



Personal Protective Equipment (PPE) Guidebook for PUIs and COVID-19, ver. 20.0 Revised 09/03/2020

Summary of Changes in this Version

- Updated PPE Selection Guide
- Updated guidelines for filtering facepiece respirators with exhalation valves and no exhalation filter. Procedure masks are appropriate for covering a respirator exhalation valve for source control.

Table of Contents

Summary of Changes from Version 18.0	2
OSHA Compliance	5
PPE Purchased by Independent Providers	6
PPE Purchased by Employed Colleagues	6
CDC Recommendations	7
• Universal Source Control	7
• Standard Precautions Definition	8
• Transmission Based Precautions Definition	8
• Community Transmission Rates	8
• Precautions for Patients with Suspected or Confirmed COVID-19+	9
• Precautions for Patients who are not Suspected or Confirmed COVID-19+	9
Summary of PPE Conservation Strategies	10
PPE Selection Guide	11
Donning and Doffing PPE	12
Gloves	
• Selection Guidance	14
• Optimization Strategies	14
• Surge Capacity Strata for Prioritizing Conservation Measures	15
• Skin Prophylaxis and Treatment for Extended Glove Use	16
Gowns	
• Selection Guidance	17
• Optimization Strategies	17
Eye Protection	
• Selection Guidance	18
• Optimization Strategies	18
• Prophylaxis and Treatment for Extended Use of Eye Protection	19
Respiratory Protection	
• Selection Guidance	19
• Elastomeric Respirators	19

• PAPRs and CAPRs	19
• How to Wear a Procedure Mask	20
• Respiratory Protection Optimization	20
○ Surgical Mask Conservation	22
○ N95 Respirator Conservation	22
• Prophylaxis and Treatment for Extended Use of Respiratory Protection	25
• Performing a Respirator Seal Check	27
• Facial Hairstyles and Filtering Facepiece Respirators	28
Miscellaneous PPE	29
Disinfection of PPE	30
Appendix	32
Glossary	33
Time Factors Related to Cleaning & Disinfection of Isolation Room and other Patient Care Areas following care of PUI or COVID-19	34
Air Changes/Hour (ACH) and time required for airborne-contaminant removal by efficiency	36
Contingency Tiered Approach Based on Inventory of PPE if Inventory is at Crisis Level	37
Aerosol Generating Procedures	38
PPE From Other Countries	40

OSHA Compliance

The Occupational Safety and Health Administration (OSHA)

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 workers safe within our ministries. Strategies around respiratory protection include:

- Respirator evaluation
 - **IMPORTANT:** For ministries experiencing unexpected disruption in supply of N95 or other equivalent Filtering Facepiece Respirators (FFRs) either related to manufacturer issues or surge of PUIs / those with COVID-19, document this situation prior to any change in fit testing of colleagues and clinicians who may be provided makes and models of respirators that differ from that in use, e.g. if needing to access stockpiles where there may be a mix of respirators from different manufacturers.
 - This documentation and applicable guidance from System Office, OSHA enforcement requirements, and CDC recommendations at the point in time any variation from these guidance references is needed must be archived as part of this documentation file. This will assist with ministry response if there is a subsequent complaint or scheduled inspection by OSHA.
 - Local Incident Command and/or executive leadership team should collaborate with those who understand and lead the ministry's respiratory protection program and communicate to personnel when changes in fit testing requirements from OSHA's Respiratory Protection standard or other applicable temporary enforcement guidance is needed due to supply limitations.
 - Use NIOSH approved respirators that are not expired as supplies allow
 - Re-use/extend the use of non-expired respirators when supply is low
 - Only use expired respirators when those are all that is available
 - Expired N95 Respirators generally must not be used when healthcare providers (HCP) perform surgical procedures on patients infected with, or potentially infected with, SARS-CoV-2, or perform or are present for procedures expected to generate aerosols or procedures where respiratory secretions are likely to be poorly controlled (e.g., cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction). Refer to the [Use of Expired N95 Respirators Guidance](#).
 - Prioritize efforts to acquire and use equipment that has not exceeded its manufacturer's recommended shelf life before allowing workers to use equipment that is beyond its manufacturer's recommended shelf life. Equipment use beyond its manufacturer's recommended shelf life must be done in accordance with OSHA's Enforcement Guidance for Respiratory Protection and the N95 Shortage Due to the Coronavirus Disease 2019 (COVID-19) Pandemic <https://www.osha.gov/memos/2020-04-03/enforcement-guidance-respiratory-protection-and-n95-shortage-due-coronavirus>
 - Careful evaluation of non-NIOSH approved respirators by surveying the literature and consensus from internal subject matter experts
- Implementing strategies recommended by CDC and OSHA for optimizing and prioritizing N95 respirators
- Performing initial fit-testing for each employee with the same model, style, and respirator provided for use.
 - OSHA enforcement directives do address and acknowledge the continued instability in supply of PPE as well as variability in incidence of SARS-CoV-2 by region and state. At the current time federal OSHA has published these expectations:
 - 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.
 - Enforcement memorandum that are in effect include the following:
 - OSHA Memorandum, Temporary Enforcement Guidance - Healthcare Respiratory Protection Annual Fit-Testing for N95 Filtering Facepieces During the COVID-19 Outbreak, issued on March 14, 2020, www.osha.gov/memos/2020-03-14/temporary-enforcement-guidance-healthcare-respiratory-protection-annual-fit .
 - OSHA Memorandum - Expanded Temporary Enforcement Guidance on Respiratory Protection

Fit-Testing for N95 Filtering Facepieces in All Industries During the Coronavirus Disease 2019 (COVID-19) Pandemic, April 8, 2020, www.osha.gov/memos/2020-04-08/expanded-temporary-enforcement-guidance-respiratory-protection-fit-testing-n95.

- OSHA Memorandum - Enforcement Guidance for Respiratory Protection and the N95 Shortage Due to the Coronavirus Disease 2019 (COVID-19) Pandemic, April 3, 2020, www.osha.gov/memos/2020-04-03/enforcement-guidance-respiratory-protection-and-n95-shortage-due-coronavirus.
 - OSHA Memorandum - Enforcement Guidance for Use of Respiratory Protection Equipment Certified under Standards of Other Countries or Jurisdictions During the Coronavirus Disease 2019 (COVID-19) Pandemic, April 3, 2020, www.osha.gov/memos/2020-04-03/enforcement-guidance-use-respiratory-protection-equipment-certified-under.
 - OSHA Memorandum - Enforcement Guidance on Decontamination of Filtering Facepiece Respirators in Healthcare During the Coronavirus Disease 2019 (COVID-19) Pandemic, April 24, 2020, www.osha.gov/memos/2020-04-24/enforcement-guidance-decontamination-filtering-facepiece-respirators-healthcare.
- **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.**
 - In an effort to ensure adequate supplies of PPE, Trinity Health is working to source PPE produced in other countries, as well as domestically produced options. A list of other countries with standards verified as similar to NIOSH can be found in OSHA's Enforcement Guidance for Use of Respiratory Protection Equipment Certified under Standards of Other Countries or Jurisdictions During the Coronavirus Disease 2019 (COVID-19) Pandemic: <https://www.osha.gov/memos/2020-04-03/enforcement-guidance-use-respiratory-protection-equipment-certified-under>. See Appendix for additional detail.

PPE Purchased by Independent Providers

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

PPE Purchased by Employed 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:** Colleagues may provide their own **respirator** under two circumstances. **NOTE: these circumstances do not apply to any other types of PPE (see below).**
 - Colleagues may provide their own **respirator** under two circumstances.
 - **Circumstance 1: ALL OF THE FOLLOWING APPLY:**
 - Respirator use is **not required** by Trinity Health for that colleague or for that colleague's job tasks **AND**
 - Trinity Health agrees to **permit voluntary use AND**
 - Trinity Health has confirmed the colleague is **medically able** to use the respirator (not required for filtering facepiece/N95) **AND**
 - Trinity Health has determined the respirator being used by the colleague would not in itself create a hazard **AND**
 - 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)

- **Circumstance 2: ALL OF THE FOLLOWING APPLY:**
 - 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**
 - The colleague has their own respirator of the same, or higher, protection type or grade **AND**
 - 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**
 - The colleague passes a fit test for the respirator the colleague is supplying **AND**
 - 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 (RRP)** as defined by either the federal or state OSHA Respiratory Protection Standard **AND**
 - 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
- **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 must adhere to the guidelines established in the [Eye Protection](#) section below.
- **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.

Cloth head or face coverings are **not** considered PPE and may be furnished by the colleague for use outside of patient care settings.

CDC Recommendations

Universal Source Control:

- To address asymptomatic and pre-symptomatic transmission, everyone entering a healthcare facility (e.g., healthcare personnel, patients, visitors), regardless of symptoms are to wear a mask or face covering as described:
 - Health Care Personnel (HCP) are to wear a cloth face covering, a procedural mask or a respirator at all times (except while eating and drinking or if unable to tolerate a mask – see guidance on this on COVID-19 web site) while they are in the healthcare facility, including in breakrooms or other spaces where they

- might encounter co-workers. If supply of disposable, medical grade masks are limited, provide these to personnel that provide direct patient care
- Personnel that do not provide direct patient care may use non-traditional, cloth face covering or other reusable mask
- HCP are to remove their respirator or facemask, perform hand hygiene, and put on their cloth face covering when leaving the facility at the end of their shift.
- As indicated in prior guidance, non-traditional cloth face coverings are not considered PPE and are not to be used by healthcare personnel for work activities in which PPE is needed, e.g. aseptic procedures, risk of splashes to face, etc.
 - Patients and visitors should, ideally, wear their own cloth 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 or cloth face covering, as supplies allow. Patients may remove their mask or cloth 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 cloth 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.

- Standard Precautions include eye protection that is appropriate to the anticipated spray or splash 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 procedure masks with integrated eye shields. See [Eye Protection: Selection Guidance](#), below.
- See the [PPE Selection Guide](#) below for guidance on selecting the appropriate PPE for an activity.

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 COVID-19** - are examples of transmission-based precautions. See the CDC link for additional details.

- See the [PPE Selection Guide](#) below for guidance on selecting the appropriate PPE for an activity.

Community Transmission Rates

Community transmission refers to the prevalence of COVID-19 in the community. Refer to local operations leadership for the community prevalence. Definitions below are from CDC.

- **Low community transmission** is defined as >0 to 10 new cases per 100,000 in county population over the past two weeks.
- **Moderate community transmission** is defined as >10 to 50 new cases per 100,000 in county population over the past two weeks.
- **Moderately high community transmission** is defined as >50 to 100 new cases per 100,00 in county population over the past two weeks.
- **High community transmission** is defined as more than 100 new cases per 100,000 in total county population over the past two weeks.

As of this publication, nearly all Trinity Health facilities are experiencing moderate to high community transmission. Safety of our colleagues is paramount; we have updated guidelines for all facilities to align with

CDC guidance for areas of moderate to high community transmission.

With these measures in place, we acknowledge that PPE usage will accelerate rapidly. Conservation and optimization strategies described throughout this book must be adhered to in order to maintain our PPE supplies through the pandemic.

Precautions for patients with suspected or confirmed COVID-19

CDC updated recommendations require the use of **Standard Precautions** and appropriate **Transmission-Based Precautions** when caring for person under investigation (PUI) and confirmed COVID-19. Therefore **Droplet + Contact precautions are to be ordered for the patient and personnel are to wear eye protection** when caring for PUI or those with confirmed COVID-19. SARS-CoV-2, the cause of COVID-19, is transmitted over short distance of up to 6 ft. from droplets that contain this virus when those with COVID-19 cough or sneeze. Refer to the [PPE Selection Guide](#) for specific PPE requirements.

Precautions for patients who are not suspected or confirmed COVID-19+

Healthcare personnel (includes all colleagues and clinicians) [HCP] working in facilities located in areas with moderate to high community transmission [**currently applies to all health ministries based on Epidemiology Section COVID-19 dashboard**] 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., recent available test for SARS-CoV-2 is negative and based on assessment of symptoms and exposure history), HCP are to follow [Standard Precautions](#) (and [Transmission-Based Precautions](#) if required based on the suspected diagnosis). They must also:

- Add eye protection:
 - Wear eye protection in addition to a procedural mask to ensure the eyes, nose, and mouth are all protected from possible exposure to respiratory secretions during direct encounters with all patients.
 - Note; 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.
- Expanded use of N95 or equivalent respirator for Select Procedures – Any Patient:
 - Wear a N95 respirator or equivalent respirator, instead of a procedural mask, for:
 - Aerosol generating procedures (see [PPE Selection Guide](#), below) and
 - 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)
 - 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.
 - *Do not wear make-up below the eyes as this interferes with our ability to conserve N95 respirators.*

HCP working in areas with low to no community transmission are to continue to adhere to [Standard](#) and [Transmission-Based Precautions](#), including use of eye protection and appropriate respiratory protection as defined in the facility's Respiratory Protection program, e.g. use of N95 respirator for care of a patient with suspect or confirmed active pulmonary TB disease. Continue universal use of a procedural mask (when patient facing) or a cloth face covering (when not patient-facing) for source control is recommended for HCP.

- NOTE: currently few if any ministries fall into this category. Check with local incident command or Infection Prevention and Control to determine if or when this may apply.

Summary of PPE Conservation Strategies

The safety of our caregivers and patients is our highest priority. We have made the decision to move to extended use and reuse of existing personal protective equipment with the goal of protecting every caregiver, as they protect our patients.

This approach continues to be needed as the availability of supplies remains variable and unanticipated disruptions continue to occur. It is important conservation remain in place to optimize inventory of PPE that is available to respond to possible surges of cases of COVID-19. HCP that use PPE are the most important partner in this conservation to support all of our communities during the COVID-19 outbreak.

- No visitors allowed for PUI or COVID-19 (exceptions on case-by-case basis, e.g., for end of life situation). See the [COVID-19 Visitor Restriction Guidelines](#).
- Essential personnel only in any care setting that requires PPE
- Maintain 6-foot distance from PUI or COVID-19 when possible, avoid contact with items in patient room. For example, if patient only has a question – enter just inside the isolation room door and answer or identify if more assistance is needed. If so and direct contact is required – don PPE.
- Use virtual methods for patient contact (e.g. remote communication via mobile phone), and batching visits into the room
- Limit number of direct care providers needing to enter room of a PUI or COVID-19.
 - Direct care team will provide support services like daily cleaning and disinfection of isolation room, waste removal and deliver food trays.
 - EVS will provide discharge/transfer (terminal) cleaning of the room after the patient has been discharged.
 - Observe and adhere to the required number of air changes, if an aerosol-generating procedure was performed prior to discharge.
 - If the room must be cleaned before the required number of air changes can occur, EVS must wear the same PPE as outlined for AGPs in the Patient Care or Procedure PPE Selection table.

PPE Selection Guide

Colleagues from the following National Health Ministries or Physician Offices are to follow the guidance linked below:

- [Program of All-Inclusive Care of the Elderly \(PACE\)](#)
- [Trinity Health at Home \(THAH\)](#)
- [Trinity Health Senior Communities \(THSC\)](#)
- [COVID-Free Clinics](#)
- [Non-COVID-Free Clinics](#)

PPE Selection Guide by Patient Status and Situation										
Follow Contact + Droplet Precautions for all COVID-19+ patients and PUIs										
Observe and adhere to Standard and appropriate Transmission Based Precautions for the patient diagnosis <i>(ex. adhere to appropriate precautions for C. difficile if caring for a C. difficile patient)</i>										
Patient Status	Situation	Frequent Hand Hygiene	Gloves	Isolation Gown	Procedure Mask	Choose One:		Choose One:		Cloth face covering
						Face Shield <small>Required w/ N95</small>	Eye Protection: <small>Required w/ procedure mask or elastomeric</small>	PAPR <small>Eye protection attached</small>	Respirator: <small>N95 w/ face shield OR elastomeric w/ eye protection</small>	
Areas or Procedures with high risk of exposure to COVID-19	Area with high volume of PUIs or COVID-19+ <small>(ex. Emergency Department, designated testing areas) or Specimen collection from the upper respiratory tract (ex. NP Swab)</small>	✓	✓	✓		✓		✓	✓	
	COVID-19+ or PUI	✓	✓	✓		✓		✓	✓	
COVID-19 Not Suspected <small>(Patient is asymptomatic and does not meet all requirements for Confirmed Negative - see below)</small>	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	✓	✓	✓		✓		✓	✓	
	Any other patient-facing encounter <small>(includes all ancillary services i.e. EVS, PT etc.)</small>	✓	Wear procedure mask and eye protection for all patients PLUS Follow Standard and Transmission-based (if indicated) precautions							
Confirmed Negative <small>- a lab-confirmed negative test within the last 36 hours AND - have been in a controlled environment since their test was drawn AND - asymptomatic</small>	Any patient-facing encounter <small>(includes all AGPs/High Risk Procedures, ancillary services i.e. EVS, PT etc.)</small>	✓	Wear procedure mask and eye protection for all patients PLUS Follow Standard and Transmission-based (if indicated) precautions							
Areas or procedures with minimal risk of exposure to COVID-19	Triage	✓	✓		✓		✓			
	Lab work - blood draws	✓	✓		✓		✓			
	Delivering & picking up food trays	✓	✓		✓		✓			
	FAMS colleagues do not enter COVID-19+ rooms	✓	✓		✓		✓			
	Transport (patients must be masked during transport)	✓	✓		✓		✓			
	Rounding > 6 ft from the patient.	✓	✓		✓			Add eye protection if < 6 ft.		
	Registration in a patient room	✓	✓		✓			✓		
	Registration Desk	✓	✓		✓			✓		
	Screening	✓	✓		✓			✓		
	Walking through the hallways	✓	✓		✓	Patient Facing				Non-Patient Facing
Non Patient-facing tasks in a shared space	✓	✓		✓					✓	

* Registration colleagues are not to enter COVID-19+ or PUI rooms, or any patient room during an AGP.

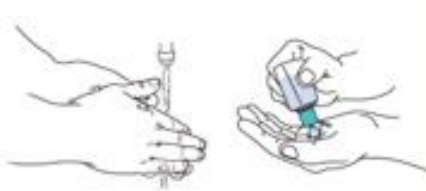
**Eye protection required in the absence of physical barrier between the colleague and the patient/visitor, or during any physical contact with the patient/visitor

Donning and Doffing PPE

Be sure to don and doff your PPE in the correct order.


The 5 steps to Don (put on) Personal protective equipment (PPE)

1 Hand hygiene




Clean all surfaces of hands and wrists

2 Gown




Cover torso and wrap around back, fasten in back of neck and waist

3 Surgical/procedure mask




Secure ties at middle of head and neck, fit nose band to your nose and pull bottom down to completely cover chin

4 Eye protection



Place goggles or face shield over face and eyes and adjust to fit

5 Gloves




Extend to cover wrist of gown

Note: when donning a mask or respirator that is being re-used, you must perform hand hygiene any time you touch the outer surface of the mask or respirator.


9 Steps to Doff (Take Off) Personal Protective Equipment (PPE) For Droplet and Contact Precautions

1 Gloves




The outside of gloves are contaminated. Grasp palm area of one gloved hand and peel off first glove. Slide fingers of hand under other glove at wrist and peel off. Discard in regular waste bin.

2 Perform Hand Hygiene




Clean all surfaces of hands and wrists.

3 Gown



Unfasten ties, pull gown away from neck and shoulders, touching ONLY the inside of the gown. Turn gown inside out and roll into a bundle. Place in soiled laundry hamper (if reusable) or in regular waste bin (if disposable).


4 Perform Hand Hygiene



Clean all surfaces of hands and wrists.


! If you are NOT 2 meters away from the patient, exit room now, perform hand hygiene, and finish the remaining steps.

5 Goggles or Face Shield



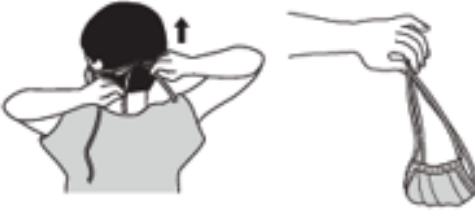
Do NOT touch the front of the eye wear. Place in receptacle for reprocessing (if reusable) or in regular waste bin (if disposable).

6 Perform Hand Hygiene




Clean all surfaces of hands and wrists.

7 Surgical or Procedure Mask




Grasp ties or elastics at back and remove WITHOUT touching the front. Place in receptacle for reprocessing or in regular waste bin.

8 Perform Hand Hygiene



Clean all surfaces of hands and wrists.

9 Exit Room



Exit room and perform hand hygiene.

Note: when doffing a mask or respirator that is being re-used, you must perform hand hygiene any time you touch the outer surface of the mask or respirator.

Gloves

Glove Selection Guidance

Glove Selection Guide*		
*Always follow standard precautions		
	Vinyl	Nitrile
Description	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.
Made From	Polyvinyl chloride (PVC).	Synthetic Rubber
Approved Use Cases (list is not all-inclusive)	<p>Non-patient care areas:</p> <ul style="list-style-type: none"> • Biomed/Clinical Engineering • Delivery of Food/Nutrition trays/supplements • 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) • Facilities (Vinyl gloves are NOT APPROPRIATE for use with corrosive chemicals, even in crisis capacity.) • Non-invasive imaging/radiology procedures • Patient registration • Patient Temperature screening stations • Transportation 	<p>Direct patient care areas:</p> <ul style="list-style-type: none"> • Emergency Department • Environmental Services • ICU/CCU • Home Health/Clinics if working with patients where there is anticipated contact with blood/body fluids or risk of puncture • Lab • Laundry • Med/Surg • OB/Gyn • Oncology • Orthopedics • Security
NOT approved for	Chemotherapy Corrosive chemicals	
How to Sanitize	<ul style="list-style-type: none"> • Isopropyl alcohol-based hand sanitizers are acceptable to use on vinyl gloves • If using ethanol-based hand sanitizer, change gloves every hour • Disposable medical gloves can be disinfected for up to six (6) applications of ABHR or until the gloves become otherwise contaminated or ineffective. 	<ul style="list-style-type: none"> • If using ethanol-based hand sanitizer, change gloves every hour • Disposable medical gloves can be disinfected for up to six (6) applications of ABHR or until the gloves become otherwise contaminated or ineffective.

Glove Optimization

Surge capacity refers to the ability to manage a sudden, unexpected 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:
 - 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
 - Cohorting patients and HCP
 - Maximizing use of telemedicine

Surge Capacity Strata 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.
 - 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.
- **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.
 - 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.
 - Consider not using gloves unless absolutely necessary (i.e. when taking blood pressure, passing meds, etc.). **Follow all hand hygiene guidance.**
- **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.
 - 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.
 - 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 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 "re-use" 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.
- 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: System-wide supply of gowns are in red status, meaning the quantity in our collective inventory is becoming very limited. Therefore, we are requiring the following strategies be deployed:

- Nonsterile, disposable patient isolation gowns, which are used for routine patient care in healthcare settings, are appropriate for use by HCP when caring for patients with suspected or confirmed COVID-19.
- 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 masks 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.
- Switch to a reusable (i.e. washable) gown made of polyester or polyester-cotton fabric. Caregivers need to exercise caution not to touch the outside surface of gown during patient care. Plastic apron, if available, may be worn over reusable gowns. (SEE SAMPLE GOWN CONSERVATION STRATEGY BELOW)
- Discontinue use of cloth gowns in areas where isolation gowns are not required.
- Surgical gowns MUST be preserved and prioritized for surgical and other sterile procedures.
- Use of gowns with an expiration beyond the manufacturer-designated shelf life may be considered.
- Coveralls may also be used as a last resort but are best preserved for use in outdoor mobile clinics or other settings where temperature would allow. These coveralls or Tyvek suits can be difficult or uncomfortable to wear in warmer areas.
- Other items that can be considered as a last resort for care of COVID-19 patients as single use. None of these options can be considered PPE, since their capability to protect HCP is unknown. These items include
 - Disposable laboratory coats
 - Reusable (washable) patient gowns
 - Reusable (washable) laboratory coats
 - Disposable aprons
 - Combinations of clothing: Combinations of pieces of clothing can be considered for activities that may involve body fluids and when there are no gowns available:
 - Long sleeve aprons in combination with long sleeve patient gowns or laboratory coats
 - Open back gowns with long sleeve patient gowns or laboratory coats
 - Sleeve covers in combination with aprons and long sleeve patient gowns or laboratory coats

Sample Gown Conservation Strategy

Please see your local Supply Chain to determine the gowns in use in your ministry. All gowns procured by Trinity Health meet or are equivalent to Association for the Advancement of Medical Instrumentation (AAMI) standards.

Process:

1. Place hooks right inside of patient room doorways. Hooks and gowns must be stored 3-6 feet from the head of the patient's bed.
2. Designate one gown, per patient, per discipline (nursing, physician, ancillary), per shift. Gowns must be placed in the laundry:
 - After an aerosol generating procedure
 - When visibly soiled
 - When the colleague suspects the gown is contaminated
3. Donning and doffing:
 - Doff reusable gown & gloves
 - Buddy performs hand hygiene and dons gloves.
 - Caregiver turns their back to the buddy.
 - Buddy unfastens the reusable gown (only touching outside of gown).
 - Buddy doffs gloves and performs hand hygiene.

- Caregiver sanitizes gloves and cuff of the surgical gown using alcohol-based hand sanitizer.
 - Caregiver doffs gloves using glove to glove, skin to skin technique.
 - Caregiver grabs reusable gown at the wrist and pulls forward. Do not bunch, bundle, or let the gown touch the floor during doffing.
 - Doff respiratory & eye protection according to existing protocols.
 - Note: The same reusable gown will be worn per person per patient.
4. If a buddy isn't available, caregivers may consider pre-tying the gown neck ties before putting it over their head.
 5. At end of shift, place gown into appropriate receptacle.

If designated COVID-19 unit with all confirmed positive patients, or a FURI site, gown may be worn throughout shift with change of gloves and hand hygiene between patients.

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 procedure 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 Required for all direct patient care

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



Safety Glasses or Goggles

- All Non-PUI, Non-COVID-19 patient encounters with **minimal** chance of blood/body fluid exposure
- Safety goggles or safety glasses are acceptable as long as they
 - are indirectly vented (vents angle away from the face) and
 - fit snugly, particularly from the corners of the eye across the brow

Face Shields

- All COVID-19/PUI patient encounters, or
- All use of N95 respirator*, or
- All patient facing care with **likelihood** of blood/body fluid exposure

*Exceptions will be made on a case by case basis in conjunction with Infection Prevention.

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

Selection Guidance

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

Elastomeric Respirators

Elastomeric respirators should be colleague-specific, where supply allows. 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.**

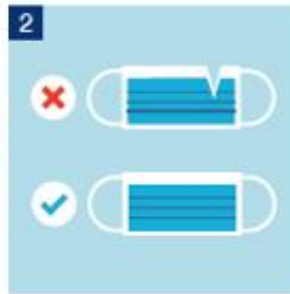
PAPRs and CAPRs

Powered Air Purifying Respirators (PAPRs) and Controlled Air Purifying Respirators (CAPRs) should be colleague-specific, where supply allows. 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 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 specimen is required. **These devices do not require a fit test.**

How to Wear a Procedure 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.

Respiratory Protection Optimization

System-wide supply of N95 respirators and procedural and surgical masks varies frequently by health ministry and across the System. This is dependent on raw material used to make these and this continues to be unstable on a global level. Therefore, we are requiring the following general strategies be deployed, as well as PPE-specific guidance:

- 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.
 - Important:** masks do need to be available and provided to patients with symptoms of acute respiratory infection, e.g. fever + cough + shortness of breath. Colleagues at reception/registration can provide these upon request.
 - Patients will be provided with standard procedural masks in the inpatient or ED setting.
- 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.
- Environmental services colleagues may enter patient rooms to provide more in-depth clean when a need is identified by a unit manager. EVS colleagues must wear appropriate PPE.
- 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 provision of operative procedures
 - During care activities where splashes and sprays are anticipated
 Source: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html>
- Surgical masks (those with ties, rather than ear loops, depicted in Figure 1.0) are to be reserved for operative procedures. Procedural masks (depicted in Figure 2.0) are to be used in all other areas.

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 Conservation

- N95 respirators are to be reserved for the scenarios outlined above in the [PPE Selection Guide](#) and other guidance in this document. Reuse and extended use of the N95 respirator as well as reprocessing using a ministry approved method(s) is critical. For reprocessing programs HCP must avoid wearing cosmetics below the eyes to optimize reprocessing of N95 respirators.
- Colleagues must wear a face shield to protect the N95 respirator from soil, sprays or other damage when a splash or spray is anticipated.
- N95 respirators should be discarded when any of the following criteria are met:
 - Respirator becomes visibly soiled, wet, or damaged
 - If wearer is unable to perform a seal check, they should follow their local ministry policy for reprocessing

- Never wear a cloth face cover, surgical or procedural mask over an N95 respirator, unless it has a valve (see next dot point). This is against the manufacturer's instructions for use and will not increase the protection of the respirator.
- **N95, elastomeric or filtering face piece respirators with an exhalation valve and no exhalation filter:**
 - N95, elastomeric or filtering face piece respirators with an exhalation valve and no filter provide respiratory protection but do not provide source control.
 - N95, elastomeric or filtering face piece respirators with an exhalation valve and no filter are not recommended for use by HCP providing operative or invasive procedures [see also [Operative & Other Invasive Procedures Guidance](#)].
 - If both respiratory protection and source control are needed, cover the exhalation valve with a procedure mask that does not interfere with the respirator fit. 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.
 - Continue to practice PPE conservation strategies for both procedure masks and N95 respirators.
- **Extended Use/Continuous:** refers to the practice of wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator between patient encounters.
 - Protect N95 respirators with a face shield as much as possible. If a face shield is not available, wear other available eye protection.
 - Disinfect face shields after removing and before re-donning
- **Reuse:** refers to reusing the same N95 respirator by the same caregiver multiple times – e.g., during different work shifts. The N95 respirator is donned by the caregiver, removed after each use, then donned again for the next patient. N95 respirators can be stored between use in a paper bag – goal is to have air circulate around the N95 when not in use.
 - Wear a face shield, as much as possible over the N95 respirator to minimize risk of contamination of the exterior of the N95 respirator.
 - N95 respirators in a scheduled reuse program should be discarded 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, they should follow their local ministry policy for reprocessing
 - Hand hygiene should be performed after both removing and donning during reuse
 - Face shields must be disinfected after each use

For ministries experiencing unexpected disruption in supply of N95 or other equivalent filtering facepiece respirators (FFRs) either related to manufacturer issues or surge of PUIs / those with COVID-19, document this situation prior to any change in fit testing of colleagues and clinicians who may be provided makes and models of respirators that differ from that in use, e.g. if needing to access stockpiles where there may be a mix of respirators from different manufacturers. **During times of supply shortage, we require the following strategies be deployed:**

- Store all N95 respirators in a central location with a gatekeeper responsible for ensuring appropriate distribution
- Procedural masks are an acceptable, effective alternative to protect personnel when the supply chain of respirators cannot meet the demand. **During this time, prioritize use of respirators for procedures that are likely to generate respiratory aerosols; AGPs.** For all other care, wear a procedural mask and eye protection.
- If available, personnel should prioritize use of powered air purifying respirators (PAPRs) for AGPs or other care when indicated for PUIs or patients with COVID-19.
- In the surgical environment, extended use of respirators is appropriate PPE conservation strategy
- If limited amount of PAPRs are available, ask those with facial, especially full-face beards, to shave and use N95 respirators. A guide from NIOSH ([Facial Hairstyles and Filtering Facepiece Respirators](#)) on which facial hairstyles are compatible with N95 respirators is posted on COVID-19 web site and can be used as alternative to removal of all facial hair.
- Assure supplies of N95 respirators are secure and their deployment is overseen by colleagues for appropriate clinical use.
- Until further notice, suspend annual fit testing of N95 filtering facepiece respirators for personnel that were successfully fitted in the prior year to optimize supply for patient care needs.

- If feasible, fit test personnel who have not previously been fit tested to the model, make and size of N95 respirator provided prior to their use for a PUI or patient with COVID-19.

NOTE: During this current response to pandemic and ongoing surge of PUIs – instruct colleagues to use seal checks. See seal check guide in the Appendix - following the IFU from the manufacturer of the N95 respirator instead of fit testing all colleagues when a different make and model of N95 respirator is being provided.
- Rationale: stockpiles of N95 respirators are likely to be a different make and model and this may happen repeatedly – there is limited capacity of personnel that are trained to perform fit testing and currently the fit testing solutions are becoming scarce.
 - If fit testing is determined to be feasible by the EHS and or occupational health team use qualitative method only.
- Only essential personnel needed for direct patient care are to enter the room of a patient under investigation (PUI) or confirmed COVID-19.
- Assure personnel perform seal check (for proper seal of the N95 respirator) prior to each use. If the colleague cannot achieve a seal:
 - See a PPE Coach or your supervisor. They will assess whether the respirator is damaged or faulty.
 - If the respirator is not damaged or faulty, but the colleague cannot achieve a seal, the coach or supervisor will send the respirator for reprocessing following local ministry guidelines.
 - If the respirator is damaged or faulty, the PPE Coach or supervisor will discard the respirator and report the issue to Supply Chain for tracking.
 - This applies to all N95 respirators.
 - When needed, the PPE Coach or supervisor will assist the colleague in identifying the appropriate respirator or alternative respiratory protection device (such as a PAPR or CAPR).
- Inform employees to notify Employee Health 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.
- N95 respirators are NOT to be provided to personnel with facial hair (e.g. beard) that interferes with the functionality of the respirator (see Facial Hairstyles and Filtering Facepiece Respirators, Appendix). Options for personnel with a beard are to use PAPR designed for use with facial hair or remove facial hair during response to this pandemic and wear a N95 respirator. PAPRs suitable for use with facial hair will vary by manufacturer.
- If available, personnel need to use powered air purifying respirators (PAPRs) for AGPs.

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. OSHA has also temporarily updated their [enforcement guidelines](#).

- The CDC has also published several strategies for N95 respirator conservation.
 - Extend the use of N95 respirators by wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator.
 - Implement limited re-use of N95 respirators for caregivers of patients with COVID-19 or PUIs. Note, if the respirator is torn or splashed with body fluids – discard after removal when leaving the isolation room. Important aspects of re-use are:
 - Wear a full-face shield over the N95 respirator to minimize possible contamination during direct care.
 - When doffing, use care as the exterior of the N95 respirator is potentially contaminated. Place the N95 respirator into an unsealed paper bag for next use. Perform hand hygiene prior to donning, and after doffing, respirator.
 - Store the N95 respirator in an unsealed paper bag with the name of the personnel.
 - Don gloves prior to removing the respirator from the bag, be sure to put on gloves prior to any contact with exterior of the respirator.
 - Do not share the same disposable respirator between different healthcare personnel.
 - Ministries that have no touch disinfection (NTD) devices (e.g. ultraviolet germicidal irradiation used for whole room supplemental disinfection) can use this equipment for disinfection of N95 respirators.
 - A procedure developed by Nebraska Medicine is available on the Trinity Health PULSE COVID-19 site.
 - Before beginning this process, review the instructions for use for both the N95 respirator and the NTD device to determine compatibility of the N95 respirator with the method used and the disinfection cycle

time to achieve disinfection. Please contact Russ Olmsted, System Director of Infection Prevention to review and approve process.

- Do not attempt to disinfect disposable N95 respirators with disinfectant wipes or other liquids as the face piece is made of a filter media that will be damaged if sprayed with or immersed in liquid.
- Some local ministries have implemented on-site decontamination of N95 respirators, while others have contracts in place with third party vendors to decontaminate these items. See your local Infection Preventionist and/or Supply Chain to confirm the process in place at your ministry. Documentation for each of these processes and vendors is available in the [Personal Protective Equipment \(PPE\)](#) site on Pulse.
- Use of N95 respirator equivalents approved under standards used in other countries that are similar to NIOSH-approved N95 respirators are acceptable to use. A listing of respirators certified by other countries is available on CDC's COVID-19 web site.
- Use N95 respirators beyond the manufacturer-designated shelf life. Only use expired respirators when those are all that is available. Current OSHA enforcement guidance indicates that expired N95 Respirators generally must not be used when HCP perform surgical procedures on patients infected with, or potentially infected with, SARS-CoV-2, or perform or are present for procedures expected to generate aerosols or procedures where respiratory secretions are likely to be poorly controlled. Expired N95 respirators must be clearly marked and follow all guidance set forth in [Use of Expired N95 Respirators](#).
- **Colleagues participating in an N95 respirator optimization strategy must not wear makeup below the eye, as this will compromise the N95 respirator and make it ineligible for re-use.**

Prolonged Ear-Dependent Mask Use Prophylaxis and Treatment - Ears

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.

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 mask
- 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 use of an ear-dependent mask, clean and dry the external ear. Use of 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 your skin. If you experience discomfort outside of the below scenarios, complete a THEIR and notify your supervisor for 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.

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 a number of 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.
- Put 1-2 layers of sterile gauze inside a procedure 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.

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.

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.¹⁵ 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.

Facial Hairstyles and Filtering Facepiece Respirators, NIOSH, CDC 2017

Facial Hairstyles and Filtering Facepiece Respirators

Intended for workers who wear tight-fitting respirators

Hairstyle	Compatibility	Notes
CLEAN SHAVEN	✓	
STUBBLE	✗	
LONG STUBBLE	✗	
FULL BEARD	✗	
FRENCH FORK	✗	
DUCKTAIL	✗	
VERDI	✗	
GARIBALDI	✗	
BANDHOLZ	✗	
SOUL PATCH	✓	
GOATEE	✗	(Careful! Chin hair may easily cross the seal)
CHIN CURTAIN	✗	
EXTENDED GOATEE	✗	
CIRCLE BEARD	✗	
ANCHOR	✗	(Careful! Chin hair may easily cross the seal)
BALBO	✗	
VAN DYKE	✗	
IMPERIAL	✗	
SIDE WHISKERS	✓	
MUTTON CHOPS	✗	
HULIHEE	✗	
HORSESHOE	✓	(Careful not to cross the seal)
ZAPPA	✓	
WALRUS	✓	
PAINTER'S BRUSH	✓	
CHEVRON	✓	
HANDLEBAR	✓	
PENCIL	✓	
TOOTHBRUSH	✓	
LAMP SHADE	✓	
ZORRO	✓	
VILLAIN	✗	(Careful not to cross the seal)
FU MANCHU	✗	
ENGLISH	✗	
DALI	✗	

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 are to 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>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.</p>			
Face Shields		Disposable or Reusable	<ol style="list-style-type: none"> 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. 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 hospital disinfectant solution. Do not place the shield on a flat surface; doing so may cause the shield to crack. 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. Do not place the shield on a flat surface; doing so may cause the shield to crack. 4. Fully dry (air dry or use clean absorbent towels). 5. Remove gloves and perform hand hygiene.
Goggles /Eye Protection			<ol style="list-style-type: none"> 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. 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. Do not place the item on a flat surface; doing so may cause hard plastic items to crack. 3. Hold the item in your hand and wipe the outside (patient facing side) of goggles with clean water or alcohol to remove residue. Do not place the item on a flat surface; doing so may cause hard plastic items to crack. 4. Fully dry (air dry or use clean absorbent towels). 5. Remove gloves and perform hand hygiene.
Respirators	 	N95 Respirators	Follow your ministry's reprocessing procedure (see your Sterile Processing Department or Supply Chain for details)
		PAPRs	Follow manufacturer's Instructions for Use (IFU) and/or see PAPR Disinfection guidance: https://www.trinity-health.org/covid-19-resources/_assets/documents/clinical-guidance/personal-protective-equipment-(ppe)/papr-disinfecting.pdf
		CAPRs	Follow manufacturer's Instructions for Use (IFU)
		Elastomerics	Follow manufacturer's Instructions for Use (IFU) 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.
Reusable Gowns			Gowns must be laundered according to local policy.

<p>Gloves</p>		<p>Vinyl and Nitrile</p>	<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"> • Isopropyl alcohol-based hand sanitizers are acceptable to use on gloves • If using ethanol-based hand sanitizer on vinyl, change gloves every hour or after six uses, whichever is more frequent
----------------------	--	--------------------------	---

Appendix

Signs and Job Aids

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

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.

MDI = metered dose inhaler

Filtering Facepiece Respirators (FFRs) = refers to 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

PAPR = powered air purifying respirator

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.

Time Factors Related to Cleaning & Disinfection of Isolation Room and other Patient Care Areas following care of PUI or COVID-19

Environmental Cleaning Patient Care Areas	Time lapse after patient vacates before entering to clean room	PPE for EVS	N95 Respirator or PAPR?
1. Airborne infection isolation room (AIIR)	If AGP performed during the 1.5 hours prior to discharge – leave the AGP alert sign on the door (see Appendix). Wait for 23 minutes before beginning discharge (terminal cleaning) [23 minutes is based on air changes/hour (ACH) = 12. If uncertain of air changes, contact facilities and apply CDC time factor for clearance of particles to the appropriate ACH for the isolation room used.	After appropriate waiting period: Standard disposable procedural mask, Eye protection, gown & gloves	Yes, but only needed if discharge or transfer (terminal) cleaning has to start before 23 minutes has passed since patient has left the room. If so, then wear N95 respirator in place of procedural mask, wear other PPE as indicated in PPE column to left
2. Standard Private room, e.g. med-surg unit with PUI or confirmed COVID-19; discharge/transfer (terminal) room cleaning	If AGP performed during the 1.5 hours prior to discharge – leave AGP alert on door. If feasible have EVS wait at least 1 hour before starting discharge/ terminal room cleaning. If unable to wait 1 hr., EVS will wear PPE listed under "PPE column" except wear a N95 respirator instead of a procedural mask If no AGP in 1.5 hours before discharge – wear standard PPE and start discharge cleaning as soon as patient has left the room.	Procedure mask, Eye protection, Gown and Gloves	No – patient has been discharged and therefore source of virus is no longer present.
3. Any private room with non-COVID-19 patient	Immediate	Eye protection when cleaning surfaces and area within 6 ft of patient Gloves, other PPE under standard prec.	No

<p>4. Treatment or Imaging room or area, e.g. CT scan room, Interventional cardiology room</p>	<p>If no AGP performed, disinfect surfaces onto which patient was placed, directly touched or in immediate surrounding area following routine procedures that are done for non-COVID-19, e.g. disinfect exam/imaging table. No wait time needed. If AGP is performed apply wait time from CDC or wear PPE in PPE column</p>	<p>If no AGP: procedural mask, eye protection and gloves – if indicated</p> <p>If AGP: N95 respirator, eye protection, gown and gloves. Wait the appropriate number of air changes to enter the room.</p>	<p>No. PUIs and COVID-19 should remain in their isolation room except for essential clinical need – e.g. CT scan. AGPs should be performed in an AIIR.</p>
<p>5. Non patient care areas</p>	<p>Immediate</p>	<p>Procedural mask Gloves</p>	<p>No</p>

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

Preferred reference point for Trinity

* 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:

<https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html>

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
N95 respirator	<ul style="list-style-type: none"> Extended use Reuse Assign staff that have recovered from COVID-19 and have them wear a procedural mask to care for COVID-19 patients. 	<ul style="list-style-type: none"> Elastomeric or industrial respirator Non-surgical respirator, or any filtration capacity above 95% PAPR
Isolation Gowns	<ul style="list-style-type: none"> Prioritize gowns for use during AGP, high touch procedures, do not use when entering room if nothing is going to be touched. Use "safe/PPE free zone" just inside door to isolation room. 	<ul style="list-style-type: none"> Hazmat suits Reusable isolation gowns (verify the gown is impermeable/fluid resistant) Paper gowns Plastic aprons to cover critical zones Lab coat or jacket Waterproof sports gear Last resort: any physical barrier
Procedural Mask	<ul style="list-style-type: none"> Extended use Reuse 	<ul style="list-style-type: none"> Non-fluid resistant procedure masks (blue cones) Use N95 respirators, CAPRs, PAPRs, isometric respirators Utilize non-fit tested expired N95 respirators in pharmacy sterile compounding with extended use/reuse Last resort: any physical barrier between patient and mucous membranes / homemade products
Surgical Masks	<ul style="list-style-type: none"> Extended use Reuse 	<ul style="list-style-type: none"> Procedural mask (see Surgical Mask Conservation, above)
Eye protection	<ul style="list-style-type: none"> Disinfect and reuse eye protection – assign to each caregiver during assigned shift. If disinfected can be used between personnel 	<ul style="list-style-type: none"> Industrial face shields (for grinding metal) Industrial goggles, safety glasses, etc. Last resort: homemade face shields (must be Trinity Health-approved)

Examples of aerosol generating procedures

CORONAVIRUS DISEASE 2019 (COVID-19)



Aerosol Generating Procedures

Procedures performed on patient with known or suspected COVID-19 could generate infectious aerosols.

- CPR
- Sputum induction-not recommended
- Open deep oral suctioning
- Tracheal intubation/extubation
- High flow nasal cannula/Airvo
 - An oxygen supply system capable of delivering up to 100% humidified and heated oxygen at a **flow** rate of up to 60 liters per minute.
- Bipap/CPAP
- Nebulizer treatments
- Chest physiotherapy
- Tracheostomy
- Bronchoscopy
 - Lab, in support of procedure, can wait outside of room for specimen handoff
- NG Tube placement
- Nasopharyngeal/oral areas-nasotracheal endoscope
- Procedures with a high chance of aerosolization of virions (ie sphenopalatine ganglion block, intraoral injections)

Aerosol Generating Procedure in Process



Authorized Trained Personnel Only

- Keep Door Closed
- PAPR or N95 Respirator + Eye Protection Required During Procedure
- See post-procedure clearance times on reverse

Time Procedure Ended: _____

Time Room is Available: _____

PPE from Other Countries

Background

The World Health Organization declared the COVID-19 pandemic on March 11, 2020. The pandemic has created an increased demand for N95 FFRs, limiting availability for use in protecting workers in healthcare and emergency response from exposure to the virus. As a result, the President directed the Secretary of Labor to “[consider] all appropriate and necessary steps to increase the availability of respirators.”[2]

Although the Secretary, through OSHA, has allowed for enforcement flexibility with regard to some provisions of the Respiratory Protection standard, the availability of N95 FFRs or other respirators certified by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR Part 84 remains a concern throughout the country.

In some circumstances, additional supplies of respirators certified under standards from other countries or jurisdictions may be available. During periods of shortages of N95 FFRs, the federal government advises that FFRs, air-purifying elastomeric respirators, and compatible filters certified under the following standards of other countries or jurisdictions will provide greater protection than surgical masks (i.e., facemasks, other than surgical N95s[3]), homemade masks, or improvised mouth and nose covers, such as bandanas and scarves:

- Australia: AS/NZS 1716:2012
- Brazil: ABNT/NBR 13694:1996; ABNT/NBR 13697:1996; and ABNT/NBR 13698:2011
- People's Republic of China: GB 2626-2006; and GB 2626-2019
- European Union: EN 140-1999; EN 143-2000; and EN 149-2001
- Japan: JMHLW-2000
- Republic of Korea: KMOEL-2014-46; and KMOEL-2017-64
- Mexico: NOM-116-2009

Certification in accordance with these standards ensures that devices provide similar filtration as NIOSH-certified equipment, as described in Tables 1 and 2, below, and, accordingly, have an assigned protection factor greater than or equal to 10.

Source: <https://www.osha.gov/memos/2020-04-03/enforcement-guidance-use-respiratory-protection-equipment-certified-under>