a medical mask rather than a N95.
- For patients designated as **“GREEN”** Zone admitted **COVID-19 Recovered** patient/resident/client confirmed to be no longer infectious by Infection Prevention and Control within the past 180 days, an N95 respirator is not required. Health care workers may choose to apply a N95 respirator following a PCRA. AllIR/private room and adherence to air clearance times are not required. Refer to: <https://sharedhealthmb.ca/files/covid-19-jpc-guidance-recovered-covid-19.pdf>.

In addition, the following procedures **ARE NOT** deemed AGMPs. However, out of an abundance of caution, for the procedures specified below only, **use of an N95 respirator is recommended** for patients/residents/clients with **suspected** or **confirmed** COVID-19 disease (**ORANGE** or **RED** zone patients), and the procedures should be done in an AIIR or Private Room if possible:

- Chest tube insertion for pneumothorax
- Oral suctioning in intubated and ventilated patients
- Routine tracheostomy care such as dressing changes, application of acetic acid soaks, cleaning the neck area or the tracheostomy, changing the inner cannula
- Large volume nebulizers (e.g., cold pot)
- Breaks in the ventilator circuit
- Upper gastrointestinal endoscopy and/or nasogastric/nasojejunal tube placements
- Transesophageal echocardiography
- Flexible nasopharyngolaryngoscopy
- Fiberoptic Endoscopic Evaluation of Swallowing (FEES)

### 3. ZONE Status before and after AGMP

The requirement to use an N95 respirator for an AGMP in a “**GREEN**” Zone patient/resident/client **DOES NOT** result in the individual being considered “**ORANGE**” Zone.

### 4. Airborne Infection Isolation Rooms and Private Rooms with Doors Closed:

- An AIIR is a single-occupancy patient care room used to isolate those with suspected or confirmed airborne infectious diseases. This type of isolation room provides a more rapid removal of airborne infectious particles from the patient care environment to the outdoors, and with the negative airflow/pressure into the room, reduces movement of aerosols out of the room to the hallway. When AGMPs are performed, high airflow rates and negative pressure airflow allows for a more rapid clearing of the particles that have been aerosolized and contains them within the room.
- Choose an appropriate space for an AGMP. Identify and label AIIR for AGMPs so staff are easily aware. Refer to section below ***Airborne Infection Isolation Rooms and Private Rooms with Doors Closed*** and ***AGMP Environmental Controls*** and COVID-19 Specific Disease Protocol – Acute & Community Settings ([Winnipeg](#) and [Provincial](#)).
- It is not mandatory for AGMPs to occur in airborne infection isolation rooms (AIIR) which achieve a “negative pressure” by means of exhausting more air (to the outside of the facility) than air that is supplied. Note: there are risks associated with transferring patients to/from AIIR (increased risk of contaminating other patients, HCW and other hospital environments). These must be balanced with the small theoretical benefit of using AIIRs for AGMPs.

- When an AIIR is not used for AGMPs: use a single room and keep door closed until air clearance is achieved (refer to Section 4 below: **AGMP Environmental Controls**). Staff may leave the AIIR or single room after the AGMP is completed but movement in and out of the room should be for essential activities only the period afterwards where the air in the room is being “cleaned” by air exchange. Open and close the door slowly during this time to minimize “dragging” air from the room.
- When neither an AIIR or single room with door closed are used for an AGMP, draw the privacy curtains and remove any shared equipment, supplies or linens from the immediate vicinity prior to performing an AGMP.

Following an AGMP in an AIIR that has 12 air changes per hour (ACH), staff must wear an N95 respirator when in the room AND the door must be kept closed, and in/out traffic minimized for no less than 23 minutes following completion of the AGMP for 99% clearance.

Following an AGMP in a standard single (private) room or in semi-private or open rooms, that has less air exchanges per hour, staff must wear an N95 respirator when in the room AND the door must be kept closed following completion of the AGMP as outlined below (refer to section below on **AGMP Environmental Controls**).

### **3. Special considerations for all AGMPs in all Health Care Settings (e.g., acute, long term care, and community), regardless of patient infection status:**

All HCWs present during the performance of an AGMP are required to wear an N95 respirator and eye protection. A point of care risk assessment (PCRA) for COVID-19 is not required in order for health care workers present during an AGMP to be provided an N95.

In an emergency situation where clinical assessment is not possible, the highest level of protection (N95 respirator) should be used.

### **4. AGMP Environmental Controls**

When AGMPs are anticipated, consult with management to identify appropriate rooms and/or environments for AGMP's.

If AGMPs must be urgently performed prior to placing a patient in a single patient room, the following precautions should be taken:

- Maintain physical separation of spaces with curtains and draw close  
If present, HEPA filtration systems should be started prior to the start of any AGMP's by clinical staff and remain on until a suitable (calculated) air clearance time has occurred. This time will vary depending upon the ventilation system characteristics, air volume of the HEPA unit, and space enclosed by the curtain. Clinical staff should limit their movement in/out of the curtain during this time to minimize airborne contamination of the adjacent spaces.

**Always confirm with site Facility Management the air change rates for your site.**

Air clearance time is the time required for 99% dilution of any aerosol:

- Assume air clearance time to be 3 hours unless confirmed with site Facility Management otherwise (3 hours is based upon a minimal 2 air changes per hour [ACH])
- Typical air clearance times in newer ventilated spaces are:
  - Inpatient room (6 ACH): 46 minutes for 99% air clearance.
  - Airborne infection isolation room (negative pressure) (12 ACH): 23 minutes for 99% air clearance.
  - Resuscitation Room (15 ACH): 18 minutes for 99% air clearance.
  - Operating Theatre (20 ACH): 14 minutes for 99% air clearance.
- Where a supplemental HEPA scrubber is used, air clearance times must be determined with site Facility Management.

**Additional Background**

- [Provincial Guidance on the Transmission of COVID-19](#)
- [Point of Care Risk Assessment \(PCRA\)](#)

**Change Log:**

Aug. 19, 2022

- Updated PPE guidance to reflect consistent approach to Green Zone patients regardless of length of stay.
  - Changes include option to select to wear a medical mask following a PCRA in limited situations involving a GREEN ZONE individual with no concern of airborne pathogens.
  - Includes a reminder that eye protection is required in ALL direct care situations, regardless of the ZONE of the patient/client/resident.

June 9, 2022

- Removal of Same Day/Next Day references
- Removal of designated red zone (i.e., COVID Red Unit) direction
- Addition of long-term patients/residents on continuous AGMPs designated as “GREEN” zone admitted for longer than 14 days (>14 days)

November 18, 2021

- Clarification in Table 1 (addition of “instrumentation below the vocal cords” to Laryngoscopy).
- Addition in Table 2 “Fiberoptic Endoscopic Evaluation of Swallowing (FEES)”

Sept. 29, 2021



- Changed the period of time a patient is considered “Red” Recovered from 90 to 180 days following the date of the positive COVID test.

Aug. 12, 2021

- Removed content from Additional Background section, and instead linked to the point of care risk assessment (PCRA) and newly created Provincial Guidance on the Transmission of COVID-19.

February 23, 2021

- Updated to include exceptions for individuals who test negative for COVID-19 in line with the “Same Day, Next Day” AGMP Rule”. Refer to: <https://sharedhealthmb.ca/files/covid-19-agmps-and-negative-test.pdf> (pg. 3).
- Updated to include Guidance related to COVID-19 “Red” Recovered (pg. 4&5).

January 15, 2021:

- Updated to include Table 2 for AGMP Accommodation (pg. 3).
- Updated guidance for resident and client populations, including required N95 respirator for all health care workers in the room where AGMPs are performed, regardless of Zone (Green, Orange, Red), duration of admission/LOS, or setting (Acute, Long Term Care, Community).
- This update extends the guidance included in the December 24, 2020 update to long term care and community environments. As such, the December 24, 2020 updates remain in blue.

December 24, 2020:

- Updated guidance for inpatient populations, including required N95 respirator for all health care workers in the room when AGMPs are performed on Green Zone patients, regardless of the duration of their admission/LOS.
- Background Information moved to the end of the document as reference/for information.

December 3, 2020:

- Addition of “Same Day, Next Day” rule for AGMPs. <https://sharedhealthmb.ca/files/covid-19-agmps-and-negative-test.pdf> (pg. 5)

Oct. 27, 2020:

- Table 1 update to include Green Zone patients who have been hospitalized for less than 14 days (pg. 3)
- Update to include recommendation for use of private room and N95 respirator for AGMPs involving Green Zone patients who have been hospitalized for less than 14 days (pg. 5)
- Update to include recommendation “out of an abundance of caution” for use of N95 respirator with Orange and Red Zone patients for specified procedures (pg. 6)
- Document updated to reflect 99% air clearance (pg. 6)

Oct. 8, 2020:

- Added Large volume nebulizers (e.g., cold pot) to list of procedures that are not deemed AGMPs (pg. 6)

Sept. 30, 2020:

- Update of IP&C Requirements (removal of influenza from list of at risk opportunistic airborne transmission of pathogens not otherwise spread by the airborne route)
- Update of air clearance time details (pg. 5)
- Update to procedures that ARE NOT deemed AGMPs and those procedures for which an N95 respirator should be used (pg. 6)
- Addition of Change log (pg. 6)