



# Personal Protective Equipment (PPE) Guidebook for PUIs and COVID-19, ver. 33.0    Revised 04/14/2022

## Summary of Changes in this Version

- Deleted content related to withdrawal of OSHA Emergency temporary standards including mini-Respiratory Protection Program
- Added use of facemask for source control to PPE selection guide across any rate of community transmission to reflect CDC's IPC recommendations
- Added details on requirements for use of respirators when not required from OSHA Respiratory Protection Standard

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# Occupational Safety and Health Administration (OSHA) Requirements Related to COVID-19

OSHA has primary responsibility for ensuring the safety and health of the workforce by setting and enforcing standards and by providing training, outreach, education, and assistance. Every effort is made to ensure that we are keeping our colleagues safe within our ministries.

The OSHA Vaccination, Testing, and Face Coverings ETS 1910.501 was issued and effective November 5, 2021. As a result of legal challenges to this ETS, the Supreme Court of the United States stayed this ETS in January 2022; therefore, this Vaccination, Testing, and Face Coverings ETS is no longer enforceable as a separate standard.

The Healthcare ETS 1910.502 was effective July 6, 2021 and was withdrawn in December 2021. However, OSHA has been clear that the COVID-19 log and the requirement for reporting hospitalizations or fatalities from work-related COVID-19 exposures remain in effect under the General Duty Clause (intended to ensure employers provide a work environment "free from recognized hazards that are causing or are likely to cause death or serious physical harm").

## PPE Purchased by Independent Providers

Independent providers will abide by Trinity Health guidance regarding procurement, maintenance and use of PPE.

## PPE Purchased or Owned by Colleagues

**For employed colleagues**, Trinity Health procures PPE and related accessories (i.e., HEPA filters, belts or hoods needed for some models of PAPRs) that adhere to strict quality and efficacy standards on behalf of our employees. Colleagues who wish to purchase their own PPE must adhere to the following:

- **Respirators:**
  - **Respirator Required for Job Function** – Colleagues may provide their own respirator under two circumstances **when a respirator is required to perform a job function** per OSHA's non-COVID-19 full Respiratory Protection Standard (1910.134). **These circumstances do not apply to any other types of PPE (see below).**
    - **Circumstance 1: ALL OF THE FOLLOWING APPLY:**
      1. Respirator use is **not required** by Trinity Health for that colleague or for that colleague's job tasks **AND**
      2. Trinity Health agrees to **permit voluntary use AND**
      3. Trinity Health has confirmed the colleague is **medically able** to use the respirator (not required for filtering facepiece/N95 respirators) **AND**
      4. Trinity Health has determined the respirator being used by the colleague would not in itself create a hazard **AND**
      5. Trinity Health has determined the respirator is cleaned, stored, and maintained by colleague so it does not present a health hazard to the wearer (not required for filtering facepiece/N95 respirators)
    - **Circumstance 2: ALL OF THE FOLLOWING APPLY:**
      1. Respirator use is **required** by Trinity Health for that colleague or for that colleague's job tasks **AND** Trinity Health does not have a respirator to provide to the colleague due to **supply shortage AND**
      2. The colleague has their own respirator of the same, or higher, protection type or grade **AND**
      3. Trinity Health has determined the respirator being used is of an equivalent or higher protection level as the respirator that is required by Trinity Health **AND**
      4. The colleague passes a fit test for the respirator the colleague is supplying **AND**
      5. Trinity Health has determined and ensured that the colleague -provided respirator will be cleaned, stored, and maintained in the same manner required for a mandatory use

respirator under the local ministry's **Respiratory Protection Plan (RPP)** as defined by either the federal or state OSHA Respiratory Protection Standard **AND**

6. The local ministry's **RRP is updated for the use of the colleague-provided respirator** if it is a different type or grade than already in the plan

- **Respirator Not Required for Job Function –**

- Colleagues may provide their own respirator (e.g. a N95 respirator provided by the federal government and distributed to the public at community pharmacies) instead of wearing a facemask where a facemask is required by a ministry. This is considered voluntary use under OSHA's Respiratory Protection Standard.

- **If a colleague wants to use a Filtering Facepiece Respirator (FFR), e.g. N95 respirator on a voluntary basis:**

1. The ministry leads that oversee the ministry's Respiratory Protection Program (RPP), or designee **must**:
  - determine that the FFR the colleague desires to use does not pose a hazard to the colleague or others; **and**
  - colleagues **must** be provided the information found in Appendix D of OSHA Respiratory Protection Standard
2. The ministry is **not** required to provide any medical evaluation or fit test for voluntary use of a FFR.

- **If a colleague wants to use all other types of respirators (except FFRs), including but not limited to tight-fitting negative pressure respirators:**

1. The ministry leads that oversee the ministry's RPP **must**:
  - determine that the respirator use will not in itself create a hazard, **and**
  - **must** provide the respirator users with the information contained in the standard's Appendix D, **and**
  - **must** ensure that the respirator users are medically qualified to wear respirators, **and**
  - **must** ensure that the respirators are properly cleaned, stored, and maintained

- **Eye Protection**

- If a colleague wears prescription lenses and their work involves potential eye hazard, the colleague must wear eye protection that either a) incorporates the prescription in its design or b) wear eye protection that can be worn over the prescription glasses without disturbing the proper position of the prescription lenses or the protective lenses.
- Trinity Health will not pay for non-specialty prescription safety eyewear when that eyewear can also be worn when not at work. Eye protection is available that fits securely over prescription eyewear, and Trinity Health will provide eye protection to wear over prescription eyewear.
- All eye protection for patient care must be obtained by the ministry and adhere to the guidelines established in the [Eye Protection](#) section below.
  - Trinity Health does not permit colleagues to voluntarily bring in their own protective eyewear unless Trinity Health is experiencing a critical supply shortage in that type of PPE.
  - Questions about specific makes and models of eye protection and other PPE should be referred to the ministry's Supply Chain team and escalated to System Office Supply Chain Mailbox ([PPEReqQuestions@trinity-health.org](mailto:PPEReqQuestions@trinity-health.org)).

- **All Other PPE:**

- Trinity Health does not permit colleagues to voluntarily bring in their own PPE unless Trinity Health is experiencing a critical supply shortage in that type of PPE.
- Trinity Health does not reimburse a colleague who chooses to provide their own PPE, including accessories (i.e., HEPA filters, belts or hoods needed for some models of PAPRs), unless

approved in advance and only under those specific circumstances as required by OSHA.

- PPE and related accessories must meet requirements for protection and be maintained and used according to Trinity Health Policy.
- **PPE and related accessories** will be inspected by designated authorized local personnel to ensure PPE meets all applicable standards for the colleague's work area. Colleagues must wear ministry-provided, medical grade face masks as described in the [PPE Selection Guide](#) below.

## CDC Recommendations

**Universal Source Control** (refers to use of facemasks or other type of device to cover a person's mouth and nose to prevent spread of respiratory secretions when they are breathing, talking, sneezing, or coughing). Note: universal source control is required at any COVID-19 community transmission rate (low – high), as recommended by CDC.

- To address transmission from those with asymptomatic and/or pre-symptomatic infection, everyone entering a healthcare facility (e.g., healthcare personnel, patients, visitors), regardless of symptoms must wear a mask or face covering as described:
  - Colleagues, providers and clinicians must wear a facemask (e.g., procedure or surgical) at all times when working in their affiliated ministry except while eating and/or drinking. Refer to: [guidelines-for-mask-conservation-with-reusable-cloth-masks.pdf \(trinity-health.org\)](#) for face covering required of patients and visitors.
    - The following are options to the facemask for source control if a colleague voluntarily prefers one of these alternatives:
      - KN95 mask provided by Supply Chain at the ministry – the brand of KN95 mask from Supply Chain has been tested and found to be equivalent to a procedure mask. KN95 masks from other publicly available sources offer uncertain filtration and NIOSH testing has found many are either counterfeit or do not meet filtering efficacy of procedure masks.
      - 
      - Checklist for determining when to use KN95 mask:
        - Be sure the KN95 has been obtained from Supply Chain at the ministry
        - The KN95 mask is NOT to be used for care where a NIOSH approved N95 respirator is required, e.g., care of a PUI or patient with COVID-19 who is under isolation precautions.
        - The KN95s provided by Supply chain can be worn:
          - For source control when at work at the ministry
          - As an alternative to a well-fitting facemask (procedure or surgical) for direct care of a patient who is not suspected of having COVID-19 in addition to wearing eye protection.
        - Follow the instructions for use provided by KN95 mask
      - 
      - Colleague's personally owned NIOSH-approved N95 or equivalent respirator
        - **Important:**  
**Colleagues must wear a N95 or equivalent respirator for which they have been fit tested and provided by the ministry as part of PPE during care of a PUI or patient in isolation for COVID-19 or other patients who are in isolation precautions where a respirator is required, e.g. a patient with active TB disease in Airborne Precautions.**
      - Some types of respiratory protection (e.g., half mask elastomeric respirators, some models of N95 filtering facepiece respirators, and some models of powered air-purifying respirator (PAPR)) include a valve to release exhaled air to improve comfort for the colleague wearing these types of devices. Other models of PAPRs also may allow unfiltered air exhaled by the wearer to escape if wearing one with a loose-fitting hood.
        - See [Source Control in PAPRs, CAPRs and Other Respirators with Unfiltered Exhalation](#) for

- Patients and visitors should, ideally, wear their own face covering (if tolerated) upon arrival to and throughout their stay in the facility. If they do not have a face covering, they will be offered a facemask, as supplies allow. Patients may remove their mask or face covering when in their rooms but should put it back on, if able, when around others (e.g., when staff or visitors enter their room) or leaving their room.
- Masks or face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or anyone who is unconscious, incapacitated or otherwise unable to remove the mask without assistance.

## Standard Precautions

The CDC defines [Standard Precautions](#) as the basic practices that apply to all patient care, regardless of the patient's suspected or confirmed infectious state, and apply to all settings where care is delivered. These practices protect healthcare personnel and prevent healthcare personnel from transmitting infections to other patients or the environment.

- **Elements and CDC Recommendations for PPE for Standard Precautions:**
  - *Mask and Eye protection (glasses, goggles, or face shield):*
    - Use during patient care activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Eye protection must be appropriate to the anticipated splash or spray risk.
    - **NOTE:** Personal eyeglasses or contact lenses are not considered eye protection.
    - Colleagues may select from face shields, goggles, safety type glasses or other eyewear that provides protection to front/sides of face, as well as procedural masks with integrated eye shields. See [Eye Protection: Selection Guidance](#), below.
  - *Gloves:*
    - Use when touching blood, body fluids, secretions, excretions, contaminated items; for touching mucus membranes and nonintact skin
  - *Gown:*
    - Use during procedures and patient care activities when contact of clothing/ exposed skin with blood/body fluids, secretions, or excretions is anticipated

## Transmission-Based Precautions

[Transmission-Based Precautions](#) (also called Isolation Precautions) vary by diagnosis. These practices are designed to apply to settings where care is delivered for specific types of infectious disease. **Droplet + Contact precautions – apply to those with acute COVID-19.** Refer to [infection-prevention-and-control-guidance-for-pui-or-confirmed-covid-19-in-healthcare-settings.pdf \(trinity-health.org\)](#) for more information on transmission of SARS-CoV-2.

### Application of COVID-19 Community Transmission Rate to Use of PPE:

The community transmission rate is defined and reported by the CDC as the number of new cases of COVID-19 reported / 100k population and or percent positivity among those tested over a defined time period of 7 days increments. There are some differences in CDC recommended PPE based on the rate in the community served by the ministry outlined in the PPE Selection Guide. Definitions of the community transmission rates below are from CDC.

- **Low community transmission** is defined as  $\geq 0$  to  $< 10$  new cases per 100,000 in county population over the prior 7 days
- **Moderate community transmission** is defined as  $\geq 10$  to  $< 50$  new cases per 100,000 in county population over the prior 7 days
- **Substantial community transmission** is defined as  $\geq 50$  to  $< 100$  new cases per 100,000 in county population over the prior 7 days
- **High community transmission** is defined as more than  $\geq 100$  new cases per 100,000 in total county population over the prior 7 days

## Precautions for patients with suspected or confirmed COVID-19



CDC updated recommendations require the use of **Standard Precautions** and appropriate transmission-based precautions. CDC categorizes as trans based so Trinity Health ministries use **Droplet + Contact Precautions** when caring for person under investigation (PUI) and confirmed COVID-19. Although **Droplet + Contact precautions must be ordered for the patient, healthcare personnel must wear PPE as provided in [PPE Selection Guide](#)**. See also [Infection Prevention and Control \(IPC\) Overview for COVID-19 in Healthcare Settings](#) for more details on route of transmission for SARS-CoV-2.

## **Universal PPE During Substantial – High Rates of Community Infection: Precautions for patients who are NOT suspected or confirmed COVID-19**

**Healthcare personnel (includes all colleagues, providers, and clinicians) [HCP] working in facilities located in areas with substantial to high community transmission** are more likely to encounter patients with SARS-CoV-2 infection that are asymptomatic or pre-symptomatic.

If COVID-19 is **not** suspected in a patient presenting for care (e.g., screening test for SARS-CoV-2 is negative and/or based on assessment of symptoms and exposure history), HCP must follow [Standard Precautions](#) (and [Transmission-Based Precautions](#) if required based on the suspected diagnosis). Colleagues must also:

- Wear eye protection (i.e., goggles or a face shield that covers the front and sides of the face) and a facemask (or equivalent) during all direct patient care encounters (e.g. when within 6 ft of less).
  - Exception: For some procedures, e.g., microvascular repair during an operative procedure, where the eye protection or face shield interferes with the ability to safely visualize the site of the procedure, use existing devices or eyewear that is part of the instruments and equipment needed for safe and effective completion of the procedure.
- Wear a N95 respirator or equivalent, instead of a procedure mask, for select procedures with any patient needing:
  - An aerosol generating procedures (AGP) (see also [PPE Selection Guide](#), below)
    - When wearing an N95 respirator, protect eyes and the exterior surface of the N95 respirator, especially during Aerosol Generating Procedures (AGPs), with a face shield. If face shield is not available, wear appropriate eye protection
  - An operative or invasive procedures that might pose higher risk for transmission if the patient has COVID-19 (e.g., that generate potentially infectious aerosols or involving anatomic regions where viral loads might be higher, such as the nose and throat, oropharynx, respiratory tract) (refer to [Operative & Other Invasive Procedures Guidance](#) for details)

HCP working in areas with **low to moderate community transmission** must continue to adhere to [Standard](#) and [Transmission-Based Precautions](#), however eye protection for direct patient care is optional.

# PPE Selection Guide

PPE Selection Guide by Person and Situation										
<b>NOTE: Colleagues and clinicians must follow guidance below in addition to Contact + Droplet Precautions for all PUIs or those in isolation for acute COVID-19</b>										
Observe and adhere to Standard Precautions for all patients with addition of Transmission Based Precautions, when applicable based on suspected or confirmed diagnosis <i>(ex. adhere to Contact precautions for care of patient with C. difficile)</i>										
Community Transmission Rate (check with ministry leadership for applicable rate)	Applies to:	Situation	Frequent Hand Hygiene	Gloves	Isolation Gown	Medical Grade Procedural Mask	Eye Protection Choose One:		Respiratory Protection Choose One:	
							Face Shield	Goggles or Goggles (see page 20)	PAPR Eye protection attached	Respirator: Must select face shield or eye protection based on splash or spray risk
Any rate ≥ 0	PUI, acute COVID-19 needing isolation or Patient who Refuses Testing	Any patient-facing encounter (includes all ancillary services i.e. EVS, PT etc.)	✓	✓	✓		✓		✓	✓
	All colleagues, providers, other HCP, patients, and visitors who enter a ministry	<b>Source Control:</b> Upon entry into ministry	Wear a facemask or other face covering* (i.e. for patient / visitor acceptable covering is based on ministry policy), while in the facility at all times except when eating or drinking.							
≥50 per 100,000 population [Substantial or High Rate]	Patients NOT suspected to have COVID-19+ and/or pre-procedure or admission test is negative	Procedures with high risk of COVID-19 Transmission: - Aerosol Generating Procedures (AGPs) ex. Intubation, Nebulizer, Heated High Flow, Bipap - Surgical procedures with instrumentation of the upper respiratory tract	✓	✓	Follow Standard or Transmission Based precautions for patient diagnosis		<b>REQUIRED:</b> Select this option if splash or spray likely	<b>REQUIRED:</b> Select this option if splash or spray is not likely	✓	✓
		Any other patient-facing encounter (includes all encounters within 6 ft or less of patient)	✓	Wear procedure mask and eye protection PLUS use Standard & Transmission-based precautions as applicable						
	All Work > 6ft from a patient	Rounding > 6 ft from the patient. Registration Desk**, *** Walking through the hallways Non Patient-facing tasks in a shared space	✓			✓				
< or = 49 per 100,000 population [Moderate or Low Rate]	Patients NOT suspected to have COVID-19 and/or pre-procedure or admission test is negative	Procedures with higher risk of exposure to aerosols : - Aerosol Generating Procedures (AGPs) ex. Intubation, Nebulizer, Heated High Flow, Bipap - Surgical procedures with instrumentation of the upper respiratory tract	✓	✓	Follow Standard or Transmission Based precautions for patient diagnosis and continue to wear facemask for source control					
		Any other patient-facing encounter (includes all encounters within 6ft of patient)	x	Follow Standard or Transmission Based precautions for patient diagnosis and continue to wear facemask for source control						
	All Work > 6ft from the patient	Rounding > 6 ft from the patient. Registration Desk Walking through the hallways Non Patient-facing tasks in a shared space	✓	Wear facemask for source control						
* Refer to guidance for patients and visitors who are unable to mask ** Registration colleagues should not to enter room of PUI or patient in isolation for COVID-19 during provision of an AGP. If they do need to enter - use PPE in selection guide above. ***Eye protection required in the absence of physical barrier between the colleague and the patient/visitor, or during any physical contact with the patient/visitor, when comm. trans. rate is substantial or high										

**Note:** under rare and extraordinary circumstances, there may be emergent/urgent situations in which donning of all PPE may delay prompt response to assure safety of patients (see examples below). For these circumstances, the colleague's professional judgment and assessment can be used to respond to the patient's emergency need. In these circumstances the following elements of PPE must still be worn when responding to the patient who is in isolation because they are a PUI or have COVID-19:

- Respiratory Protection as described above
- Eye Protection as described above
- Gloves

Examples of these circumstances might be:

- Colleague observes a patient in acute respiratory/cardiac distress and needs to administer immediate, life-saving care while activating code activation & response system
- Colleague observes a patient close to or in the act of falling and at risk of injury. Patient Safety Attendants (PSAs) must always wear PPE appropriate for the patient diagnosis while monitoring patients.

# Gloves

## Glove Selection Guidance

Glove Selection Guide*		
*Always follow standard precautions		
	Vinyl	Nitrile
<b>Description</b>	They can be used for short-term clinical applications with low risk of exposure to potentially infectious materials. In times of crisis shortage, it is better to use vinyl gloves than no gloves at all. Vinyl gloves provide protection from contact with liquids and solids that are non-corrosive.	These gloves are the best choice when it comes to resistance to punctures or infectious materials. They provide better protection against potentially infectious materials as well as protection from chemotherapy drugs and lab chemicals when compared to vinyl gloves.
<b>Made From</b>	Polyvinyl chloride (PVC).	Synthetic Rubber
<b>Approved Use Cases (List is not all-inclusive)</b>	<p>Non-patient care areas:</p> <ul style="list-style-type: none"> <li>• Biomed/Clinical Engineering</li> <li>• Delivery of Food/Nutrition trays/supplements</li> <li>• Home Health/Clinics if working with patients where there is no anticipated contact with blood/body fluids and low risk of puncture (i.e., taking a blood pressure or temperature)</li> <li>• Facilities (<b>Vinyl gloves are NOT APPROPRIATE for use with corrosive chemicals, even in crisis capacity.</b>)</li> <li>• Non-invasive imaging/radiology procedures</li> <li>• Patient registration</li> <li>• Patient Temperature screening stations</li> <li>• Transportation</li> </ul>	<p>Direct patient care areas:</p> <ul style="list-style-type: none"> <li>• Emergency Department</li> <li>• Environmental Services</li> <li>• ICU/CCU</li> <li>• Home Health/Clinics if working with patients where there is anticipated contact with blood/body fluids or risk of puncture</li> <li>• Lab</li> <li>• Laundry</li> <li>• Med/Surg</li> <li>• OB/Gyn</li> <li>• Oncology</li> <li>• Orthopedics</li> <li>• Security</li> </ul>
<b>NOT approved for</b>	Chemotherapy Corrosive chemicals	
<b>How to Sanitize</b>	<ul style="list-style-type: none"> <li>• Isopropyl alcohol-based hand sanitizers are acceptable to use on vinyl gloves</li> <li>• If using ethanol-based hand sanitizer, change gloves every hour</li> <li>• Disposable medical gloves can be disinfected for up to six (6) applications of ABHR or until the gloves become otherwise contaminated or ineffective.</li> </ul>	<ul style="list-style-type: none"> <li>• If using ethanol-based hand sanitizer, change gloves every hour</li> <li>• Disposable medical gloves can be disinfected for up to six (6) applications of ABHR or until the gloves become otherwise contaminated or ineffective.</li> </ul>

## Glove Optimization

Surge capacity refers to the ability to manage a sudden increase in patient volume that would otherwise severely challenge or exceed the present capacity of a facility. The following contingency and crisis strategies are based upon these assumptions:

- Facilities understand their current glove inventory and supply chain.
- Facilities understand their glove utilization rate.
- Facilities are in communication with local healthcare coalitions, federal, state, and local public health partners (e.g., public health emergency preparedness and response staff) regarding identification of additional supplies.
- Facilities have already implemented other control measures such as:
  - Use physical barriers and other engineering controls
  - Reducing the number of patients going to the hospital or outpatient settings
  - Excluding HCP not directly involved in patient care
  - Reducing face-to-face HCP encounters with patients
  - Excluding visitors to patients with confirmed or suspected COVID-19 (except in Compassionate Care situations as outlined in the [COVID-19 Visitor Restrictions](#) guide)
  - Cohorting patients and HCP
  - Maximizing use of telemedicine
- Facilities have provided Health Care Professionals with required education and training, including having them demonstrate competency with donning and doffing, with any PPE ensemble that is used to perform job responsibilities, such as provision of patient care.

Once availability of gloves returns to normal, ministries must promptly resume conventional practices. Determining the appropriate time to return to conventional strategies must include the following considerations:

- The anticipated number of patients for whom gloves should be worn by HCP providing their care
- The number of days' supply of gloves currently remaining at the ministry
- Whether the facility is receiving regular resupply with its full allotment

## Surge Capacity Levels for Prioritizing Conservation Measures

Three general strata have been used to describe surge capacity and can be used to prioritize measures to conserve glove supplies along the continuum of care.

- **Conventional Capacity:** measures consist of providing patient care without any change in contemporary daily practices. This occurs under normal conditions. NOTE: CDC does not recommend double gloves when providing care to suspected or confirmed COVID-19 patients.
  - Continue use of approved disposable medical gloves in accordance with standard and transmission-based precautions in healthcare settings and when indicated for other exposures such as handling cleaning chemicals.
  - Reinforce indications and recommended practices for non-sterile disposable glove use.
  - Prioritize sterile gloves for surgical and other sterile procedures.
  - Medical gloves for handling chemotherapy agents (chemotherapy gloves) should be prioritized for HCP handling chemotherapy and other hazardous drugs.
  - Remind HCP about indications for when gloves are needed, as well as common care situations when gloves may not be needed.
    - Do not use gloves unless indicated by Standard or Transmission-Based Precautions for the situation (i.e., gloves are not indicated for taking blood pressure, passing meds, etc.). **Follow all hand hygiene guidance.**
- **Contingency Capacity:** measures may change daily standard practices but may not have any significant impact on the care delivered to the patient or the safety of healthcare personnel (HCP). These practices may be used temporarily during periods of expected glove shortages. Ministries must return to conventional practices as soon as supplies and availability return to normal.
  - Use of gloves past their manufacturer-designated shelf life for training activities
    - Consider using gloves past their manufacturer-designated shelf life (if a shelf life is designated) for situations where HCP are not exposed to pathogens, such as during training activities.
    - See [CDC Table of Gloves Conforming to Standards Used in United States and Other Countries](#).

- **Crisis Capacity:** strategies that are not commensurate with standard U.S. standards of care. These measures, or a combination of these measures, may need to be considered during periods of glove shortages. Ministries must return to conventional practices as soon as supplies and availability return to normal.
  - Use of gloves past their manufacturer-designated shelf life for healthcare delivery
    - Non-sterile disposable gloves cleared by the FDA are not required to have an expiration date. Facilities may consider using gloves past their manufacturer-designated shelf life for healthcare delivery. **Sterile gloves past their manufacturer-designated shelf life must not be used for surgical or other sterile procedures.**
  - Prioritize the use of non-sterile disposable gloves
    - Non-sterile disposable gloves must be prioritized for use during activities when gloves are recommended to protect the hands from contact with potentially hazardous substances, including blood and body fluids\*.
    - Facilities may consider suspending use of gloves when entering the room of patients with endemic multidrug resistant organisms (e.g., MRSA, VRE, ESBL-producing organisms) \*. When HCP are exposed to such MDROs, hand hygiene protocols are stringently followed. In general, gloves, as part of Contact Precautions, should continue to be used for patients colonized or infected with emerging highly-resistant organisms including *Candida auris*, carbapenemase-producing carbapenem-resistant Enterobacterales, Carbapenem-resistant *Pseudomonas ssp* and *Acinetobacter ssp*, and pan-resistant organisms.
  - Consider non-healthcare glove alternatives
    - In instances of severely limited or no available disposable medical gloves, non-healthcare disposable gloves (e.g., food service or industrial chemical resistance gloves) may be considered for situations where HCP are not exposed to pathogens. The recommended extended use guidance (below) does not apply to non-healthcare glove alternatives.
  - Extended use of disposable medical gloves- does not apply to non-healthcare glove alternatives.
    - ***During glove supply crisis, disposable medical gloves can remain on but must be sanitized between patients within the cohort to prevent cross transmission of any other pathogens from patient to patient.***
      - Extended use of disposable medical gloves by HCP refers to the practice of wearing gloves without changing them between patients or tasks. Disposable medical glove extended wear is most easily implemented when patients are cohorted, such as when caring for a group of patients with the same confirmed infectious disease diagnosis (e.g., patients with confirmed COVID-19) in a shared or adjacent location.
      - Gloved hands must be cleaned following cleaning procedures described in detail below at intervals where gloves would normally be changed (e.g., when moving from a 'dirty' to 'clean' task, between patients) or hand hygiene normally performed.
    - ***Disposable medical gloves must always be discarded after:***
      - A glove becomes damaged (for example, discolored, deteriorated, visible tears, holes), contaminated (for example, body fluids, chemotherapy drugs) or no longer provides a liquid barrier.
      - Maximum of four hours of continuous use; or after six times of sanitizing with Alcohol-based hand sanitizer.
      - Doffing. Previously removed gloves should not be re-donned as the risk of tearing and contamination increases. Therefore, disposable glove "reuse" should not be performed.
      - Removing gloves for any reason. Hand hygiene should be performed with alcohol-based hand sanitizer or soap and water.
    - Methods for performing hand hygiene of gloved hands for extended use of disposable medical gloves
      - **CDC does not recommend disinfection of disposable medical gloves as standard practice. This practice is inconsistent with general disposable glove usage, but, in times of extreme disposable medical glove shortages, this option may need to be considered.**
    - Alcohol-based hand sanitizer (ABHS) is the preferred method for performing hand hygiene of gloved hands in healthcare settings when the gloves are not visibly soiled. Research has shown multiple disposable latex and nitrile glove brands maintained their integrity when treated with ABHS.
      - **Disposable medical gloves can be disinfected for up to six (6) applications of ABHS or until the gloves become otherwise contaminated or ineffective.**

- For example, in a drive through testing site, colleagues should perform hand hygiene between each car, and change gloves after six cars, unless gloves become contaminated or compromised.
- **If ABHS is not available**, soap and water can be used to clean donned disposable medical gloves between tasks or patients. HCP planning to wash gloves with soap and water should wear long cuffed gloves as washing may be impractical for short, cuffed gloves where water may become trapped inside the worn gloves. Disposable medical gloves can be cleaned with soap and water up to 10 times or until the gloves become otherwise contaminated or ineffective (for one or more of the reasons stated in extended use guidance above). Follow hand hygiene guidance for proper soap and water hand hygiene procedures.
  - Consider using radiographic protective gloves or radiation attenuating surgeon's gloves that are clean and offer fluid barrier protection. These gloves cannot be sterilized but can be cleaned following the manufacturer's labeling.
  - Consider using non-medical gloves such as those used for food service, embalming, cleaning, or other industrial-grade gloves that most closely align with the ASTM standards for medical gloves as outlined in the FDA's Medical Glove Guidance Manual.
  - Remember that gloves are for use in the clinical environment only; gloves are property of Trinity Health and should not be removed from the environment of care.

## Skin Prophylaxis and Treatment for Extended Use of Gloves

**If you experience work-related incidents that you believe are a result of the PPE you are wearing (e.g., skin breakdown, rash, etc.), complete a Trinity Health Employee Incident Report (THEIR) and follow your ministry's requirements for reporting. If possible, retain the PPE involved to assist with completion of the report.**

Apply hand cream every time--after hand hygiene if the condition allows. If wearing gloves for a long duration, emollients containing hyaluronic acid, ceramide, vitamin E or other repairing ingredients are encouraged. Urea-containing emulsions are recommended in treating cracking of the skin.

Long-term use of examination gloves easily causes maceration, characterized by whitening, softening, and wrinkling of the skin. Avoid wearing gloves for a long time and applying hand cream can reverse maceration. \*Check with your local hand sanitizer provider to ensure hand creams are compatible with the hand sanitizer in use at your ministry.

If maceration cannot be relieved and subsequent erosion and exudation occur, topical use of zinc oxide ointment is recommended. Colleagues with contact dermatitis can use a low percentage topical glucocorticoid cream. Frequent cleansing and prolonged use of gloves may aggravate pre-existing hand eczema. Moisturizers together with topical glucocorticoid cream will help relieve the exacerbation. \*Check with your local hand sanitizer provider to ensure hand creams are compatible with the hand sanitizer in use at your ministry.

## Gowns

### Gown Selection Guidance

Gowns are provided by local ministry.

### Gown Optimization

Gown Stewardship: Gown supplies have stabilized. Ministries must return to conventional use strategies for gowns.



# Eye Protection

## Key Attributes:

- Colleagues may select from face shields, goggles, safety-type glasses, or other eyewear that provides protection to front/sides of face, as well as procedural masks with integrated eye shields. **Safety glasses or goggles must not be directly vented. Safety glasses or goggles must fit snugly from the corners of the eyes across the brow and must provide side protection that wraps around the temple far enough to protect the eyes from splashes or sprays.**
- The following eyewear items are **not appropriate** precautions against splashes and sprays:
  - Personal eyeglasses or contact lenses.
  - Clip on side shields.

## Selection Guidance

### Eye Protection Selection Guide\*

\*Always follow standard precautions

**NOTE: If the eye protection interferes with your ability to safely care for the patient, you must STOP USE and identify an alternative.**

	Goggles or Glasses	Face Shield
Sample Image		
Selection Guidance	If a colleague is unable to complete a seal check on their respirator while wearing goggles or glasses, they must wear a face shield.	If the face shield interferes with the colleague's vision or ability to provide care, the colleague may use goggles or glasses as pictured in the image to the left above.
Approved Use Cases	All patient encounters with minimal chance of blood/bodily fluid exposure, regardless of COVID status. As a reminder, <a href="#">colleagues who wish to procure their own eye protection</a> must adhere to the standards set forth in this document.	All patient facing care with likelihood of blood/bodily fluid exposure.  The face shield is preferred for use of an N95 respirator as it provides the respirator protection against splashes and sprays.
Key Attributes	All eye protection must fit snugly from the corners of the eyes across the brow and provide side protection that wraps far enough around the temple to protect the eyes from splashes or sprays.	
Hand Hygiene	Hand hygiene must always be completed prior to donning or doffing any type of eye protection.	

## Optimization Strategies

Disinfect eye protection at the end of every shift, when it becomes visibly soiled, or when moving between patients with differing infectious diagnoses (example: moving between COVID-19+ to PUI patients, moving from *C. difficile* patient to MRSA patient).

## Prophylaxis and Treatment for Extended Use of Eye Protection

If you experience work-related incidents that you believe are a result of the PPE you are wearing (e.g., skin breakdown, rash, etc.), complete a Trinity Health Employee Incident Report (THEIR) and follow your ministry's requirements for reporting. If possible, retain the PPE involved to assist with completion of the report.

Review [Prolonged Ear-Dependent Mask Use Prophylaxis and Treatment](#) under Respiratory Protection.

# Respiratory Protection

## Overview

Where a respirator is required, colleagues must comply with OSHA's full [Respiratory Protection Standard \(1910.134\)](#), which includes medical evaluations and fit testing for respirators where respirators are required.

- Loose fitting Powered Air Purifying Respirators (PAPRs) do not require fit testing.
- Tight fitting PAPRs do require fit testing.
- N95 filtering facepiece respirators and other similar filtering facepiece respirators (FFRs), e.g., elastomeric, require fit testing. Reference your ministry's Respiratory Protection Program (RPP) or contact your RPP Program Administrator for more information.

## Elastomeric Respirators

Elastomeric respirators must be colleague specific. See [Disinfection of PPE](#) when transferring the respirator between colleagues. These respirators are ideal for colleagues that work with high volumes of COVID-19+ or PUIs, or who perform a high volume of AGPs, such as Respiratory Therapists, Rapid Response Teams, EDs, COVID-19 units, FURI clinics, drive up testing sites, or anesthesia. Colleagues must be fit tested before using an elastomeric respirator. Refer to manufacturer's Instructions for Use (IFUs) for donning and doffing the make and model of elastomeric respirator available at your ministry.

## PAPRs and CAPRs

Powered Air Purifying Respirators (PAPRs) and Controlled Air Purifying Respirators (CAPRs) should be colleague specific. These respirators are ideal for colleagues that work with high volumes of COVID-19+ or PUIs, or who perform a high volume of AGPs, such as Respiratory Therapists, Rapid Response Teams, EDs, COVID-19 units, FURI clinics, drive up testing sites, or anesthesia. These respirators are also ideal for colleagues who are unable to pass a fit test or complete a seal check with an N95 respirator. These units may also be considered in ambulatory or other non-Acute settings for contingency when a patient presents unexpectedly at the location, has symptoms of possible COVID-19 and direct care, including collection of nasal specimens, is required. Refer to manufacturer's Instructions for Use (IFUs) for donning and doffing the make and model of PAPR or CAPR available at your ministry.

## Source Control in PAPRs, CAPRs and Other Respirators with Unfiltered Exhalation:

To provide source control while wearing a PAPR or CAPR with unfiltered exhalation, colleagues need to wear a medical grade procedural or surgical mask under the PAPR or CAPR hood or cover the filter with a procedural or surgical mask, depending on the location of the exhaust output. (See [N95 Respirator Work Practices](#), below). When donning a PAPR or CAPR, the colleague must obtain a clean procedural or surgical mask for source control. Wearing a contaminated procedural or surgical mask puts the user at risk of exposing themselves to any infectious material present on the outside of the mask.

N95 respirators must never be worn under a PAPR or CAPR. This doubles the number of respirators used, without providing any additional protection.



Elastomeric or filtering face piece respirators (including standard N95 respirators and the Enviro® Mask N95 respirator equivalent) with an unfiltered exhalation valve:

- Elastomeric respirators are equivalent to N95 respirators. They are an alternative to N95 respirators and therefore can be used to conserve the supply of N95 respirators.
- Elastomeric or filtering face piece respirators with an unfiltered exhalation valve provide respiratory protection but do not provide source control. To provide respiratory protection and source control, cover the exhalation valve with a procedural mask that does not interfere with the respirator fit.
  - All use of these respirators requires the colleague cover the exhalation valve with a procedural mask that does not interfere with the respirator fit.
  - The FDA has recently begun to approve exhalation filters. If an approved exhalation filter is properly installed, the respirator provides source control, and a procedural mask is not required. Once approved filters are available, TH Supply Chain will reach out to users.
- Continue to practice PPE conservation strategies for both procedural masks and N95 respirators.

### N95 Respirators

N95 respirators must be colleague specific. An N95 filtering facepiece respirator (FFR) is a type of respirator which removes particles from the air that are breathed through it. These respirators filter out at least 95% of very small (0.3 micron) particles. N95 FFRs can filter out all types of particles, including bacteria and viruses. Not everyone is able to wear a respirator due to medical conditions that may be made worse when breathing through a respirator. Before using a respirator or getting fit-tested, colleagues must have a medical evaluation to make sure that they are able to wear a respirator safely. In addition, achieving an adequate seal to the face is essential. OSHA's Respiratory Protection standard requires that colleagues undergo fit testing annually and conduct a user seal check each time the respirator is used. Colleagues must pass fit testing and medical evaluation before using a respirator in the workplace. See Fit Testing for N95 Respirators, below.

- If colleagues are provided a N95 respirator that is different than the make and model to which they were fitted, a fit test for the new N95 respirator must be provided prior to use.
- If a colleague is aware of changes in their physical condition that could affect respirator fit (e.g., facial scarring, dental changes, cosmetic surgery, or obvious changes in body weight), a fit test must be completed to assure the N95 respirator is adequately protecting the colleague.

### Respirator Fit Testing

See the section [OSHA Compliance: N95 or Other Filtering Facepiece Respirator Conservation and Evaluation](#) for summary of relevant OSHA guidelines regarding fit testing and respiratory protection conservation.

Fit Testing for N95 Respirators:

- **NOTE:** Colleagues must perform a seal check every time they don their N95 respirator. See [Performing A Respirator Seal Check](#) and follow the IFU from the manufacturer of the N95 respirator.
- Fit Testing Methods & Related Conservation Strategies for N95 respirators:
  - Fit Test Methods: There are two methods of fit testing – quantitative (destructive) and qualitative (non-destructive). A quantitative (destructive) fit test uses an instrument to numerically measure the effectiveness of the respirator. A qualitative (non-destructive) fit test is a pass/fail test that relies on the individual's sensory (taste or smell) detection of a test agent such as Saccharin (sweetener) or Bitrex® (bitter) solutions.
  - Conservation strategy: qualitative (non-destructive) fit testing remains the preferred method of fit testing to help slow the depletion of the inventory of N95 respirators. The respirator used for a qualitative (non-destructive) fit test can be worn again after the test. (Quantitative fit testing is referred to as “destructive” because it requires a hole to be punched in the respirator and therefore it must be disposed of after the test.).
    - For ministries that have been using quantitative (destructive) fit test methods, consider a switch to qualitative (non-destructive) fit test methods to minimize the destruction of N95 respirators.
    - Any switch in methods should be assessed to ensure aptitude of the fit test operators carrying out the test. OSHA has published [instructions](#) for pharmacy compounding of qualitative (non-destructive) fit testing solution for ministries experiencing challenges in obtaining the fit testing solution.

- OSHA requires that ministries provide training to HCP using respirators to understand that if the structural and functional integrity of any part of the respirator is compromised, it should be discarded, and that if a successful user seal check cannot be performed, another respirator should be tried to achieve a successful user seal check. See [Performing a Respirator Seal Check](#).
- Inform employees to notify the Respiratory Protection Program Administrator for their ministry of changes in their physical condition (e.g., facial scarring, dental changes, cosmetic surgery, or obvious changes in body weight) that could affect fit of N95 respirator to which they were successfully fitted. Explain to personnel that, if their face shape has changed since their last fit test, they may no longer be getting a good facial seal and may not be adequately protected.
- HCP must perform a user seal check each time they don a respirator. Explaining the importance of seal check to employees and providing needed assistance to ensure this objective is met. (i.e., use of PPE safety coaches or other colleagues trained in proper use of PPE (i.e., surgical techs) to help evaluate seal checks).
- Follow state OSHA requirements when they are more restrictive than Trinity Health's guidance.
- If you experience work-related incidents that you believe are a result of the PPE you are wearing (e.g., skin breakdown, rash, etc.), complete a Trinity Health Employee Incident Report (THEIR) and follow your ministry's requirements for reporting. If possible, retain the PPE involved to assist with completion of the report.

### Selection Guidance

See [PPE Selection Guide](#) and refer to [PPE Purchased by Colleagues](#) for additional information

### Clear Mask Options

Procedural and surgical masks cover mouths and noses and impair the ability of those who are deaf or hearing impaired to effectively communicate with healthcare colleagues. Use of a see-through mask instead of a procedural or surgical mask for these populations, where visual cues are essential, can help facilitate understanding and prevent miscommunication. See-through masks are designed for both comfort and breathability of the wearer while providing protection from aerosols, fluids, and sprays through its transparent plastic barrier, and allowing hearing impaired or deaf patients to read health care provider's lips. **See-through masks are NOT N95 or equivalent filtering facepiece respirators and are not to be used in situations where N95 or equivalent respirators are required.**

See-through masks must only be used when caring for a patient who is deaf or hearing impaired. This can involve any Non-COVID-19 or Non-PUI area but may be especially appropriate for patient registration and speech pathology areas. Consideration can also be given for use with pediatric patients, behavioral health patients, or patients with other disabilities.

See-through masks are not appropriate PPE for COVID-19 or PUI areas. A PAPR is the preferred PPE when caring for patients who are deaf or hearing impaired in COVID-19 or PUI areas. If a PAPR is not available, the health care provider must wear an N95 or equivalent face filtering respirator.

### How to Wear a Procedural Mask

**1** Wash your hands with soap and water for 20-30 seconds or perform hand hygiene with alcohol-based hand rub before touching the face mask.

**2** Check the new mask to make sure it's not damaged.

**3** Ensure colour side of the mask faces outwards.

**4** Locate the metallic strip. Place it over and mold it to the nose bridge.

**5** Place an ear loop around each ear or tie the top and bottom straps.

**6** Cover mouth and nose fully, making sure there are no gaps. Pull the bottom of the mask to fully open and fit under your chin.

**7** Press the metallic strip again to fit the shape of the nose. Perform hand hygiene.

**8** Do not touch the mask while using it, if you do, perform hand hygiene.

**9** Replace the mask if it gets wet or dirty and wash your hands again after putting it on. Do not reuse the mask.

**Removing the Mask**

**1** Perform hand hygiene.

**2** Do not touch the front of your mask. Lean forward, gently remove the mask from behind by holding both ear loops or ties.

**3** Discard the mask in a waste container.

**4** Perform hand hygiene.

### Procedural and Surgical Mask Fit

The fit of the medical device (i.e., medical grade procedural or surgical mask) used to cover the wearer’s mouth and nose is a critical factor in the level of source control (preventing exposure of others) and level of protection to mitigate the wearer’s exposure to infectious particles. Facemasks that conform to the wearer’s face so that more air moves through the material of the facemask rather than through gaps at the edges are more effective for source control than facemasks with gaps and can also reduce the wearer’s exposure to particles in the air. Use of procedural or surgical masks with metallic nose strips is recommended. See a supervisor for assistance with procedural or surgical mask fit.

### Respiratory Protection Optimization

System-wide supply of N95 respirators and procedural and surgical masks is monitored by System and ministry Supply Chain team. These teams are responsible for notifying colleagues and clinicians of any changes in normal inventory. The following are important stewardship work practices for colleagues and clinicians to follow to help support a sustainable supply of respiratory protection and other PPE. **For Colleagues:** Assure supplies of disposable masks are secure and their deployment is overseen by colleagues rather than available in

unsupervised areas, e.g., respiratory hygiene stations at points of facility entry.

- **For Patients or Visitors: Colleagues at points of entry to the ministry, e.g., reception, registration, etc. can provide cloth face coverings or disposable procedure masks to patients or visitors upon request and when these patients and visitors arrive without face covering or a mask.**
- If not involved in direct care, other healthcare personnel, e.g., support services – Food Services, Facilities Management, are not to enter the rooms of PUIs or those with confirmed COVID-19 except for an emergency or as established by local ministry.
  - Direct care personnel should bundle activities to minimize the number of times a room is entered (e.g., check vital signs during medication administration, deliver food tray and perform room cleaning and disinfection while performing other care, etc.) and plan which activities will be performed at the bedside.
- Continue to wear the same procedural mask (i.e., extended use), remove only used gloves and gowns, and perform hand hygiene between treating several patients with the same diagnosis. If the procedural mask, gloves, or gowns become contaminated, replace them. Change gloves in between each patient. Change gown if visibly soiled.
- Limit the number of personnel that enter rooms used for patients on Contact or Droplet precautions (not PUI or COVID-19) during multidisciplinary rounds, training of nursing, medical students, etc., to conserve supply of procedural masks, respirators, and other PPE, e.g., gowns and gloves. Whenever possible designate a member of the multidisciplinary team to examine or interview the patient. The other members can remain just inside the entry to the room.
- Discontinue contact precautions for patients with history of or colonization with methicillin-resistant *Staphylococcus aureus* (MRSA) and/or vancomycin resistant Enterococci (VRE). The exception for this would be if the site of detection of MRSA or VRE is not contained, e.g., wound with active drainage of purulent discharge.

### Surgical Mask Conservation

- Prioritize surgical masks for selected activities such as:
  - For colleagues and clinicians that provide operative and invasive procedures
  - During care activities where splashes and sprays are anticipated (source [here](#))
- Surgical masks (those with ties, rather than ear loops, depicted in Figure 1.0) must be reserved for operative and invasive procedures. Procedural masks (depicted in Figure 2.0) must be used in all other areas.
- Surgical masks must be discarded after each case.



Figure 1.0: Surgical Mask (with ties)



Figure 2.0: Procedural Mask (with ear loops)



- Procedural masks (those with earloops) may be considered for use in the operative setting if supply of surgical masks (those with ties) becomes limited:
  - Procedural masks should first be considered for use by OR staff who are not working directly over the surgical field
  - The procedural mask should fit snugly in a manner that prevents gaps at the sides of the mask
    - Ear loops that are loose should be tightened in order to help prevent "gapping." Other devices or techniques may be used to assist with fit, but **must be covered by the surgical bouffant/cap.**
      - Tying small knots at the end of the ear loops until a snug fit is achieved.
      - Mask "ear savers"
      - Button headbands
    - The ear loop mask selected should be in accordance with the needed barrier level needed for the operative procedure (for example, Level 3)

## N95 Respirator Work Practices

### Recommended work practices involving use of N95 Respirator in High Patient Volume areas:

**Context:** Given periodic experience at ministries involving increased number or surge of cases of COVID-19 in communities served, especially from newly detected variants, it is prudent to optimize protection of clinicians and colleagues in areas like the ED where almost all are presenting for urgent or emergent care needs and have not been assessed for symptoms of COVID-19 – also there is less ability in these settings to query patients remotely prior to their presentation for care for possible symptoms of active COVID-19.

- Colleagues in these settings **can voluntarily don a N95 respirator or equivalent** when beginning their shift.
  - When needing to provide direct care, add eye protection.
  - During initial assessment of patients assigned for direct care continue to wear the N95 respirator for initial and any subsequent patients UNTIL:
    - The provider determines a test for SARS-CoV-2 (would include any patient that triage has identified as PUI, e.g., has symptoms of possible COVID-19), is needed and ordered. After care of this patient the colleague doffs their N95 respirator, discards it and obtains and dons a new N95 respirator.
  - For eye protection that has been worn, disinfect or obtain new, clean eye protection.
  - For any need to see this patient again during the shift – follow these same steps, doff & discard the N95 respirator and don a new one.
    - After leaving the exam room or location for the situation just above, the colleague will be wearing a new N95 respirator. The colleague can continue to wear the N95 respirator for any new, subsequent patients.

- o As this colleague sees new patients – if any are PUIs for whom testing for SARS-CoV-2 is ordered, the colleague will doff and discard the N95 they were wearing as they leave the exam room for this new PUI and don a new N95 respirator and continue their work shift
  - Exclusion to the work practices above: SARS-CoV-2 test ordered for screening purpose, e.g., patient being admitted, transferred, pre-procedure, etc., but there is no "clinical" suspicion – would not isolate – and the colleague would not need to discard the N95 respirator being worn in this situation. Colleagues will continue to discard respirators when any of the following criteria are met:
    - Respirator becomes visibly soiled, wet, or damaged
    - If wearer is unable to obtain a proper fit seal, see instructions below regarding seal checks.
- Assure personnel perform **seal check** (for proper seal of the N95 respirator) prior to each use. If the colleague cannot achieve a seal:
  - o Colleagues should check in with their supervisor for any concerns about seal check. The supervisor will assess whether the respirator is damaged or faulty.
    - If the N95 respirator is not damaged or faulty, but the colleague cannot achieve a seal, the supervisor will ask the colleague to discard the N95 respirator.
    - If a new respirator is damaged or faulty, the supervisor will report the issue to Supply Chain for tracking. Retain the respirator and document the lot number before reporting to Supply Chain.
  - o A colleague's supervisor or designee will assist the colleague in identifying the appropriate respirator or alternative respiratory protection device (such as a PAPR or CAPR).
- **N95 and other disposable respirators must not be shared by multiple HCP.**
- All colleagues, regardless of unit or area assignment, must be able to readily obtain a new respirator, should they need one, in their assigned units. Leadership is to clearly communicate this process to all colleagues.
- Emphasize use of N95 respirators for situations outlined in the [PPE Selection Guide](#) and other guidance in this document.
- Colleagues must wear a face shield to protect the N95 respirator from soil, sprays or other damage when a splash or spray is anticipated.
- Never wear a surgical or procedural mask over an N95 respirator, unless it has an unfiltered exhalation valve (see [Source Control in PAPRs, CAPRs and Other Respirators with Unfiltered Exhalation](#), above). This is against the manufacturer's instructions for use and will not increase the protection of the respirator.
- Make sure colleagues are aware of alternatives to N95 respirators, e.g., elastomeric, PAPR, Enviro<sup>®</sup> Mask, etc., as these are reusable devices.
  - o If available, personnel should prioritize use of powered air purifying respirators (PAPRs) for all AGPs or other care when indicated for PUIs or patients with COVID-19.
  - o If a limited amount of PAPRs is available, ask those with facial, especially full-face beards, to shave and use N95 respirators.
  - o N95 respirators are NOT to be provided to personnel with facial hair (e.g., beard) that interferes with the functionality of the respirator. Options for personnel with a beard must use PAPR designed for use with facial hair or remove facial hair during response to this pandemic and wear an N95 respirator. PAPRs suitable for use with facial hair will vary by manufacturer.
- Only essential personnel needed for direct and support services (e.g., EVS) of patient care must enter the room of a patient under investigation (PUI) or confirmed COVID-19. Refer to the [Room Cleaning Decision Matrix](#).
- The CDC has provided a list of [all manufacturers and model numbers](#) for N95 respirators, as well [as alternative approved manufacturers of N95](#) respirator equivalents.

- When there is a limited supply of filtering facepiece respirators, employers may follow the CDC's "Strategies for Optimizing the Supply of N95 Respirators", [Strategies for Optimizing the Supply of N95 Respirators: COVID-19 | CDC](#)
- Where possible, employers are encouraged to select elastomeric respirators or PAPRs instead of filtering facepiece respirators to prevent shortages and supply chain disruption.

**CDC Guidelines for N95 Respirator Conservation During Supply Crisis: The following only apply when the ministry COVID-19 Safety Coordinator – in collaboration with local and or System Supply Chain leads – that a crisis condition is in effect.**

**NOTE: need for use of the following practices are monitored by the ministry's COVID-19 Safety Coordinator. Questions on their use should be referred to the ministry's Safety Coordinator.**

- **Limited reuse** of the N95 respirator helps conserve the supply in patient care areas that are not seeing PUIs or those with COVID-19 with a high frequency. Limited Reuse refers to the practice of using the same N95 respirator by one HCP for multiple encounters with different patients but removing it (i.e., doffing) after each encounter for no more than five times. After removing the N95 respirator for the fifth time it must be discarded.
- **Extended use:** means donning a N95 respirator to care for a consecutive series of patients, e.g., in a dedicated cohort unit, and then discarding the N95 respirator once the series of care is complete
- The CDC has provided recommendations on limited reuse and extended use of disposable filtering facepiece respirators – especially under condition of a crisis, e.g. significant surge of cases of COVID-19 involving patients who need admission for inpatient care described in the following CDC recommendations: [Strategies for Optimizing the Supply of N95 Respirators The following are key aspects of these CDC recommendations when a crisis condition is experienced -](#)
  - Most respirator manufacturers do not specify the maximum number of times a N95 respirator can be worn. If no manufacturer guidance is available, CDC recommends limiting the number of reuses to no more than **five uses (five donnings) for each** N95 respirator used by an individual colleague or other HCP to ensure an adequate respirator performance.
  - Wear a face shield, as much as possible over the N95 respirator to minimize risk of contamination of the exterior of the N95 respirator. A face shield must be worn in addition to some respirator models (some models of PAPRs have full face protection incorporated into the PAPR hood and no additional eye protection is needed for these), when caring for any PUI or patient with acute COVID-19.
  - A colleague participating in a limited reuse program must discard their disposable respirator, e.g., N95, and obtain a new one when **any of the following criteria are met:**
    - It becomes visibly soiled, wet, or damaged
    - If the wearer is unable to complete a seal check
    - Once the respirator has been doffed a total of five (5) times
      - If the colleague loses count, discard the respirator, and obtain a new one
    - At the end of their shift and at any time the colleague wants a new, disposable respirator.
  - When doffing a respirator that will be donned again, the colleague will utilize the following procedure:
    - Perform hand hygiene
    - Remove the N95 respirator
    - Inspect the respirator for visible soiling or damage after each use.
      - Discard soiled, wet or damaged respirators.
    - Place the respirator in a dedicated paper bag
    - Store the respirator securely until it is to be donned again.
    - Perform hand hygiene
  - When donning a respirator that has previously been doffed, the colleague will use the following procedure:
    - Perform hand hygiene
    - Remove N95 respirator from the paper bag in which is it stored
    - Perform proper donning procedure
    - Perform seal check after placing N95 respirator over mouth and nose
      - Discard the respirator if it is soiled, wet, damaged, or if unable to complete a seal check.
    - Perform hand hygiene
    - Wear a face shield over the respirator, if available, to reduce/prevent contamination of the N95

respirator – especially during aerosol generating procedures

- **Extended Use:** practice of wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator between patient encounters. Extended use is well suited to situations wherein multiple patients with the same infectious disease diagnosis, whose care requires use of a respirator, are cohorted (e.g., housed on the same hospital unit such as a COVID-19 unit). The CDC recommends this strategy during times of contingency capacity.
  - The decision to implement policies that permit extended use of N95 respirators should be made by the professionals who manage the ministry's respiratory protection program, in consultation with their occupational health and infection control departments with oversight by the ministry COVID-19 Safety Coordinator.
  - N95 respirators must be discarded immediately after being removed under extended use practice.
  - When practicing extended use of N95 respirators over the course of a shift, considerations should include:
    - The ability of the N95 respirator to retain its fit
    - Contamination concerns
    - Practical considerations (e.g., meal breaks)
    - Comfort of the user
  - **N95 respirators in an extended use program should be discarded immediately after being removed.**
    - If removed for a meal break, the respirator should be discarded, and a new respirator put on after the break.
  - N95 respirators should be discarded, and the colleague should obtain a new one when **any of the following occur:**
    - It becomes visibly soiled, wet, or damaged
    - The user is unable to complete a seal check
    - The end of the colleague's shift

### **Prolonged Ear-Dependent Mask Use Prophylaxis and Treatment - Ears**

If a colleague experiences work-related incidents that are believed a result of the PPE being worn (e.g., skin breakdown, rash, etc.), they are to complete a Trinity Health Employee Incident Report (THEIR) and follow their ministry's requirements for reporting. If possible, retain the PPE involved to assist with completion of the report.

When expecting prolonged use of ear-dependent ("procedural" or "ear loop") masks, the following steps are recommended for behind the ears care:

#### **Skin injury prevention recommendations:**

- Consider a headband with buttons or an "ear saver" device to protect ears while wearing masks or respirators that loop behind the ears.
- Apply a hydrocolloid dressing (i.e., DuoDERM®) behind the ears for those who are at high risk of skin breakdown from wearing a mask.
- Apply a barrier film wipe (i.e., Cavilon™ No Sting Barrier Film Wipe (1mL)) daily:
  - This product is intended to protect the skin from moisture, adhesives, and friction. Do not use on skin that is not intact.
  - This product provides a clear coating of protection on the skin
  - It is a hypoallergenic, alcohol-free, no-sting formula
  - Apply per manufacturer's instructions
- After using an ear-dependent mask, clean and dry the external ear. Using a moisturizer is recommended after cleansing.

#### **Skin Injury treatment recommendations (skin is not intact or not blanchable):**

- Consider consulting a wound ostomy nurse if skin breakdown occurs.
- Apply a hydrocolloid dressing (i.e., DuoDERM® Extra Thin Hydrocolloid dressing)
  - Apply per manufacturer's instructions
  - Change dressing per manufacturer instructions

### **Prolonged PPE Use Prophylaxis and Treatment - Face**

It is important to note that masks or N95 respirators should not irritate the colleague's skin. If a colleague experiences



discomfort outside of the scenarios below, they should complete a THEIR and notify their supervisor for guidance and follow the ministry's requirements for reporting. If possible, retain the PPE involved to assist with completion of the report. When expecting prolonged use of N95 respirators or masks, the following steps are recommended for care of the face:

### Cosmetics

Do not wear cosmetics under surgical/procedural masks and respirators as they can contribute to several skin issues when combined with prolonged use of PPE.

### Cleansing Routine

When removing PPE, colleagues should complete hand hygiene and wash their face as soon as possible. Use a gentle hypoallergenic cleanser and warm (not hot) water to thoroughly wash the face, including the nasal vestibule (under the nose) and the retroauricular (behind the ear) area. Allow skin to dry. If the skin is intact, apply moisturizer. For severe contact dermatitis or broken skin, complete a THEIR and report to your supervisor for further evaluation.

### Bruising

A tight seal is necessary for the respirator to protect the user. However, to relieve pain from bruising, users can apply cool compresses for 20-30 minutes after their shift.

### Eczema

For irritant contact dermatitis or allergic contact dermatitis, colleagues should

- Wash their face and apply hydrocortisone ointment 1% to affected areas, followed by a barrier cream meant for chapped skin (i.e., Vaseline, Aquaphor).
- Apply a barrier cream both prior to and after mask use. **NOTE:** Barrier creams may interfere with the fit seal on an N95 respirator. Do not apply creams prior to respirator use. Apply after respirator use only.
- Put 1-2 layers of sterile gauze inside a procedural or surgical mask to protect the skin from the mask material if it is the source of the reaction. The gauze should be changed as it becomes damp or soiled.
- Avoid breathing through the mouth during use of a surgical or procedural mask and keep their lips from contacting the contaminated sides of the mask.
- After removing the mask, avoid touching the face until hand hygiene is performed.

### Acne

Wash or wipe sweat off the area as soon as the mask or respirator is removed. Consider a face wash with salicylic acid or benzoyl peroxide. Do not wear cosmetics under an N95 respirator as this may exacerbate the issue.

### Skin Breakdown

Wash with a gentle soap or cleanser. Apply a barrier cream meant for chapped skin (ex. Vaseline, Aquaphor). While off-duty, consider a hydrocolloid dressing. **NOTE: Barrier creams or padding may interfere with the fit seal on an N95 respirator. Do not apply creams prior to respirator use. Apply after respirator use only.**

## Performing a Respirator Seal Check

Colleagues must perform a seal check **every time they don an N95 Respirator**



EQUIPMENT

### RESPIRATOR SEAL CHECK

After you put on your respirator, perform a seal check by placing your hands over the facepiece, as shown below, and then exhaling gently. The seal is considered satisfactory if a slight positive pressure builds up inside the facepiece without air leaking from the seal.<sup>15</sup> Air leakage is evidenced by the fogging of your glasses, a feeling of air trickling down your uncovered face, or a lack of pressure buildup under the facepiece.



If the respirator has an exhalation valve, cover the filter surface with your hands as much as possible and then inhale. The seal is considered satisfactory if the facepiece collapses on your face and you don't feel air passing between your face and the facepiece.

Source: Lippincott Nursing, procedures. Online.

## Miscellaneous PPE

### Head Covers

The CDC **does not currently require the use of head covers** such as surgical bouffant for the care of COVID-19 patients or PUIs. Supply of surgical bouffant caps is to be conserved for use in the surgical and procedural areas as raw materials used to make these products are becoming more difficult to obtain.

Alternatives to surgical bouffant caps that can be considered if desired by the caregiver:

- Bouffant caps that are traditionally used for food and nutrition areas
- Shower caps
- Satin hair bonnets (often found in beauty supply stores)
- Staff may also consider procuring their own re-usable Cloth head covers
  - Colleagues will not be reimbursed for purchases made outside of our Procurement channels, and Trinity Health is not responsible for maintenance of these head covers
- Cloth head covers should be laundered daily
- If colleagues choose to procure their own head covers, they must adhere to local policy for professional attire.

Head coverings are not required or recommended. If a colleague chooses to wear a head covering, it is preferred for the colleague to keep the head cover on throughout their shift. Colleagues may wear head coverings between COVID and non-COVID rooms all day while other PPE is changed out. Because it is not addressed by CDC PPE guidance, head coverings are not considered PPE.

If the colleague removes the cover, e.g., during breaks or lunch:


- Donning:
  - Perform hand hygiene before donning a head covering
  - Don the head cover
  - Perform hand hygiene after donning
- Doffing:
  - Perform hand hygiene before doffing a head covering
  - Doff the head cover
  - Store the head cover in a separate paper bag.
  - Perform hand hygiene after doffing



Head covers must be washed in hot water and laundry soap, adding bleach to the load.






### Shoe Covers

The CDC **does not currently require the use of shoe covers** for the care of COVID-19 patients or PUIs. Supply of shoe covers must be conserved for use in areas where they are dictated by Standard or Transmission-Based Precautions as raw materials used to make these products are becoming more difficult to obtain.

# Disinfection of PPE

Item Type	Sample Image (styles vary by site)	Sub Type	Disinfection Process
<p><b>CAUTION: Always hold items away from your airway during disinfection and allow to fully dry before re-donning. Failure to do so may result in irritation of the airway.</b></p>			
<p><b>ClearMask or Detroit Sewn See-through Mask</b></p>			<ol style="list-style-type: none"> <li>1. These masks are colleague specific and are not to be shared.</li> <li>2. These masks may be reused if not visibly damaged. Masks must be discarded if visibly damaged or cannot be cleaned.</li> <li>3. Masks must be cleaned and disinfected after each use             <ul style="list-style-type: none"> <li>• When doffing, use care as the exterior is potentially contaminated</li> <li>• Use an approved disinfectant wipe to remove any visible contamination</li> <li>• While wearing gloves, carefully wipe the inside, followed by the outside of the mask using a clean cloth saturated with neutral detergent solution or cleaner wipe. If available, use a sanitizing wipe designed for touch screens</li> <li>• Hold the mask in your hand while you carefully wipe the outside of the mask using a wipe or clean cloth saturated with EPA-registered disinfectant solution</li> <li>• Fully dry (air dry or use clean absorbent towels)</li> <li>• Place the mask into an unsealed paper bag for next use</li> <li>• Remove gloves and perform hand hygiene</li> <li>• If the ministry has the ability to provide laundry services, see Detroit Sewn See-through Mask Laundry Instructions, below.</li> <li>• <b>ClearMasks are not to be laundered.</b></li> </ul> </li> </ol> <p><b>Detroit Sewn See-through Mask Laundering Instructions</b></p> <ul style="list-style-type: none"> <li>• The Detroit Sewn See-through Mask may also be laundered if a ministry has the ability to provide laundry services for these masks. Masks must be commercially laundered.</li> <li>• Users must mark their names on the mask in permanent marker prior to sending to laundry</li> <li>• Machine wash warm, 140-150 degrees; tumble dry.</li> <li>• Can be bleached.</li> </ul>

			<ul style="list-style-type: none"> <li>• Laundered Detroit Sewn See-through Mask should be inspected for damage or tears prior to use.</li> <li>• Damaged masks must be discarded.</li> <li>• Laundered masks must be returned to the original user.</li> </ul>
Face Shields		Disposable or Reusable	<ol style="list-style-type: none"> <li>1. While wearing gloves, carefully wipe the inside, followed by the outside of the face shield or goggles using a clean cloth saturated with neutral detergent solution or cleaner wipe. If available, use a sanitizing wipe designed for touch screens.</li> <li>2. Hold the shield in your hand while you carefully wipe the outside of the face shield or goggles using a wipe or clean cloth saturated with EPA-registered disinfectant solution. <b>Do not place the shield on a flat surface; doing so may cause the shield to crack.</b></li> <li>3. Hold the shield in your hand while you wipe the outside of face shield or goggles with clean water or alcohol to remove residue. <b>Do not place the shield on a flat surface; doing so may cause the shield to crack.</b></li> <li>4. Fully dry (air dry or use clean absorbent towels).</li> <li>5. Remove gloves and perform hand hygiene.</li> </ol>
Goggles /Eye Protection			<ol style="list-style-type: none"> <li>1. While wearing gloves, carefully wipe the inside, followed by the outside of the face shield or goggles using a clean cloth saturated with neutral detergent solution or cleaner wipe. If available, use a sanitizing wipe designed for touch screens.</li> <li>2. Hold the item in your hand and carefully wipe the outside of the item using a wipe or clean cloth saturated with EPA-registered hospital disinfectant solution. <b>Do not place the item on a flat surface; doing so may cause hard plastic items to crack.</b></li> <li>3. Hold the item in your hand and wipe the outside (patient facing side) of goggles with clean water or alcohol to remove residue. <b>Do not place the item on a flat surface; doing so may cause hard plastic items to crack.</b></li> <li>4. Fully dry (air dry or use clean absorbent towels).</li> <li>5. Remove gloves and perform hand hygiene.</li> </ol>
Reusable Gowns			Gowns must be laundered according to local policy.
Gloves		Vinyl and Nitrile	<p>While disinfecting of gloves is not recommended, during times of supply crisis colleagues may do so to extend the life of the glove. Observe and adhere to all manufacturer IFUs. When re-using gloves, change after six uses/disinfections.</p> <ul style="list-style-type: none"> <li>• Isopropyl alcohol-based hand sanitizers are acceptable to use on gloves</li> <li>• If using ethanol-based hand sanitizer on vinyl, change gloves every hour or after six uses, whichever is more frequent</li> </ul>

	<p><b>N95 Respirators 3M 1860</b></p>  <p><b>3M 1860S</b></p>  <p><b>O&amp;M Halyard 46727</b></p> 	<p><b>Decontamination of used N95 respirators is no longer permitted.</b></p>
<p><b>Respirators</b></p>	<p><b>Elastomeric Respirators/Enviro® Masks</b></p>  	<p>Follow manufacturer's Instructions for Use (IFU). Follow the IFU for <b>submersion</b> disinfection if any one of the following apply:</p> <ul style="list-style-type: none"> <li>• Before the respirator is used by a colleague other than the designated user, <b>or</b></li> <li>• If the respirator is assigned to another user, <b>or</b></li> <li>• After the designated user experiences any type of infectious illness, <b>or</b></li> <li>• Before placing in a clearly labeled and dated storage container, <b>or</b></li> <li>• If the respirator cannot be cleaned via the wipe-down disinfection below.</li> </ul> <p>Note: Filter cartridges should be handled following the manufacturer's Instructions for Use (IFU). Careful selection of disinfectant is needed to prevent the degradation or deterioration of the respirator material.</p> <p><b>Wipe-Down Disinfection (at the end of shift and when soiled):</b></p> <ul style="list-style-type: none"> <li>• Perform hand hygiene</li> <li>• Remove the external filters</li> <li>• Use EPA approved disinfectant and follow the EPA label instructions for the selected disinfectant.</li> <li>• Wipe down each component (avoid getting the filter media wet):             <ul style="list-style-type: none"> <li>○ Facepiece (interior and exterior)</li> <li>○ Head Harness</li> </ul> </li> </ul>



		<ul style="list-style-type: none"> <li>○ Hardcase filter and/or rigid plastic components of the filter assembly.</li> <li>● Allow to dry for appropriate dwell time.</li> <li>● Wipe components again with water to remove residual disinfectant. Air dry before next use</li> <li>● Store away from contaminated area when not in use</li> <li>● Perform hand hygiene</li> </ul>
	<p style="text-align: center;"><b>PAPRs</b></p>	<p>Follow manufacturer's Instructions for Use (IFU) and/or see below:</p> <ul style="list-style-type: none"> <li>● Perform hand hygiene, don gloves</li> <li>● Use EPA approved disinfectant wipe.</li> <li>● Wipe down the inside and outside of the PAPR hood, including seams.</li> <li>● Allow to dry for appropriate dwell time.</li> <li>● Ensure it dries all the way before use.</li> <li>● If hood is a shroud, turn it completely inside out to dry.</li> <li>● Perform hand hygiene, doff gloves.</li> </ul>
	<p style="text-align: center;"><b>CAPRs</b></p>	<p>Follow manufacturer's Instructions for Use (IFU) and/or see below:</p> <p>Do not immerse the battery, helmet and fan module into water or other liquid. This will cause irreparable damage to the helmet.</p> <p>Do not use solvent or alcohol to clean the helmet.</p> <p><b>CAPRs must be cleaned and disinfected between uses and between different users wearing the system.</b></p> <p><b>Clean and disinfect with EPA approved disinfectant effective against SARS-CoV-2:</b></p> <ul style="list-style-type: none"> <li>● Inspect the system and perform any assembly/dis-assembly instructions for disposable items or components that are worn/damaged.</li> <li>● Clean and disinfect all outside reachable surfaces and then over all inside surfaces. Observe dwell times.</li> <li>● Let air dry and re-assemble or place in storage.</li> </ul>

**References:**

[Infection Control: Severe acute respiratory syndrome coronavirus 2 \(SARS-CoV-2\) | CDC](#)

[Interim Infection Prevention and Control Recommendations to Prevent SARS-CoV-2 Spread in Nursing Homes | CDC](#)

[1910.504 - Mini Respiratory Protection Program. | Occupational Safety and Health Administration \(osha.gov\)](#)

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# Appendix

## Glossary, Signs, and Job Aids

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### Glossary

**ABHR** = Alcohol Based Hand rub; used for hand hygiene and typically contains > 60% ethyl alcohol (ethanol)

**AGP** = aerosol generating procedure

**CAPR** = controlled air purifying respirator

**Close contact** = being within 6 feet of any other person for a cumulative total of 15 minutes or more over a 24-hour period during that person's potential period of transmission. The potential transmission period runs from 2 days before the person felt sick (or, for asymptomatic people, 2 days prior to test specimen collection) until the time the person is isolated.

**Elastomeric respirator** = a tightfitting respirator with a facepiece that is made of synthetic or rubber material that permits it to be disinfected, cleaned, and reused according to manufacturer's instructions. It is equipped with a replaceable cartridge(s), canister(s), or filter(s).

**Eye Protection** = protects the eyes from splashes or sprays. Includes goggles, safety glasses, face shields etc. Personal eyeglasses or contact lenses are **not** eye protection.

**Facemask** = a surgical, medical procedure, dental, or isolation mask that is FDA-cleared, authorized by an FDA EUA, or offered or distributed as described in an FDA enforcement policy. Facemasks may also be referred to as "medical procedure masks."

**Filtering Facepiece Respirator (FFR)** = a respiratory protective device that covers the nose and mouth, and is a tight-fitting, air-purifying respirator in which the whole facepiece functions as the filter. FFRs are certified by National Institute for Occupational Safety and Health (NIOSH). Includes the following devices:

- N95 Respirators
- Elastomeric Respirators

**MDI** = metered dose inhaler

**PAPR** (powered air purifying respirator) = an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

**Patient Facing** = Colleagues who encounter patients routinely in the course of their work. There are two types of patient facing colleagues:

- **Direct Patient Care** colleagues are routinely within 6 feet of a patient
- **Non-Direct Patient Care** may encounter patients but are usually further than 6 feet away (ex. Food and Nutrition Services)

**Personal Protective Equipment (PPE)**: Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

**Respirator** = a type of personal protective equipment (PPE) that is certified by NIOSH under 42 CFR part 84 or is authorized under an EUA by the FDA. Respirators protect against airborne hazards by removing specific air contaminants from the ambient (surrounding) air or by supplying breathable air from a safe source. Common types of respirators include filtering facepiece respirators, elastomeric respirators, and PAPRs. Face coverings, facemasks, and face shields are not respirators.







putting PPE **ON**





Gown, N95 respirator, eye protection, gloves

**Gown, Gloves**

<p>1 <b>Batch work and plan ahead</b>, having items available outside each patient room.</p> 	<p>2 <b>Sanitize hands</b></p> 
<p>3 <b>Put on gown</b> outside room. Open-end <b>faces</b> your back. <b>Tie</b> the back of the gown.</p> 	<p>4 <b>Put on gloves</b> over the cuffs of the gown.</p> 

**N95**

<p>5 <b>Put on N95</b>, ensuring proper seal. <b>Ensure</b> straps are</p> 	<p>6 <b>Place hands over the front of the N95. Breathe</b> an easy deep breath in and out. <b>If you feel</b> air escape the edges, <b>refit</b> and repeat.</p>  <p>If you cannot pass the seal check, seek assistance from PPE coach or supervisor.</p>
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**Eye Protection, Entry**

<p>7 <b>Put on Eye Protection</b></p> 	<p>8 <b>ENTER room</b></p>  <p><b>DO NOT</b> enter the room if you do not achieve a proper respirator seal.</p>	<p>9 <b>Do not touch</b> face or re-adjust N95 or face shield inside room.</p> 
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The materials are intended solely for general educational and information purposes, are made available in the context of the public health emergency related to the coronavirus (COVID-19) and have not been subject to review that typically would occur in a non-emergent situation. The materials do not constitute the provision of medical, legal or other professional advice.\*

taking PPE **OFF**



N95 respirator, eye protection, gown, gloves

**Gown, Gloves**

1 Sanitize gloved hand and reach back and release the neck portion.

2 Untie the waist.

3 Remove the gown and gloves and place into the designated bin.

4 Sanitize hands

**N95**

5 Remove face shield or goggles and sanitize with approved wipes

6 Sanitize hands

7 Remove N95, lower strap and then upper. Store N95 in paper bag.

8 Sanitize hands

9 Put on appropriate face covering

**Face Shield, Goggles**

10 Wipe shield/goggles using approved wipes/cleaners

11 Place shield or goggles in bag for storage

12 Wipe table

13 Remove gloves.

14 Wash hands with soap and water or sanitize hands.

Back and Front of Shield

Elastic and Foam Band

**Links to Cleaning Guidance**

- [Discharge \(Terminal\) Room Cleaning – Single and Semi-Private Rooms](#)
- [Emergency Department COVID-19 Patient Room Cleaning](#)

## Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency

TABLE S3-1. Air changes per hour (ACH) and time in minutes required for removal efficiencies of 90%, 99%, and 99.9% of airborne contaminants\*

ACH	Minutes required for a removal efficiency of:		
	90%	99%	99.9%
1	138	276	414
2	69	138	207
3	46	92	138
4	35	69	104
5	28	55	83
6	23	46	69
7	20	39	59
8	17	35	52
9	15	31	46
10	14	28	41
11	13	25	38
12	12	23	35
13	11	21	32
14	10	20	30
15	9	18	28
16	9	17	26
17	8	16	24
18	8	15	23
19	7	15	22
20	7	14	21
25	6	11	17
30	5	9	14
35	4	8	12
40	3	7	10
45	3	6	9
50	3	6	8

reference point for Trinity Health ministries

\*This table has been adapted from the formula for the rate of purging airborne contaminants (99). Values have been derived from the formula  $t_1 = [\ln (C_2 \div C_1) \div (Q \div V)] \times 60$ , with  $T_1 = 0$  and  $C_2 \div C_1 = (\text{removal efficiency} \div 100)$ , and where:

- $t_1$  = initial timepoint
- $C_1$  = initial concentration of contaminant
- $C_2$  = final concentration of contaminants
- $Q$  = air flow rate (cubic feet per hour)
- $V$  = room volume (cubic feet)
- $Q \div V$  = ACH

The times given assume perfect mixing of the air within the space (i.e., mixing factor = 1). However, perfect mixing usually does not occur, and the mixing factor could be as high as 10 if air distribution is very poor (98). The required time is derived by multiplying the appropriate time from the table by the mixing factor that has been determined for the booth or room. The factor and required time should be included in the operating instructions provided by the manufacturer of the booth or enclosure, and these instructions should be followed.

Source: [Guidelines for Environmental Infection Control in Health-Care Facilities](#)

## Contingency Tiered Approach Based on Inventory of PPE if Inventory is at Crisis Level

	Strategies for Crisis Capacity of PPE (Regular and alternate products)	Possible Substitution
<b>N95 respirator</b>	<ul style="list-style-type: none"> <li>Extended use</li> <li>Limited reuse</li> </ul>	<ul style="list-style-type: none"> <li>Elastomeric or industrial respirator</li> <li>Non-surgical respirator, or any filtration capacity above 95%</li> <li>PAPR</li> </ul>
<b>Isolation Gowns</b>	<ul style="list-style-type: none"> <li>Prioritize gowns for use during AGP, high touch procedures, do not use when entering room if nothing is going to be touched.</li> <li>Use "safe/PPE free zone" just inside door to isolation room.</li> </ul>	<ul style="list-style-type: none"> <li>Hazmat suits</li> <li>Reusable isolation gowns (verify the gown is impermeable/fluid resistant)</li> <li>Paper gowns</li> <li>Plastic aprons to cover critical zones</li> <li>Lab coat or jacket</li> <li>Waterproof sports gear</li> <li>Last resort: any physical barrier</li> </ul>
<b>Procedural Mask</b>	<ul style="list-style-type: none"> <li>Extended use</li> <li>Reuse</li> </ul>	<ul style="list-style-type: none"> <li>Non-fluid resistant procedural masks (blue cones)</li> <li>Use N95 respirators, CAPRs, PAPRs, isometric respirators</li> <li>Utilize non-fit tested expired N95 respirators in pharmacy sterile compounding with extended use/reuse</li> <li>Last resort: any physical barrier between patient and mucous membranes / homemade products</li> </ul>
<b>Surgical Masks</b>	<ul style="list-style-type: none"> <li>Extended use</li> <li>Reuse</li> </ul>	<ul style="list-style-type: none"> <li>Procedural mask (see Surgical Mask Conservation, above)</li> </ul>
<b>Eye protection</b>	<ul style="list-style-type: none"> <li>Disinfect and reuse eye protection – assign to each caregiver during assigned shift. If disinfected can be used between personnel</li> </ul>	<ul style="list-style-type: none"> <li>Industrial face shields (for grinding metal)</li> <li>Industrial goggles, safety glasses, etc.</li> <li>Last resort: homemade face shields (must be Trinity Health-approved)</li> </ul>

**Examples of aerosol generating procedures:****CORONAVIRUS DISEASE 2019  
(COVID-19)****Aerosol Generating Procedures include, but are not limited to:**

- CPR
- Sputum induction (not recommended)
- Open deep oral suctioning/tracheal suctioning
- Intubation/extubation
- High flow nasal oxygen
- Bipap/CPAP
- Nebulizer treatments
- Bronchoscopy
- NG Tube placement
- Manual ventilation
- Nasopharyngeal/oral areas-nasotracheal endoscope
- Tracheostomy placement or ongoing care
- Medical/surgical/postmortem procedures using oscillating bone saws
- Dental procedures involving: Ultrasonic scalers; high-speed dental handpieces; air/water syringes; air polishing; and air abrasion



# Aerosol Generating Procedure in Process



## Authorized Trained Personnel Only

- Keep Door Closed
- See Facilities for post-procedure clearance times
- All entrants must wear an N95 Respirator + Eye Protection or a PAPR until the clearance time has passed

Time Procedure Ended: \_\_\_\_\_

Time Room is Available: \_\_\_\_\_



## envo® Mask Use Guidelines



**Envov® Mask without vent plug (left) and with vent plug (right)**

**Key Considerations:** The Envov® Mask is a reusable NIOSH approved N95 respirator designed for superior comfort and seal. The AIRgel® cushion contours around the face and nose to provide a secure seal and to avoid glasses fogging. **Users must wear either a vent plug (pictured below) or a procedure mask over the exhalation valve in order to maintain source control.**

- Individually packaged filters remain clean and electrostatically charged until ready to use. Each filter has a ten-year shelf life, allowing for long term storage.
- Each mask kit includes mask, five (5) filters, headgear, and storage case.
- All colleagues must be trained and fit tested prior to use.
  - Colleagues must work with the ministry resource for fit testing and use the qualitative (non-destructive) fit testing option. This respirator cannot be fit tested using the quantitative (destructive) fit testing method.

## General Guidelines

### Prior to initial use:

- View the instruction videos [here](#). **Do not click the Shop Envov® mask link on this page.** All procurement is to be done through Trinity Health Supply Chain.

### Prior to each use:

- **Inspect** respirator before each use to ensure that it is in good operating condition.
- **Examine** all the parts of the respirator for signs of tears, breakage, or other damage. This includes the QuickFit headgear, exhalation valve, AIRgel® cushion, and filter.
- **Inspect** the filter prior to each use to ensure there are no holes or damage from misuse and it is not soiled and/or clogged.
- **Conduct** a user seal check before use as specified in the Fitting Instructions section of the Instructions for Use (IFUs).
  - **DO NOT** use the respirator if conditions exist that prevent a good seal between the face and the AIRgel® cushion of the respirator.
- **DO NOT** use with beards, other facial hair, or other conditions that prevent a good seal between the face and the sealing surface of the respirator.

### How to use:

- View the instruction video [here](#).

### After each use:

- Dispose of soiled/clogged filters and damaged parts.
- See the [Disinfection of PPE](#) guidelines for disinfection of elastomeric respirators/Envo® masks for disinfecting guidance. Clean components per the manufacturer's instructions. Allow to dry prior to placing in the storage case.
- Store the respirator and sealed filters in the Envo® mask storage case away from contaminated areas when not in use. Unused filters should always be stored in the sealed poly bag and may be kept in the storage case (provided).

**Filters:**

Refer to guidance on [N95 Respirator Conservation](#) for guidance on the lifespan of the filters.

**References:**

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/elastomeric-respirators-strategy/index.html>

Instructions for Use (IFU): <https://envomask.com/instructions/>