

Strategies to Optimize the Supply of Personal Protection Equipment (PPE) and Equipment Reference Guide

Summary of Information from The Centers for Disease Control and Prevention (CDC)

This document offers strategies or options to optimize supplies of eye protection, isolation gowns, facemasks, and disposable N95 filtering facepiece respirators (commonly called N95 respirators).

Three general strategies have been used to describe surge capacity and can be used to prioritize measures to conserve PPE supplies along the continuum of care.

- **Conventional capacity:** providing patient care without any change in daily contemporary practices; consisting of engineering, administrative, and personal protective equipment (PPE) controls; should already be implemented in general infection prevention and control plans
- **Contingency capacity:** changes in daily standard practices; may not have any significant impact on the care delivered to the patient or the safety of healthcare personnel (HCP); practices used temporarily during periods of expected PPE shortages.
- **Crisis capacity:** strategies that are not commensurate with U.S. standards of care; considered during periods of known PPE shortages.

Source: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html>

PPE Capacity

Type of PPE / Conventional Capacity	Contingency Capacity	Crisis Capacity
Eye protection Use eye protection, according to product labeling and local, state and federal requirements.	Shift eye protection supplies from disposable to re-usable devices. <ul style="list-style-type: none"> • Implement extended use of eye protection by wearing the same eye protection for repeated contact with different patients and without removing eye protection between patient encounters. • If a disposable face shield is disinfected for re-use, it should be dedicated to one HCP. 	Use eye protection devices beyond the manufacturer-designated shelf life during patient care activities. Prioritize eye protection for selected activities such as during care activities in which: <ul style="list-style-type: none"> • Splashes and sprays are anticipated including aerosol generating procedures. • Prolonged face-to-face or close contact with a potentially infectious patient is unavoidable. Consider using safety glasses with extensions to cover the side of the eyes. Note: mouth and nose also need to be covered by mask.

Type of PPE / Conventional Capacity	Contingency Capacity	Crisis Capacity
<i>Eye protection continued</i>	<ul style="list-style-type: none"> • HCP should take care not to touch their eye protection. • HCP should leave patient care area if they must remove their eye protection. • Eye protection should be discarded if damaged, if face shield can no longer fasten securely to provider, if visibility is obscured and cleaning and disinfection does not restore visibility. 	
<p>Gowns</p> <p>Use gowns according to product labeling and local, state and federal requirements.</p>	<p>Shift gown use towards cloth isolation gowns.</p> <ul style="list-style-type: none"> • Reusable (i.e., washable) gowns, typically made of polyester or polyester-cotton fabrics, can be safely laundered and reused. • Laundry operations may need augmenting to accommodate added laundry. • Establish systems to routinely inspect gowns, repair if gowns are missing fastening ties or have holes, and replace when thin, ripped or not able to be repaired. • Consider the use of coveralls. • Use expired gowns beyond manufacturer-designated shelf life for training. 	<p>Extended use of isolation gowns.</p> <ul style="list-style-type: none"> • Same gown is worn by the same HCP when interacting with more than one patient known to be infected with the same infectious disease when these patients housed in the same location. <p>Re-use of cloth isolation gowns.</p> <ul style="list-style-type: none"> • Disposable gowns are not typically amenable to being doffed and re-used because the ties and fasteners typically break during doffing. Cloth isolation gowns could potentially be untied and retied and could be considered for re-use without laundering in between. <p>Prioritize gowns. Gowns should be prioritized for the following activities.</p> <ul style="list-style-type: none"> • During care activities where splashes and sprays are anticipated, which typically includes aerosol generating procedures. <ul style="list-style-type: none"> ○ During the following high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of healthcare providers, such as: Dressing, bathing/showering, transferring, providing hygiene, changing linens, changing briefs or assisting with toileting, device care or use, wound care. <p>When no gowns are available, consider using:</p> <ul style="list-style-type: none"> • Disposable / reusable (washable) laboratory coats. • Disposable aprons or rain ponchos. • Combinations of clothing:

Type of PPE / Conventional Capacity	Contingency Capacity	Crisis Capacity
<i>Gowns continued</i>		<ul style="list-style-type: none"> ○ 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.
<p>Facemasks</p> <p>Use facemasks according to product labeling and local, state and federal requirements.</p>	<p>Implement extended use of facemask.</p> <ul style="list-style-type: none"> ● The facemask should be removed and discarded if soiled, wet, damaged, or hard to breathe through. ● HCP must take care not to touch their facemask. If they touch or adjust their facemask they must immediately perform hand hygiene. ● HCP should leave the patient care area if they need to remove the facemask. <p>Restrict facemasks to use by HCP, rather than patients for source control.</p>	<p>Use facemasks beyond the manufacturer-designated shelf life during patient care activities.</p> <p>Implement limited re-use of facemasks.</p> <ul style="list-style-type: none"> ● HCP should leave patient care area if they need to remove the facemask. ● Facemasks should be carefully folded so that the outer surface is held inward and against itself to reduce contact with the outer surface during storage. The folded mask can be stored between uses in a clean paper bag or breathable container. HCP name should be written on bag. ● The facemask should be removed and discarded if soiled, wet, damaged or hard to breathe through. <p>When no facemasks are available:</p> <ul style="list-style-type: none"> ● Exclude HCP at higher risk for severe illness from COVID-19 from contact with known or suspected COVID-19 patients. ● Exclude HCP who may be at higher risk for severe illness from COVID-19, such as those of older age, those with chronic medical conditions or those who may be pregnant from caring for patients with confirmed or suspected COVID-19 infection. ● Designate convalescent HCP for provision of care to known or suspected COVID-19 patients. ● Use a face shield that covers the entire front and sides of the face with no facemask. ● Use homemade masks. <ul style="list-style-type: none"> ○ Homemade masks are not considered PPE, since their capability to protect HCP is unknown. ○ Homemade masks should ideally be used in combination with a face shield that covers the entire front and sides of the face.

Type of PPE / Conventional	Contingency	Crisis
<p>Disposable N95 Respirators</p> <p>Use disposable N95 respirators according to product labeling and local, state and federal requirements.</p> <p>Checklist for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response</p>	<p>Use of N95 respirators beyond the manufacturer-designated shelf life.</p> <p>Extended use (wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator between patient encounters):</p> <ul style="list-style-type: none"> • The maximum recommended extended use period is 8–12 hours. • Should not be worn for multiple work shifts and should not be reused after extended use. • Should be removed and discarded before activities such as meals and restroom breaks. 	<p>Use of respirators approved under standards used in other countries that are similar to NIOSH approved respirators.</p> <p>Limited reuse of N95 respirators (using the same N95 respirator by one HCP for multiple encounters with different patients but removing it after each encounter number).</p> <ul style="list-style-type: none"> • Limit reuses to no more than five uses per device. <p>Implement limited re-use of facemasks</p> <ul style="list-style-type: none"> • HCP should leave patient care area if they need to remove the facemask. • Facemasks should be carefully folded so that the outer surface is held inward and against itself to reduce contact with the outer surface during storage. The folded mask can be stored between uses in a clean paper bag or breathable container. HCP name should be written on bag. • The facemask should be removed and discarded if soiled, wet, damaged, or hard to breathe through. <p>Prioritize the use of N95 respirators by activity type, prioritized for HCP with the highest potential exposures including being present in the room during aerosol generating procedures performed on symptomatic persons.</p>