

# Coronavirus (COVID-19) Pandemic:

## Personal Protective Equipment Preservation Best Practices

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This guidance summarizes best practices for national implementation to sustain personal protective equipment (PPE) while ensuring the protection workers during the coronavirus (COVID-19) pandemic response.

### Objective

The objective of the COVID-19 National Strategy for Addressing Personal Protective Equipment (PPE) Shortage is to ensure protection against COVID-19 for healthcare workers, first responders, and patients by implementing three pillars of practice: reduce – reuse – repurpose. Due to the COVID-19 pandemic response and associated PPE shortages, implementation of contingency and crisis capacity plans may be necessary to ensure continued availability of protective gear.

This fact sheet amplifies [Centers for Disease Control and Prevention \(CDC\) strategies on conventional, contingency and crisis capacity strategies for optimizing PPE](#). All U.S. healthcare facilities should begin using PPE contingency strategies now and may need to consider crisis capacity strategies if experiencing PPE shortages.

### What Do I Do and How Do I Do it?

#### 1. Reduce Usage Rate of PPE by Modifying Normal Operations and Procedures

- Limit the need for PPE by maximizing use of barrier controls whenever possible (e.g. masking patients, Plexiglas barriers, car windows and improved ventilation systems).
- Place IV towers and ventilators outside of patient rooms, as clinically appropriate, to enable appropriate monitoring and management without donning of PPE.
- Automate delivery of food and supplies.
- Use tele-consultation, internet-based interviews, or remote camera-based observation, as available.
- Limit visitor access and offer technology-enabled alternatives (e.g., video chat).
- Understand PPE requirements and burn-rates - [cdc.gov/coronavirus/2019-ncov/hcp/ppe\\_strategy/burn-calculator.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe_strategy/burn-calculator.html)
- Consider extending use-times of undamaged, non-visibly soiled PPE beyond single patient contact and other standard practice durations.
- Note: OSHA has relaxed enforcement of annual fit-testing requirements for N-95 filtering facepiece respirators (FFRs) - [osha.gov/news/newsreleases/national/03142020](https://www.osha.gov/news/newsreleases/national/03142020).



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## 2. Reuse PPE by Implementing Optimization, Decontamination, and Reuse Procedures

- Implement strategies to optimize supplies and equipment: [cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html)
- Implement expanded facility-based PPE reuse policies and procedures.
- Track “check in” and “check out” of PPE designated for reuse. Each worker is provided specific PPE at the beginning of the shift. At the end of the shift, all PPE is labeled, collected, and stored for reuse (which may entail appropriate decontamination using devices with issued Food and Drug Administration (FDA) Emergency Use Authorization (EUA)).
- Implement guidance for decontamination and reuse of FFRs:
  - [cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html)
  - [osha.gov/memos/2020-04-03/enforcement-guidance-respiratory-protection-and-n95-shortage-due-coronavirus](https://www.osha.gov/memos/2020-04-03/enforcement-guidance-respiratory-protection-and-n95-shortage-due-coronavirus)
  - For large-scale decontamination of N-95 FFRs consider using the following methods:
    - Industrial or facility-based vaporized hydrogen peroxide sterilization systems: [fda.gov/media/136529/download](https://www.fda.gov/media/136529/download)
    - Industrial or facility-based moist heat disinfection systems (NOT autoclaves)
    - Facility-based ultraviolet germicidal irradiation (UVGI) systems
  - For low-volume or personal decontamination of N-95 FFRs consider using commercially available microwavable moist heat disinfection devices following manufacturer’s instructions (e.g. do not put metal parts in microwaves).

## 3. Repurpose Alternative Types or Sources of PPE

- Use alternative NIOSH-approved respirators in lieu of N-95 FFR for activities for which respiratory protection is required. See [fda.gov/media/135763/download](https://www.fda.gov/media/135763/download). Examples include:
  - powered, air-purifying respirators (PAPRs);
  - reusable air-purifying respirators (elastomeric half and full facepiece respirators);
  - other disposable air-purifying particulate FFRs.
- Contingency - Seek alternative supplies of PPE.
  - Encourage community members to donate private stocks of unused/unopened surgical masks, gloves, gowns, and N-95 respirators to your facility.
  - Seek PPE and other equipment from dentist offices, veterinarians, individuals, and other sources, including business that are not active.
  - Use commercial sources of industrial Tyvek coveralls, face shields, goggles, shoe covers, etc.
- Crisis - Use N-95 FFRs beyond their expirations dates if certain conditions are met
  - [cdc.gov/coronavirus/2019-ncov/release-stockpiled-N95.html](https://www.cdc.gov/coronavirus/2019-ncov/release-stockpiled-N95.html).

- Crisis - Use FDA authorized imported, non-NIOSH-approved disposable FFRs.
  - [fda.gov/media/136403/download](https://www.fda.gov/media/136403/download)
  - [fda.gov/media/136664/download](https://www.fda.gov/media/136664/download)

## Implementation

Organizations need to assemble a team to carefully review existing Health and Safety Plan (HASP) and Respiratory Protection Plan (RPP) policies and procedures for opportunities to reduce, reuse, or repurpose and should develop contingency and crisis operational plans. Such a team might include (where available) environmental health officers, safety officers, industrial hygienists, logistics officers, infection prevention practitioners, operations chiefs, medical officers, and work-force representatives.

To ensure uniform application of modified practices, processes and procedures, and, concurrently, the safety of workers, all workers must be trained in the plans, with recommended elements of such training including:

- The rationale for changes, contingency and crisis standards during COVID-19 related PPE shortages
- New PPE guidance (FDA, CDC, DOJ) related to COVID-19
- Proper methods to conduct new or changed work practices (e.g., staffing, social distancing)
- Methods to install or utilize any barrier controls (e.g. patient masking, Plexiglas shields)
- Proper donning and doffing of PPE to minimize self-infection
- Proper hand hygiene

