



COVID-19

# Aerosol-generating procedures

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Aerosol-generating procedures (AGPs) are procedures performed on patients that are more likely to generate higher concentrations of infectious respiratory aerosols than coughing, sneezing, talking, or breathing. These AGPs may put healthcare workers (HCWs) at an increased risk for exposure and infection.

This document contains a list of AGPs; guidance on who should wear what respiratory protection; and frequently asked questions.

## Aerosol-generating procedures

### Procedures commonly recognized as aerosol-generating:

- Open suctioning of airway secretions\*
- Sputum induction
- Cardiopulmonary resuscitation (CPR)
- Endotracheal intubation and extubation
- Intussusception
- Non-invasive positive pressure ventilation (NIPPV) (e.g., BiPAP, CPAP)
- Bronchoscopy
- Manual ventilation

### Procedures that may generate aerosols based on limited data:

- Nebulizer administration
- High-flow oxygen delivery
- Tracheostomy
- Nasal endoscopy or endoscopic sinus surgery
- Flexible laryngoscopy
- Transsphenoidal surgeries
- Nasogastric or nasojejunal tube placement
- Nitrous oxide sedation†

### Procedures that are not believed to generate aerosols:

- Nasal suctioning with bulb syringe or mushroom adapter
- Metered dose inhaler (MDI) with spacer
- Swabs of OP, NP, or nares

### Respiratory PPE‡ for aerosol-generating procedures by patient type:

- Patients with negative COVID-19 → Ear-loop mask + eye protection
- Patients with suspected or confirmed COVID-19 → Respirator + eye protection
- Patients in emergent situations with unknown COVID-19 status → Respirator + eye protection

\*May be referred to as deep suctioning.

†Follow the [nitrous oxide sedation practice guideline](#).

‡For additional details on PPE selection and isolation precautions, see [PPE and Isolation Precautions](#).



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# Aerosol-generating procedures, cont.

## Who wears what respiratory protection?

Use this table to guide selection of respiratory PPE while caring for **patients with suspected or confirmed COVID-19** and:

- admitted in PICU;
- receiving high-flow oxygen delivery, NIPPV, and mechanical ventilation in CVICU and NICU;
- undergoing aerosol-generating procedures.

	Elastomeric respirator + goggles	PAPR	N95 + face shield
<b>Med/Surg</b> (4100-StP and 8 <sup>th</sup> floor-Mpls)	0	1	2
<b>Surgery</b> (refer to <a href="#">COVID-19 Surgery Infection Control Plan</a> )	0	1	2
<b>Mother/Baby</b> (attending birth of <i>all</i> suspected/confirmed COVID-19 mothers)	2	3	1
<b>NICU</b> (NNP, MD)	1	2	3
<b>NICU</b> (CRN, transport RN, SCN charge RN)	0	2	1
<b>NICU</b> (RNs not fit-tested)	0	1	0
<b>ED</b>	1	2	3
<b>PICU</b> (RN, CSA)	3	2	1
<b>PICU</b> (MD, NP)	1	3	2
<b>Pulmonology</b>	1	3	2
<b>Respiratory Therapy</b>	3	1	2
<b>SPS</b>	3	2	1

**KEY:** 1 = first choice; 2 = second choice; 3 = third choice; 0 = do not use

*The numbers 0-3 represent the options available; they are not an indication of the quality of the PPE. Elastomeric half-facepiece respirators, PAPRs and N95s all provide 95% filtration. Options available to each role may depend on the nature of the role, supply, and what departments have been fit-tested.*

Universal masking and eye protection applies to all patient-facing staff who:

- Care for patients ruled out for COVID-19;
- Care for patients **not** undergoing AGPs, including patients with suspected or confirmed COVID-19.



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# Aerosol-generating procedures, cont.

## Frequently asked questions

### **Q: What PPE should I wear for an AGP?**

A: Full respiratory protection should only be worn during AGPs for patients with suspected or confirmed COVID-19 or in emergent situations where COVID-19 status is unknown. This includes a PAPR, N95 or half-facepiece respirator, plus eye protection. Respiratory protection is not to be used for patients ruled out for COVID-19.

### **Q: How did we decide the options for who wears what type of PPE?**

A: The options were determined based on the nature of the role, what departments have been fit tested, and our supply. We spread out the number and types of reusable respiratory protection across locations to provide a good balance of options to also allow for different clinical interventions. There are also some scenarios where a specific type of PPE cannot be used, i.e., half-facepiece respirators cannot be used for sterile procedures.

### **Q: What do the different numbers of PPE options mean (0, 1, 2 and 3)?**

A: The numbers represent the available options of PPE and are not an indication of quality – all have the same level of filtration protection. You do not have to exhaust the first option before moving to the second or third, and you have flexibility to choose based on the clinical situation. For example, an ED physician running a code will need to talk and communicate clearly and may want to select option 3 (N95 mask and face shield) instead of option 1 (half-facepiece). In another scenario, a neonatologist needing to listen with a stethoscope to a baby's heart and lungs, would prefer option 1 (half-facepiece) over option 2 (PAPR) for the clinical intervention.

### **Q: What PPE is required for anyone attending an AGP?**

A: Anyone at the bedside (keep to a minimum number) should wear the same level of PPE as the person performing the procedure.

### **Q: What is the process after an AGP is complete?**

A: If the procedure is performed in an airborne infection isolation room (AIIR), the door should remain closed for 30 minutes following the procedure. If the procedure is performed in a regular room, the door should remain closed for 60 minutes following the procedure. Clinicians may exit the room during this time; if a clinician stays in the room during this period, they should stay in the same PPE as what they wore for the procedure. After the appropriate time has passed to allow for adequate air exchanges to clear the air, EVS will enter room with an ear-loop mask, face shield, gown and gloves. After each AGP, EVS should be notified to come in and clean horizontal surfaces and high-touch surfaces. After the procedure and cleaning have taken place, staff may care for patients in the otherwise posted [precautions](#).

### **Q: Should high-risk staff perform or participate in AGPs?**

A: We are following CDC guidance, which states that [high-risk staff](#) should not participate in AGPs.



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# Aerosol-generating procedures, cont.

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