

Guide

Applies to:	All Clinicians and Providers who require personal protective equipment (PPE) for doing aerosol-generating medical procedures (AGMPs) with patients.
Purpose:	To confirm when additional PPE is required for AGMPs with patients suspected, confirmed or at risk of having COVID-19.

Recommendations:

- Do NOT apply this document to other airborne pathogens (e.g., measles or tuberculosis).
- Do NOT apply this document to usual bedside care or procedures that are NOT AGMPs ([PPE](#)).

The following are NOT AGMPs and do NOT apply to this document:

- Nasopharyngeal swab collection
- Low flow oxygen delivered at <15 L/min by any mechanism:
 - Nasal prongs
 - Simple or non-rebreather mask
 - Oxy mask
 - Optiflow/Airvo
- Medications delivered by metre dosed inhaler (MDI) with spacer device
 - Ventolin MDI
- Oral/mouth suctioning with Yankauer
- Feeding tube insertion
 - Nasogastric
 - Nasojejunal
 - Gastrotomy
 - Gastrojejunostomy
 - Jejunostomy
- BAIR huggers
- Procedures performed under local or regional anesthesia
- Electrocautery of low risk tissues (not listed as AGMP below)
- Extracorporeal membrane oxygenation (ECMO)

Principles of AGMPs**General Principles:**

- ✓ Emergent surgeries or procedures should not be delayed awaiting test results.
- ✓ Defer non-essential AGMPs in symptomatic patients suspected or confirmed to have COVID-19.
- ✓ Limit the number of healthcare workers involved in AGMPs.

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Assessment of Patient Risk of COVID-19 for AGMPs

SYMPTOMS:

Assess patient for symptoms, including:

- Fever with no obvious source
- New or acutely worsening cough
- Shortness of breath
- Chills
- Sore throat and painful swallowing
- Stuffy or runny nose
- Loss of sense of smell
- Headache
- Muscle aches
- Fatigue
- Loss of appetite

EXPOSURES:

Assess patient for **high-risk** exposures within past 14 days:

- **Provision of care for a person with suspected or confirmed COVID-19** without appropriate PPE (including healthcare worker without appropriate PPE, family member or other caregiver)
OR
- **Prolonged close contact (within 6 feet/2 metres) of a suspected/confirmed COVID-19 case** for more than 15 minutes (including multiple cumulative visits)
OR
- **Travel outside of Canada**

Classify patient into their risk category: WHO is undergoing the AGMP?

Based on the risk factors listed above, classify patient into the appropriate risk category:

COVID-19 Signs/Symptoms	COVID-19 Exposure/Contacts	COVID-19 Test Result	Patient Risk Category
NO	NO	NOT REQUIRED	GREEN
NO	NO	NEGATIVE	GREEN
NO	YES	NEGATIVE	GREEN
UNKNOWN	NO	NEGATIVE	GREEN
YES	NO	NEGATIVE	GREEN
YES	YES	NEGATIVE	GREEN
UNKNOWN*	UNKNOWN*	UNKNOWN*/PENDING	YELLOW
NO	YES	UNKNOWN*/PENDING	RED
YES	NO	UNKNOWN*/PENDING	RED
YES	YES	UNKNOWN*/PENDING	RED
-	-	POSITIVE	RED

*UNKNOWN = No patient history available due to emergent/traumatic situation or cognitive impairment

Aerosol Generating Procedure PPE Guide			
	GREEN PATIENT	YELLOW PATIENT	RED PATIENT
AGMP PPE Requirements	Routine Practice All staff wear: <ul style="list-style-type: none"> • Surgical mask • Eye protection • Gloves 	All staff wear AGMP PPE: <ul style="list-style-type: none"> • N95 mask • Face shield • Gown • Gloves • Hood added for intubation and extubation, bronchoscopy, TEE, gastroscopy – see PPE for specific procedures 	All staff wear AGMP PPE: <ul style="list-style-type: none"> • N95 mask • Face shield • Gown • Gloves • Hood added for intubation and extubation, bronchoscopy, TEE, gastroscopy – see PPE for specific procedures
Negative Pressure Room	NO	PREFERRED	YES**
Post-AGMP Cleaning Requirements*	Routine cleaning. Cleaning staff can enter the room immediately after the procedure.	Isolation cleaning using droplet and contact PPE after proper air changes have occurred where relevant.	Isolation cleaning using droplet and contact PPE after proper air changes have occurred where relevant.

*Note: Usual ICU cleaning procedures still apply.

**Negative pressure room should be used for RED patients where available.

List of AGMPs:

Non-Surgical AGMPs (in alphabetical order):

- Autopsy
- Bronchoscopy or endobronchial ultrasound (EBUS) and/or bronchoalveolar lavage
- Chest physiotherapy for airway secretion clearance (involving percussions and vibrations with an assisted cough)
- Chest tube insertion
- CPR – for both airway management and compressions
- Bag valve mask ventilation
- Bilevel positive airway pressure (BiPAP)
- Continuous positive airway pressure (CPAP)
- Electrocautery of high risk tissues
 - Mucosal surfaces of the ear, nose and throat
 - Lungs
 - Bowels
- Epistaxis control (large bleed)
- Gastroscopy
- High flow oxygen therapy (≥15L/min by any administration system e.g., Optiflow or Airvo)
- High-frequency oscillatory ventilation

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- Intubation and extubation procedures
- Intubated patient with ventilator circuit disconnection
 - Intentional disconnections, such as:
 - Airway suctioning (deep suction and open tracheal suctioning)
 - Bronchoscopy
 - Changing patient to portable ventilator for transport
 - Unintentional disconnection risks, such as:
 - Intubated patient at risk for self-extubation or damage to pilot tube
 - Physical proning of patient
 - Transferring or moving intubated patient
- Laryngectomy care
- Laryngoscopy
- Nasopharyngeal aspirates or washes
- Nasopharyngoscopy
- Nebulized therapy
- Suctioning airway (upper airway suctioning, deep suctioning and open tracheal suctioning)
- Sputum induction
- Swallowing assessment
- Thoracentesis
- Transesophageal echocardiogram
- Tracheostomy care

Note: This list is not exhaustive; consult infection prevention and control as required.

AGMPs in SURGICAL suites:

Surgical/procedural AGMPs (in addition to above):

- Dentistry:
 - High speed hand piece (for oral surgery)
 - Air-water syringe
- Ear, Nose and Throat (ENT) surgery:
 - Head and neck mucosal cancer surgery
 - Mastoid surgery
 - Sinonasal surgery
 - Tracheotomy
- Thoracic surgeries/procedures:
 - Bronchoscopy or endobronchial ultrasound (EBUS) and/or bronchoalveolar lavage
 - All thoracic surgery
- Gastrointestinal tract surgeries/procedures:
 - Upper GI endoscopy
 - Electrocautery of bowel or esophagus tissues
 - Intraoperative debridement devices with irrigation on bowel or esophageal tissues
 - Laparoscopic surgery with manipulation of bowel tissues if insufflation gases are NOT collected through a filtered exhaust system
- Orbital/eye surgery:
 - Decompression of dacryocoele in neonate
 - Harvesting of mucous membrane, hard palate, nasal mucosal graft

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- Lacrimal surgery
- Orbital abscess drainage
- Orbital decompression for impending visual loss
- Repair of displaced facial fractures
- Repair of orbital fracture
- Repair of eyelid/facial lacerations
- Procedures that involve nasal/sinus mucosa, oral mucosa, or nasolacrimal system
- Interventional Radiology (IR):
 - Bronchial artery embolization
 - Esophageal/tracheal dilatation
 - Lung biopsy
 - Mediastinal biopsy

Note: This list is not exhaustive; consult Infection Prevention and Control as required.

Additional information - [IPAC Protocol for Surgical Procedures During COVID-19](#)

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References:

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<https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>

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<https://www.rcdso.org/en-ca/rcdso-members/2019-novel-coronavirus/covid-19-dental-clinics-offices-offering-emergency-services>

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[Personal protective equipment \(PPE\) for anesthesiologists and other airway managers: Principles and practices during the COVID-19 pandemic. Lockhard et al. Pre-publication in Canadian Journal of Anesthesia.](#)