

Issue Brief

Optimizing PPE Supplies with Decontamination and Reuse

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OVERVIEW

Healthcare facilities across the country are experiencing shortages of N95 respirators, facemasks, eye protection, and isolation gowns due to unprecedented demand of personal protective equipment (PPE) during the COVID-19 pandemic. As states and territories are working to improve PPE availability, CDC suggests [strategies](#) for optimizing PPE supplies with conventional, contingency, and crisis capacity guidance. CDC recommends all healthcare systems act now to stretch their PPE supplies to prepare for anticipated supply limitations. Some jurisdictions are exploring decontamination and reuse of disposable PPE to address the shortage. This brief provides key considerations, resources, and examples for states and territories considering PPE decontamination and reuse in healthcare facilities.

STATE AND TERRITORIAL POLICY ACTIONS

- Several state health agencies, including [Connecticut](#), [Oregon](#), and [Pennsylvania](#) issued guidance on PPE conservation.
- [Arkansas](#), [Indiana](#), and [South Dakota's](#) state health agencies developed guidance on extended use and reuse of PPE. [Tennessee](#) issued more specific guidance on extended use and reuse of [eye protection](#), [facemasks](#), and [respirators](#).
- Numerous state health agencies, including [Arkansas](#), [California](#), [Connecticut](#), [Delaware](#), [Georgia](#), and [New York state](#) refer to the CDC guidance on extended use and limited reuse of respirators. [Colorado](#) also developed a concept of operations for managing PPE shortages during the COVID-19 pandemic.

CONSIDERATIONS

- It is important to consider that CDC currently has no approved methods for decontamination of disposable respirators. When decontaminating reusable respirators, [CDC](#) recommends following manufacturers' reprocessing instructions.
- State health officials should work with their state public health lawyers to understand the legal landscape for healthcare facilities and healthcare personnel, including any potential for legal liability that facilities might encounter if their employees reuse decontaminated PPE.
- State health officials should consult with state environmental health and infectious disease directors to understand existing procedures and minimum requirements for management of medical supplies and waste. See [CDC guidelines](#) for decontamination of regulated medical waste.
- When considering decontamination and reuse of disposable PPE (e.g. N95 respirators, face masks, and eye protection), healthcare facilities should consider the following:
 - Determine minimum requirements for efficacy of [ultraviolet germicidal irradiation](#) or other decontamination techniques like [hydrogen peroxide vapor](#) disinfection, [ethylene oxide](#) sterilization, short-term [heat exposure](#), [prolonged storage](#), or other physical or

chemical disinfection processes. Decontamination efficacy may also vary depending on PPE type and its manufacturing.

- Establish protocols for quality assurance and performance monitoring to ensure efficacy of decontamination procedure (e.g. validation tests using biological indicators).
- Set limits on the frequency of decontamination and reuse. Decontamination, combined with repeated donning and doffing, may degrade the physical integrity and effectiveness of PPE. Routine fit testing may be necessary to ensure that PPE still offers protection.
- Assess capacity for onsite decontamination and storage of treated PPE. For offsite decontamination, healthcare facilities may need to plan for transport of hazardous materials.
- There are other alternatives to decontamination and reuse of disposable PPE in healthcare facilities:
 - [Optimize](#) PPE supply with crisis strategies and implementation of administrative and engineering controls. For example, prioritize N95 respirators for healthcare personnel who are considered high risk in order to reduce overall use.
 - Utilize PPE supplies that are safe for [extended use or reuse](#).
 - Consider introducing new disposable equipment, such as coveralls, gowns, and respirators, that have been approved for use in healthcare settings in other countries.
 - Implement [engineering and administrative control measures](#) through isolation rooms, use of physical barriers, properly maintaining ventilation systems, cohorting patients, and limiting face-to-face encounters with patients – including those not directly involved in patient care.
 - Optimize the use of [telehealth](#).

RESOURCES

- CDC/NIOSH hosts a collection of [research studies](#) on decontamination and reuse of respirators for influenza, as well as [guidance](#) for reuse of respirators in healthcare and lab settings.
- FDA research projects demonstrate decontamination of respirators using [ultraviolet germicidal irradiation](#) and [hydrogen peroxide vapor](#). FDA also released a [FAQ](#) document on shortages of surgical masks and gowns.
- [National Guard](#) civil support teams are able to assist states with decontamination and PPE shortages.
- The American Chemistry Council lists [products](#) pre-approved by EPA for use against COVID-19
- Nebraska Medicine issued [guidance](#) on extended use and reuse of disposable face masks, respirators, and protective eyewear during national PPE shortages. Nebraska Medicine also released [guidance](#) for decontamination and reuse of N95 respirators, along with a [one-pager](#) of key points.
- University of Washington issued [guidance](#) for limited reuse of N95 and powered air purifying respirators.
- University of Iowa School of Medicine published [guidelines](#) for PPE reuse.

For questions or feedback, please email preparedness@astho.org.