Coronavirus 2019 (COVID-19): Conserving the Supply of Personal Protective Equipment (PPE) in Healthcare Facilities

This document provides guidance for Healthcare Facilities (HCF) to conserve the use of personal protective equipment (PPE) by health care personnel when providing care to patients/residents during the COVID-19 pandemic. All HCF must implement plans to conserve PPE for DC's most vulnerable patients, frontline healthcare workers, and first responders should supply become inadequate to meet current or projected demand. **Note**: PPE alone is not a substitute for social distancing or for fully addressing the occupational hazard of COVID-19. For more information see cdc.gov/niosh/topics/hierarchy/default.html.

PPE is used to protect healthcare personnel (HCP) and patients/residents from the transmission of infectious pathogens. These requirements apply to any facility, entity, or individual that provides inpatient or outpatient healthcare services and is either licensed by DC Health or functions as an independent private practice through a certificate of need. This includes, but is not limited to, the following types of HCF: hospitals, inpatient psychiatric facilities, Skilled Nursing Facilities (SNF), Assisted Living Residences (ALR), Intermediate Care Facilities (ICF), Chapter 34 and 35 Community Residence Facilities (CRF) and Home Health Agencies. These requirements should also be strongly considered in the following settings: hospice, behavioral health facilities, or any other settings where health services are provided.

General definitions

- **Healthcare personnel (HCP):** HCP includes all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients/residents or infectious materials; this includes part-time and full-time contractors, agency workers, and vendors.
- **Patient/resident care areas:** All areas where patient/resident care is rendered, where diagnostic or treatment procedures are performed, or anywhere there is potential for patient/resident encounters (e.g., any area patients/residents can access).
- **Source control:** The use of a covering over the mouth and nose as a physical barrier to prevent the spread of respiratory secretions. Respirators, facemasks and cloth face coverings are examples of source control. Healthcare providers are required to wear either respirators or facemasks for source control. Cloth face coverings are acceptable source control for patients/residents and visitors as well as employees who will not be present in patient/resident care areas. Cloth face coverings are not considered PPE.
- **Aerosol-generating procedures (AGP):** Medical procedures or treatments that are more likely to generate higher concentrations of respiratory aerosols. Common examples of AGPs include (but are not limited to): Nebulizer administration, non-invasive ventilation (such as CPAP, BiPAP), open suctioning of airways, sputum induction, highspeed drilling, high-pressure irrigation, cardiopulmonary resuscitation, endotracheal intubation and extubation, bronchoscopy, manual ventilation, high flow O2 delivery. For more information regarding procedures that are considered AGPs see the Centers for Disease Control website cdc.gov/coronavirus/2019-ncov/hcp/faq.html. Note: Inventory must be taken of the AGPs that occur in each HCF for proper planning.
- **Engineering controls:** employer-implemented placement of physical or mechanical barriers between workers and a workplace hazard. Examples include: Plexiglass barriers, self-capping syringe needles.
- **Administrative controls:** employer-implemented changes to employee work processes that reduce or prevent hazardous exposures (example: reducing face-to-face HCP encounters with patients). Effectiveness depends on employer commitment and worker acceptance and consistent use of the strategies.
- **Extended use of PPE:** the practice of wearing the same PPE for repeated encounters with multiple patients without removing or changing in between.

- **Reuse of PPE:** the practice of wearing the same PPE while interacting with multiple patients but removing between encounters.

Conventional capacity strategies

Conventional capacity: refers to measures including engineering and administrative controls and PPE controls that HCFs should already have in place as general infection prevention and control plans. An HCF in conventional capacity status has an adequate supply of PPE available and shortages are not anticipated. With the exception of extended use of respirators or facemasks used only for source control, **extended use and reuse of disposable PPE are not allowed in conventional capacity status.**

- **Engineering and administrative control measures** that should be in already be place in response to the COVID-19 pandemic during moderate to substantial community spread include:
  - Using physical barriers such as glass or plastic windows
  - Reducing the number of patients coming to the hospital or outpatient settings
  - Excluding healthcare personnel (HCP) not essential for care of confirmed and suspected COVID-19 patients from entering the patient care areas
  - Reducing face-to-face HCP encounters with patients
    - **Maximizing** use of telemedicine
    - **Minimizing** number of HCPs entering patient rooms
  - Cohorting patients with confirmed and suspected COVID-19 and the HCP involved in their care
- **N95 Respirator** conventional capacity strategies should include**:**
  - Use as PPE while providing patient/resident care to patients/residents with suspected or confirmed COVID-19
  - Limiting use during training
  - Using qualitative fit testing and just-in-time fit testing
  - Prioritizing the use of standard N95s (non-surgical) for use by HCP who are not working in a sterile field or who do not need protection from splashes, sprays or splatter of blood or body fluids.
  - Allowing the use of NIOSH approved N95s with exhalation valves only when being used as source control. N95s with valves offer the same or better source control as medical facemasks.
    - Respirators with exhalation valves must not be worn when being used as PPE (i.e., to protect HCP's nose and mouth from exposure to splashes, sprays, splatter, and airborne transmission).
  - Using alternatives to N95 such as:
    - Elastomeric respirators
    - Powered air purifying respirators (PAPR)
    - Other filtering facepiece respirators
  - For examples visit cdc.gov/niosh/npptl/topics/respirators/disp_part/default.html
- **Gown** conventional capacity strategies should include:
  - Considering reusable (i.e., washable) gowns
    - These are typically made of polyester or polyester-cotton fabrics.
    - Must be laundered after each use
    - Ensure laundry personnel are augmented to:
      - Account for an increased volume of laundry
      - Inspect and maintain/repair washable gowns
      - Replace damaged gowns
- **Eye protection** conventional capacity strategies should include:
  - Extended use of eye protection may be considered when DC is in ***Substantial*** (orange) or ***High*** (red) levels of community transmission as reported on the CDC COVID-19 Data Tracker

for at least two weeks.
    - If the level of community transmission in DC decreases to ***Moderate*** (yellow) or ***Low*** (blue), extended use must be discontinued once the level of community transmission has been maintained for at least two weeks.
    - The CDC COVID-19 Data Tracker can be found at covid.cdc.gov/covid-data-tracker/#county-view.
  - Considering preferential use of reusable eye protection
    - Reusable face shields or goggles (must be cleaned and disinfected after each use)
    - PAPRs or full-face elastomeric respirators which have built-in eye protection.
      - Appropriate policies for cleaning, disinfection and storage must be in place prior to implementing the use of PAPRs or elastomeric respirators in an HCF. For more information see *Required Personal Protective Equipment (PPE) for Healthcare Facilities* at coronavirus.dc.gov/healthguidance and *Elastomeric Respirators: Strategies During Conventional and Surge Demand Situations* at cdc.gov/coronavirus/2019-ncov/hcp/elastomeric-respirators-strategy/index.html.
- **Facemasks and gloves** should be used according to manufacturer's Instructions for Use (IFU).
- For detailed guidance on PPE for HCF see *Required Personal Protective Equipment (PPE) for Healthcare Facilities* coronavirus.dc.gov/healthguidance.

Contingency capacity strategies

Contingency capacity - measures that may be used temporarily during periods of anticipated PPE shortages. Contingency capacity strategies should only be implemented after considering and implementing conventional capacity strategies. Once PPE supply returns to normal, HCFs should promptly return to conventional practices.

- **Selectively cancel elective and non-urgent procedures and appointments where PPE is used by HCP.**
- Expedite discharges for medically stable patients who require increased consumption of PPE for care, including COVID-19 patients.
- **N95 Respirator** conservation measures should include:
  - Temporarily suspending annual fit testing
  - Prioritizing the use of N95 respirators for HCP to wear as PPE to protect their nose and mouth from exposure to airborne transmission (i.e., during AGPs, airborne precautions), when caring for patients. Respirators should not be used by HCP who are only using them for source control.
  - Considering use beyond manufacturer's expiration date for fit testing and training activities where HCP are not exposed to pathogens
  - Considering extended use beyond the manufacturer's IFU
    - Consider extended use of N95 respirators when sequentially providing care for a large volume of cohorted patients with suspected or confirmed SARS-CoV-2 infection (including those cohorted in a SARS-CoV-2 unit, those in quarantine, and residents in units affected by a SARS-CoV-2 outbreak), or other groups of patients with the same diagnosis.
    - More information on extended use during contingency capacity can be found at cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html#contingency.
- **Facemask** conservation measures should include:
  - Storing facemasks in a secure and monitored location
  - Removing self-serve facemask stations from public entrances
  - Restricting facemasks for use by HCP rather than asymptomatic patients (who may use cloth face coverings) for source control
  - Restricting facemask for use only by HCP when needed as PPE (e.g., encounters with patients

on Droplet Precautions). HCP who only require source control and do not work in patient care areas (e.g., security guard, cashiers) may use a cloth mask.
    - Considering extended use beyond the manufacturer's IFU when used as PPE.
        - More information on extended use during contingency capacity can be found at cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html#contingency-capacity
- **Gown** conservation methods should include:
    - Using coveralls (special consideration for additional training must be anticipated due to higher risk of contamination while doffing)
    - Prioritizing gowns for higher risk activities, such as:
        - For patients with suspected or confirmed SARS-CoV-2 infection during aerosol generating procedures or for activities which involve close and prolonged contact with the patient (e.g., bathing/showering, transferring, providing hygiene, changing linens, changing briefs or assisting with toileting, device care or use, and wound care)
        - For patients colonized or infected with highly resistant organisms (e.g., *Candida auris*, carbapenem-resistant *Enterobacteriaceae* or *Pseudomonas*) for activities which involve close and prolonged contact with the patient or their immediate environment as above.
    - Considering use beyond manufacturer's expiration date for training activities where HCP are not exposed to pathogens
    - Prioritizing surgical gowns for use during surgical or other sterile procedures
    - Considering use of gowns or coveralls that conform to international standards
- **Eye protection** conservation methods should include:
    - Considering extended use beyond the manufacturer's IFU
        - More information on extended use during contingency capacity can be found at cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/eye-protection.html#contingency-capacity
- **Glove** conservation methods should include:
    - Considering use beyond manufacturer's expiration date for training activities where HCP are not exposed to pathogens
    - Considering use of gloves conforming to other U.S. and international standards.
        - Examples can be found at cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/gloves.html#contingency-capacity.
    - Glove extended use or reuse is prohibited under Contingency Capacity.

Crisis capacity strategies

Crisis capacity - strategies that are not consistent with conventional U.S. standards of care but may need to be considered during periods of known PPE shortages. Crisis capacity strategies should **only** be implemented after implementing conventional and contingency capacity strategies. **Once PPE supply returns to normal, HCFs should promptly return to conventional practices.**

- **Cancel ALL elective and non-urgent procedures and appointments where PPE is used by HCP.**
- **N95 Respirator** conservation measures should include**:**
    - Implementing limited reuse **ONLY** (no reprocessing) while in crisis capacity.
        - If limited supply available, respirators should be reserved for Aerosol Generating Procedures (AGP), care provision to patients/residents with pathogens requiring Airborne Precautions (e.g., TB, measles, varicella), and certain surgical procedures that could generate infectious aerosols or involving anatomic regions where viral loads of SARS-CoV-2 might be higher (e.g., ENT

surgeries). Please be aware of the possibility of contact transmission with this option.
    - Consult with the respirator manufacturer regarding the maximum number of uses for the N95 respirator model. If no manufacturer guidance is available, limit the number of reuses to no more than 5 uses per device by the same HCP.
  - Considering use of respirators approved under standards used in other countries that are similar to NIOSH-approved respirators and have been issued a certificate of approval indicating that they conform to the standards.
    - Examples can be found at cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Frespirators-strategy%2Fcrisis-alternate-strategies.html#criscapstrategies
- **Facemask** conservation measures should include:
  - Considering use beyond manufacturer's expiration date for use during patient care activities
  - Implementing limited reuse **ONLY** while in crisis capacity.
    - Not all facemasks can be reused.
    - Facemasks with elastic ear hooks may be more suitable for reuse.
  - Prioritize facemasks for selected activities such as:
    - Performing essential surgeries and procedures
    - During care activities where splashes and sprays are anticipated
    - During activities where prolonged face-to-face or close contact with a potentially infectious patient is unavoidable
    - If respirators are no longer available, during the care of patients with SARS-CoV-2 infection, other infections, or situations for which a respirator is recommended (e.g., during AGPs).
  - **Extreme shortage measures**: If neither a respirator or a facemask is available, HCP **must** use a face shield that covers the entire front (that extends to the chin or below) and sides of the face with no facemask. HCP could also consider the use of cloth masks in combination with a face shield as a last resort for care of patients for which facemask or respirator is normally recommended. Cloth masks as not considered PPE, since their capability to protect HCP is unknown.
- **Gown** conservation methods should include:
  - Considering use beyond manufacturer's expiration date for regular use.
  - Implementing limited extended use **ONLY** while in crisis capacity
    - The same gown (cloth or disposable) can be worn by the same HCP when interacting with more than one patient known to be infected with the same infectious disease when these patients are housed in the same location (i.e., a COVID-19 isolation cohort or isolation wing).
    - This should only be done if there are no additional co-infections which are transmitted by contact (such as *Clostridioides difficile, Candida Auris, CRE*) among patients.
    - If the gown becomes visibly soiled, it must be removed and discarded.
  - **Extreme shortage measures:**
    - When no gowns are available, consider using gown alternatives that have not been evaluated as effective. Preferable features should include long sleeves and closures (snaps, buttons) that can be fastened and secured. Examples 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
- **Eye protection** conservation methods should include:
    - Considering use beyond manufacturer's expiration date for regular use
    - Implementing limited reuse or reprocessing of disposable eye protection **ONLY** while in crisis capacity
    - Prioritize eye protection for selected activities such as:
        - Care activities where splashes/sprays are anticipated, which typically includes AGPs
        - Essential surgeries and procedures
        - Activities where prolonged face-to-face contact with a potentially infectious patient is unavoidable
    - Considering use of alternative forms of eye protection such as safety glasses that cover the sides of the eyes
- **Glove** conservation methods should include:
    - Considering use beyond manufacturer's expiration date for regular use.
    - Considering non-healthcare glove alternatives for activities where HCP are not exposed to pathogens.
    - **Extreme shortage measures**: Consider extended use of disposable gloves. **Email DC Health at dc.hmc@dc.gov if this option is being considered**.
        - Extended of use of gloves consists of leaving gloves on and sanitizing gloves with alcohol-based hand sanitizer between patients.
            - Research has demonstrated that latex and nitrile gloves maintain their integrity when treated with alcohol-based hand sanitizer.
            - This can be repeated for up to a total of 6 applications of hand sanitizer.
            - Glove sanitization must also be done between tasks with the same patient at points where gloves would ordinarily be changed and/or hand hygiene performed (e.g. moving from a "dirty" to a "clean" task).
            - Soap and water or a diluted bleach solution can also be used for sanitizing gloves, but these methods are less preferred. For more information on use of a diluted bleach solution see cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/gloves.html.
        - Gloves must still be changed if they become visibly soiled or damaged.
        - Gloves must also be changed after 4 hours of continuous use.
        - Extended use of gloves is most easily implemented in patients cohorted with the same single infectious disease diagnosis.
        - Gloves should never be re-used (e.g., removed, then re-worn for another patient).
- **For patients under isolation for endemic multidrug resistant organisms (e.g., MRSA, ESBL-producing organisms)**
    - Consider suspending use of gowns.
    - Consider forgoing use of gloves for HCP who do not anticipate physical contact with an isolated patient nor exposure to potentially infectious patient body fluids. There must be scrupulous attention paid to hand hygiene in these scenarios.
    - Consult with DC Health by emailing dc.hmc@dc.gov if these options are being considered.

The guidelines above will continue to be updated as the outbreak evolves. Please visit coronavirus.dc.gov regularly for the most current information.