

# Standard Operating Procedure Aerosol-Generating Procedure Guidelines

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## Purpose

This document stratifies the risks associated with aerosol generating procedures (AGP) and specifies the protective measures that may be required. It will be used to determine bed placement for people we serve, and the appropriate personal protective equipment (PPE) required for the AGP.

## Background

An aerosol generating procedure (AGP) is an artificial manipulation of a person's airway that may generate aerosols.

Medical procedures that generate aerosols or droplet nuclei in high concentration present a risk for opportunistic airborne transmission of pathogens not otherwise spread by the airborne route (e.g., Influenza) and increase the risk for transmission of organisms known to spread by the airborne route (e.g., TB).

In British Columbia, there is a provincial process for including procedures on the accepted list of AGP.

- Refer to the [AGMP Decision Framework on PICNet](#) for a detailed list.

The BC AGMP Expert Working Group assesses medical procedures to determine which ones are considered to be AGMPs based on review of current information and evidence. As per the expert working group, procedures are assessed as probable AGP, possible AGP, or non-AGP reflecting the varying amount and quality of evidence currently available for each procedure. As new evidence emerges, the list will be reviewed and updated accordingly.

In this document, procedures are classified as high-risk AGP and low-AGP, see Tables 1&2.

## Scope

This document is applicable to all Fraser Health facilities where AGP are performed including and not limited to: Outpatient areas, Ambulatory Day Care and Medical Imaging, and Long-Term Care (LTC) communities.

Changes to this document are subject to learnings, evidence, evaluation, and alignment with the [BC Provincial AGMP list](#) on the Provincial Infection Control Network (PICNet)

## High-Risk AGP

There are many procedures that result in the generation of aerosols. However, only a subset of these procedures has been shown to increase the risk of transmission of microorganisms. The list of AGP classified as high-risk are in Table 1.

**Table 1. High-Risk AGP**

| High-Risk AGP  |   |
|--|---|
| Autopsy  | CPR (with manual ventilation)   |
| Bag valve (manual) ventilation                                       | Endotracheal tube intubation and extubation (and related procedures including manual ventilation) |
| Bronchoscopy and bronchoalveolar lavage (diagnostic and therapeutic) | Sputum induction with inhalation of nebulized saline  |
| CPAP and BiPAP   |   |

- Use of an elastomeric half-face respirator with combination P100 and formaldehyde cartridges is recommended for Autopsy.
- Therapeutic bronchoscopies are recognized as being lower risk than diagnostic, however, to ensure

consistent precautions, all bronchoscopies are classified as high-risk AGP.

- To protect staff from patients with undiagnosed tuberculosis (TB), sputum induction procedures should be performed in a negative pressure room or a single occupancy room with the door closed if a negative pressure room is not available.

Long-term care communities follow:

- “High Risk Category” during Enhanced monitoring, VRI outbreaks or when persons we serve are on droplet precautions.

Hospice and in-patients’ mental health and substance use (MHSU) facilities follow:

- “High Risk Category” for persons we serve on droplet precautions.

### Low-Risk AGP

Low-risk AGP are those AGP for which there is inconclusive evidence for the transmission of microorganisms. Table 2 provides the list of low-risk AGP.

**Table 2. Low-Risk AGP**

| Low-Risk AGP   |  |
|--|--|
| Breaking the integrity of the ventilator circuit while in operation (e.g., circuit changes, filter changes in a Heat and Moisture Exchanger, in tracheostomy care) | Open-circuit ventilator with no filter               |
| Cough reflex testing   | Nebulized therapies including Methacholine challenge |
| Non-heated humidified high flow O <sub>2</sub> (yellow or green top nebulizer with attached water bottle, wide bore tubing and aerosol mask or “Star Wars” mask)   | Tracheotomy  |
| Nasopharyngeal aspirates and washes  | Upper endoscopy                                      |
| Flexible/fiber optic endoscopic evaluation of voice and swallowing (FEES)  |  |

### Non AGP

Non-AGP are procedures that are not classified as a risk for generating aerosols for the transmission of microorganisms. Follow routine practices and point of care risk assessment. Table 3 provides the list of non-AGP

**Table 3. Non AGP**

| Non - AGP  |  |
|--|--|
| Airway suctioning (deep suction and open tracheal suctioning)  | Low flow oxygen devices (e.g., nasal prongs, O <sub>2</sub> mask, non-rebreather mask) |
| Cardiopulmonary exercise testing   | Nasopharyngeal scoping   |
| Chest compressions alone   | Oral and nasal suctioning procedures   |
| Clinical (bedside) swallow screen/assessment   | Tracheostomy Care  |
| Heated High Flow Oxygen (e.g., AIRVO, Optiflow)  | Transesophageal Echocardiogram (TEE)   |
| Low-flow O <sub>2</sub> (1 to 6 L/min on nasal prongs, or up to 15 L/min on a non-rebreather or simple mask) | Videofluoroscopic swallow study  |

Please note that this is not an exhaustive list. For comprehensive list of non-AGP, refer to [Review of Medical Procedures and AGP Status](#)

### Patient Category and AGP Requirements

Best practice guidelines recommend the use of negative pressure rooms for AGP. However, it is recognized that there are competing needs for negative pressure and single occupancy rooms, and that they are not always available. Under certain circumstances, AGP will be performed in open bays or in multi-bedrooms (MBR). [Table 4](#) stratifies the risk by patient, procedure, and identifies Infection Prevention and Control (IPC) best practices and alternatives for each category where applicable. Consult with IPC if you have questions.

For patients that are on multiple precautions (e.g., droplet and airborne precautions), the protective measures specified by the higher level of precautions must be followed.

Visitors should be instructed to check with the unit staff before entering the room while an AGP is in progress.

For further guidance on N95 respirator use, refer to the [N95 Respirator Clinical Protocol](#).

LTC, Hospice and MHSU staff refer to the [Respirator Requirements and Recommendations](#) for further guidance

**Table 4. AGP requirements**

| Patient category <sup>1</sup>   | AGP risk category | Procedure location   | Is an open bay acceptable?                       | PPE required*   | Risk mitigation   | Precautions signage | Air clearance time required? <sup>2</sup>  |
|---|-------------------|--|--|---|---|---------------------|--|
| Patients with airborne infections (e.g., TB, measles)                             | High or Low       | Negative pressure room   | No   | N95 respirator or equivalent, gown, gloves, protective eyewear and face shield for staff performing an intubation | N/A   | Airborne, AGP       | Yes, for less than or equal to one (1) hour post patient discharge,<br>or<br>Yes, for less than or equal to one (1) hour post procedure when the patient is not in the room  |
| Patients with droplet precautions due to confirmed or suspect respiratory illness | High or Low       | Preferred: negative pressure room<br><br>Acceptable: single occupancy room with closed door<br><br>or<br><br>Acceptable: in a MBR with one or other patients with the same pathogen. | No, <b>except in life-threatening situations</b> | N95 respirator or equivalent, gown, gloves, protective eyewear and face shield for staff performing an intubation | Close the curtains around every bed in a MBR or open bay        | Droplet, AGP        | Yes, for less than or equal to one (1) hour post procedure in the single patient room,<br>or<br>Yes, for less than or equal to one (1) hour post procedure for the bed space in the MBR                                  |
| Low-risk of respiratory illness (no droplet precautions)                          | High              | Preferred: single occupancy room with closed door <i>or</i><br>Acceptable: in a MBR with other patients in the same patient category   | Yes  | N95 respirator or equivalent, gown, gloves, protective eyewear  | Close the curtains around the bed space in a MBR or an open bay | AGP                 | Yes, for less than or equal to one (1) hour post procedure in the single patient room,<br>or<br>Yes, for less than or equal to one (1) hour post procedure for the bed space in the MBR or the bed space in the open bay |

| Patient category <sup>1</sup>  | AGP risk category | Procedure location  | Is an open bay acceptable? | PPE required*   | Risk mitigation   | Precautions signage | Air clearance time required? <sup>2</sup> |
|--|-------------------|---|----------------------------|---|---|---------------------|---|
| LTC settings:<br>Low risk of respiratory illness (VRI<br>Contacts in an MBR) | Low               | Roommates of confirmed VRI case on isolation (no respiratory symptoms)  | N/A                        | Medical mask,<br>Protective eyewear<br>Other PPE based on PoCRA | Close the curtains around the bed space if symptomatic          | N/A                 | No  |
| Low-risk of respiratory illness (no droplet precautions)                     | Low               | LTC, Hospice and MHSU in-patients are managed under this category :<br>CPAP/BiPAP<br>Residents with no respiratory symptoms | N/A                        | PPE based on point of care risk assessment (PoCRA)              | Based on type of additional precautions                         | N/A                 | No  |
|  |                   | In a MBR with other patients in the same patient category   | Yes                        | Medical mask,<br>Protective eyewear                             | Close the curtains around the bed space in a MBR or an open bay |                     |   |

\* For all in the room, bed space in a MBR or open bay

**Table 5.** Air changes per hour (ACH) and time required for airborne-contaminant removal efficiencies of 99 percent<sup>1</sup> in minutes.

| Air clearance time (minutes) required for removal |                             |
|---|-----------------------------|
| ACH <sup>2</sup>                                  | 99% efficiency <sup>3</sup> |
| 2   | 138                         |
| 4   | 69                          |
| 6   | 46                          |
| 8   | 35                          |
| 10  | 28                          |
| 12  | 23                          |
| 15  | 18                          |
| 20  | 14                          |
| 50  | 6                           |

<sup>2</sup> Values apply to an empty room with no AGP. Contact your facility and maintenance office (FMO) for information on ACH.

<sup>3</sup> Fraser Health has adopted a standard 99 percent efficiency for air clearance time.

## Definition

|                    |   |
|--------------------|---|
| Patient category   | Refers to pathogens with airborne or droplet transmission (e.g., TB, Influenza).  |
| Air clearance time | Is the time where respiratory protection is required (e.g., N95 respirator or equivalent). This time may be shorter depending on air changes per hour (ACH) in that room or area. Contact your FMO for information on ACH. Refer to <a href="#">Table 4</a> to determine the length of time room must be vacated to remove at least 99 percent of airborne particles. |

**Reference:**

1. U.S. Department of Health and Human Services Centers for Disease Control and Prevention (CDC) Atlanta, GA. Appendix B. Guidelines for Environmental Infection Control in Health-Care Facilities (2003) [Internet] [updated 2024 January 11; cited 2025]. Available from: [Appendix B. Air | Infection Control | CDC](#)
2. Provincial Infection Prevention and control Network of British Columbia (PICNet) [Internet] June 2021 cited 2025]. Available from: [Aerosol Generating Medical Procedures \(AGMP\) |](#)