

Nebraska Medicine COVID-19 PPE Guidance

Extended Use and Limited Reuse of Disposable Facemasks, Respirators and Protective Eyewear

Overview:

Respirators include powered air purifying respirators (PAPRs) and disposable N95 respirators. Protective eyewear includes face shields and goggles. These recommendations are temporary while there are national and international shortages of protective equipment.

Purpose:

- To prevent a shortage or exhaust our supply of facemasks, respirators and eye protection.
- To ensure that our staff have access to the necessary supplies to perform patient care safely.

Definitions:

- **Extended** use refers to the practice of wearing the same N95 respirator for repeated encounters with several patients, without removing the respirator between the encounters. Extended use may be implemented when multiple patients are infected and patients are placed together in dedicated waiting rooms, clinics or hospital units.
 - Eye protection may be left in place with the N95 respirator for extended use.
- **Reuse** refers to the practice of using the same N95 respirator for multiple encounters with patients but removing it ('doffing') between at least some of the encounters. The respirator is stored in between encounters and reused.
 - Re-use of full face shields will be permitted. Face shields will be dedicated for use by individual healthcare personnel. Disinfection of the face shield will be required between uses.

Guiding Principles:

- ***Extended use is preferred over re-use*** on the assumption that it is safer for the employee to leave their mask and eye protection in place, to reduce the risk of self-contamination through frequent donning and doffing of the same equipment.
- Facemasks, PAPR hoods, N95s and eye protection can be re-used in a careful and limited way during periods of short supply.
- Guidance is for reuse by a single person (no sharing). This principle applies to respirators and eye protection.
- Disposable N95 respirators worn for COVID-19 PUIs may be re-used or worn for extended use as long as they are able to seal, were not worn during an aerosol generating procedure or have reached the end of their use by being soiled, damaged or moist from sweat or insensible fluid loss through breathing.
- The use of N95 respirators is prioritized for those personnel at the highest risk of contracting or experiencing complications of infection.
- Limit room traffic where possible by ensuring that only those essential for patient care enter the room; strategies include bundling of care, limiting or avoiding bedside clinical teaching, limiting operating room traffic, and use of telemedicine where possible.

Applicability

These guidelines apply to all health care personnel (HCPs) who need to wear respiratory protection during patient care or as a requirement of their work responsibilities.

General Guidelines

- N-95 Respirators: Re-use guidelines apply only to those who are fit-tested for a disposable N95 respirator.
- Extended use or re-use is not recommended if worn during an aerosol generating procedure or if the N95 respirator has reached the end of its use through being damaged or moistened.
- All supplies of N95 respirators will be stored in locked or secured, designated areas (ex. GSS, Unit Manager/Supervisor/Lead Office, or Lab Manager) and will be issued to staff with an appropriately handled paper bag or container that allows breathability.
- Label the N95 respirator and paper storage bag with the user's name before using to prevent reuse by another individual. Write name on mask where straps are attachment or on elastic straps of N95 mask.
- Write dates and times used on the bag to track overall use. UV strategy uses two bag colors for reprocessed clean and dirty masks (see separate guidance).
- Full face shields are dedicated to individual healthcare personnel as the foam piece and elastic band cannot be adequately disinfected between uses. Re-use of full-face shields is permitted following disinfection guidelines. Label the full-face shield across the top with name prior to first use.

Guidance for Extended Use of Facemasks (surgical/procedure masks)

- Doff facemask
 - Perform hand hygiene
 - Remove the procedure mask by holding the ear loops. The front is contaminated, so remove slowly and carefully.
 - After removing facemask, visually inspect for contamination, distortion in shape/form. If contaminated or wet the mask should be discarded.
 - If the facemask is NOT visibly contaminated or distorted, carefully store in the paper bag to avoid destroying the shape of the mask.
 - The facemask should be stored in a dedicated, well-ventilated container (i.e., paper bag with handles) with user name & date.

A disposable facemask can be worn for several hours if not wet or distorted, and not touched while delivering patient care.

Guidance for Re-use and Extended Use of Respirators and full face shield

Instructions for the LIMITED REUSE of Disposable N95 respirators

Extended use is preferred over re-use. You can continue to wear the N95 respirator and eye protection for your entire shift. N95 and eye protection may be removed and stored appropriately for re-use later.

First time N95 respirator use:

- Donning
 - Once the disposable N95 respirator is donned and the seal check is performed, a barrier will be placed over the N95 to protect it from surface contamination during cares.
 - a procedure mask should be applied over the N-95 respirator, goggles will be used too
 - OR-
 - a full face shield should be applied over the N-95 respirator
 - During patient care, take care to NOT TOUCH your masks or eye protection.
- Doffing when a procedure mask barrier is used
 - While in the patient's room, remove gown close to the doorway.
 - Perform hand hygiene over gloves.
 - Remove the procedure mask covering N95 and discard. The front is potentially contaminated, so remove by holding by the ear loops.
 - Remove gloves.
 - Exit patient room.
 - Perform hand hygiene, don gloves, use a germicidal wipe to prepare a surface upon which the eye goggles will be placed and remove goggles
 - Reusable eye goggles are disinfected using a germicidal wipe while observing manufacturers contact time per instructions for use.
 - Doff gloves and perform hand hygiene, remove N95 respirator and perform hand hygiene
 - After completing all doffing steps
 - Store goggles for reuse
 - Store N95 per storage instructions (below)
 - Perform hand hygiene.
- Doffing when a full face shield barrier is used
 - While in the patient's room, ONLY remove gown then gloves close to the doorway.
 - Perform hand hygiene.
 - Exit patient room.
 - Perform hand hygiene, don gloves, use a germicidal wipe to prepare a surface upon which the face shield will be placed.
 - Perform hand hygiene, and remove the face shield. The front is potentially contaminated, so remove carefully by bending forward and using the elastic band.
 - Use a germicidal wipe to prepare a surface upon which the face shield will be placed then remove face shield and disinfect before placing it on the prepared surface.
 - Face shield is disinfected using a germicidal wipe while observing manufacturers contact time
 - Doff gloves, perform hand hygiene, remove respirator and perform hand hygiene
 - After completing all doffing steps
 - Store face shield for reuse
 - Store N95 per storage instructions (below)
 - Perform hand hygiene.

Storage of Previously Worn Disposable N95 Respirators:

- After removing N-95, visually inspect for contamination, distortion in shape/form. If contaminated/wet, creased or bent, N95 should be discarded.

- If the N95 is NOT visibly contaminated or distorted, carefully store to avoid destroying the shape and consistency of the mask.
- The N95 should be stored in a well-ventilated container (i.e., paper bag with handles) with user name & date.
- A disposable N95 can be worn for several hours and multiple shifts if not wet or distorted, not touched while delivering patient care, and not involved in an aerosol-generating procedure (per CDC and NIOSH, pandemic response).

Process to re-use your disposable N95 respirator:

- Remove N95 mask from paper storage bag and visually inspect for distortion. If creased or bent do not re-use
- Donning
 - Perform hand hygiene
 - Don gown.
 - Don the N-95 respirator (disinfected by UV).
 - Perform a negative/positive seal check by doing the following:
 - No air should be felt around the perimeter while blowing out. If you feel air coming out it is not a tight seal.
 - When taking a small breath in, the mask should pucker in slightly. If it does not, it is not re-usable.
 - When breathing out you should feel the respirator expand slightly. If it does not, it is not re-usable.
 - If not a tight seal, the respirator cannot be re-used.
 - Ensure the mask is breathable, if unable to breathe in the mask, the respirator cannot be re-used.
 - Perform hand hygiene and don gloves following seal check.
 - Don procedure mask with goggles or full-face shield over N95.
 - Continuing donning order

Instructions for the LIMITED REUSE of Full Face Shields

Reuse of full-face shields

- Full face shields are dedicated to individual healthcare personnel as foam piece and elastic head band cannot be adequately disinfected between personnel.
- Don gloves and adequately disinfect inside then outside surfaces, avoid using germicidal wipe on foam and elastic band.
- Store reused full face shield alongside your labeled paper bag containing your re-used N95.

Instructions for the LIMITED REUSE of PAPR Hoods

Reuse of PAPRs including Hoods

- Donning:
 - After performing a safety check, assemble the PAPR to connect the hood, hose belt and motor.
 - Write name on the hood.
 - Keep the plastic sleeve on the tubing by cutting the ends off to expose the screw caps.
 - Perform hand hygiene.
 - Don the PAPR by donning the belt, turning on the PAPR motor and donning the ½ hood.
 - Don gown over the PAPR belt.

- Use easy to undo bows to secure the ties
 - Tuck gown under the PAPR motor to avoid the gown occluding air inlet to the PAPR motor.
- Don gloves.
- Doffing
 - While in the patient's room, remove gown then gloves prior to leaving.
 - Perform hand hygiene.
 - After exiting the patient's room, turn off PAPR motor, remove the PAPR hood, undo belt, clean, and store appropriately (see below).
 - Perform hand hygiene.

Disinfection and Storage of PAPR components including the Hood for re-use

- Don gloves and a procedure mask, and carry the PAPR to the PAPR processing area without holding it against you.
- Visually inspect the PAPR hood for contamination; discard and do not re-use if visibly contaminated.
 - If visible contamination is not observed, do not disconnect any of the PAPR components if it will be reused during the shift.
 - Do not remove the PAPR filters from the motor unless flow test fails due to clogged filters.
- Disinfect the PAPR motor, belt, hose and hood using EPA approved germicidal wipes labelled to kill human coronaviruses, while observing contact time using the following order:
 - PAPR motor and filters (avoid introducing liquid into the filter holes).
 - Belt
 - Tubing sleeve
 - Hood (wipe the hood inside then the outside)
- Once completely dry, remove the hood from the hose and place the PAPR in a clean area close to where it will be reused.

Disinfection, Disposal and Storage of Used PAPR Components

- Follow above procedure for cleaning and disinfecting PAPR with the following exceptions
 - Disconnect PAPR belt to disinfect separately and reattach to PAPR motor when dry.
 - Disconnect and dispose of PAPR hood.
 - Return PAPR motor with filters, belt and tubing attached to unit storage area.
 - Plug in PAPR motor to recharge battery.

Alternative respiratory protection strategy:

- When mask supplies are limited it is most effective to put a procedure mask on patients for extended use. If the patient is masked then this limits contamination of the healthcare personnel N95.
- A suitable setting would include a palliative care ward setting where patients could wear a face mask.

References:

Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH)
<https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html>
<https://www.cdc.gov/niosh/topics/hcwcontrols/pandemic-planning.html>

This document was adapted from Guidance for Extended Use and Reuse of Facemasks, Respirators, and Protective Eyewear, University of Maryland.