

Coronavirus Disease 2019 (COVID-19)

Strategies for Optimizing the Supply of Isolation Gowns

Audience: These considerations are intended for use by federal, state, and local public health officials; leaders in occupational health services and infection prevention and control programs; and other leaders in healthcare settings who are responsible for developing and implementing policies and procedures for preventing pathogen transmission in healthcare settings.

Purpose: This document offers a series of strategies or options to optimize supplies of isolation gowns in healthcare settings when there is limited supply. It does not address other aspects of pandemic planning; for those, healthcare facilities can refer to [COVID-19 preparedness plans](#).

Surge capacity refers to the ability to manage a sudden, unexpected increase in patient volume that would otherwise severely challenge or exceed the present capacity of a facility. While there are no widely accepted measurement triggers to distinguish surge capacity from daily patient care capacity, surge capacity is a useful framework to apply during a decreased supply of isolation gowns during the COVID-19 response. Three general strata have been used to describe surge capacity and can be used to prioritize measures to conserve isolation gown supplies along the continuum:

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

The following contingency and crisis strategies are based upon these assumptions:

1. Facilities understand their current isolation gown inventory and supply chain
2. Facilities understand their isolation gown utilization rate
3. Facilities are in communication with local healthcare coalitions, federal, state, and local public health partners (including public health emergency preparedness and response staff) regarding identification of additional supplies
4. Facilities have already implemented other [engineering and administrative control measures](#) including:
 - Reducing the number of patients going to the hospital or outpatient settings
 - Excluding HCP not directly involved in patient care
 - Reducing face-to-face HCP encounters with patients
 - Excluding visitors to patients with confirmed or suspected COVID-19
 - Cohorting patients and HCP
 - Maximizing use of telemedicine
5. Facilities have provided HCP with required education and training, including having them demonstrate competency with donning and doffing, with any PPE ensemble that is used to perform job responsibilities, such as providing

Conventional Capacity Strategies

Use isolation gown alternatives that offer equivalent or higher protection.

Several fluid-resistant and impermeable protective clothing options are available in the marketplace for HCP. These include isolation gowns and surgical gowns. When selecting the most appropriate protective clothing, employers should consider all of the available information on recommended protective clothing, including the potential limitations. Nonsterile, disposable patient isolation gowns, which are used for routine patient care in healthcare settings, are appropriate for use by HCP when caring for patients with suspected or confirmed COVID-19. In times of gown shortage, surgical gowns should be prioritized for surgical and other sterile procedures. Current U.S. guidelines do not require the use of gowns that [conform to any standards](#).

Contingency Capacity Strategies

Selectively cancel elective and non-urgent procedures and appointments for which a gown is typically required by HCP.

Shift gown use towards cloth isolation gowns.

Reusable (i.e., washable) gowns are typically made of polyester or polyester-cotton fabrics. Gowns made of these materials can be safely laundered according to [routine procedures](#) and reused. Care should be taken to ensure that HCP do not touch outer surfaces of the gown during care.

- Laundry operations and personnel may need to be augmented to facilitate additional washing loads and cycles.
- Systems are established to routinely inspect, maintain (e.g., mend a small hole in a gown, replace missing fasteners or ties), and replace reusable gowns when needed (e.g., when they are thin or ripped)

Consider the use of coveralls.

[Coveralls](#) typically provide 360-degree protection because they are designed to cover the whole body, including the arms and lower legs, and sometimes the head and feet as well. While the material and seam barrier properties are essential in defining the protective level, the coverage provided by the material used in the garment design, as well as certain features including closures, will greatly affect the protective level. HCP unfamiliar with the use of coveralls must be trained and practiced in their use, prior to using during patient care.

In the United States, the [NFPA 1999 standard](#) [↗](#) specifies the minimum design, performance, testing, documentation, and certification requirements for new single-use and new multiple-use emergency medical operations protective clothing, including coveralls for HCP.

Use of expired gowns beyond the manufacturer-designated shelf life for training.

The majority of isolation gowns do not have a manufacturer-designated shelf life. However, consideration can be given to using gowns that do and are past their manufacturer-designated shelf life. If there is no date available on the gown or packaging, facilities should contact the manufacturer.

Use gowns or coveralls conforming to international standards.

Current guidelines do not require use of gowns that conform to any standards. In times of shortages, healthcare can consider using [international gowns and coveralls](#). Gowns and coveralls that conform to international standards including with EN 13795 and EN14126, could be reserved for activities that may involve moderate to high amount of body fluids.

Crisis Capacity Strategies

Cancel all elective and non-urgent procedures and appointments for which a gown is typically used

Extended use of isolation gowns.

Consideration can be made to extend the use of isolation gowns (disposable or cloth) such that the same gown is used 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 (i.e., COVID-19 patients residing in an isolation cohort). This can be considered only if there are no additional co-infectious diagnoses transmitted by contact (such as *Clostridioides* among patients). If the gown becomes visibly soiled, it must be removed and discarded as per [usual practices](#).

Re-use of cloth isolation gowns.

Disposable gowns are not typically amenable to being doffed and re-used because the ties and fasteners typically become soiled during doffing. Cloth isolation gowns could potentially be untied and retied and could be considered for re-use with laundering in between.

In a situation where the gown is being used as part of standard precautions to protect HCP from a splash, the risk of using a non-visibly soiled cloth isolation gown may be lower. However, for care of patients with suspected or confirmed COVID-19, HCP risk from re-use of cloth isolation gowns without laundering among (1) single HCP caring for multiple patients using one gown or (2) among multiple HCP sharing one gown is unclear. The goal of this strategy is to minimize exposures to HCP and not necessarily prevent transmission between patients. Any gown that becomes visibly soiled during patient care should be disposed of and cleaned.

Prioritize gowns.

Gowns should be prioritized for the following activities:

- During care activities where splashes and sprays are anticipated, which typically includes aerosol generating procedures
- During the following high-contact patient care activities that provide opportunities for transfer of pathogens to 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

Surgical gowns should be prioritized for surgical and other sterile procedures. Facilities may consider suspending use of gowns for endemic multidrug resistant organisms (e.g., MRSA, VRE, ESBL-producing organisms).

When No Gowns Are Available

Consider using gown alternatives that have not been evaluated as effective.

In situation of severely limited or no available isolation gowns, the following pieces of clothing can be considered as a resort for care of COVID-19 patients as single use. However, none of these options can be considered PPE, since the capability to protect HCP is unknown. Preferable features include long sleeves and closures (snaps, buttons) that are fastened and secured.

- 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 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

Reusable patient gowns and lab coats can be safely laundered according to [routine procedures](#).

- Laundry operations and personnel may need to be augmented to facilitate additional washing loads and cycles
- Systems are established to routinely inspect, maintain (e.g., mend a small hole in a gown, replace missing fasteners) and replace reusable gowns when needed (e.g., when they are thin or ripped)

Additional Resources

Strategies for Optimizing the Supply of Eye Protection

Strategies for Optimizing the Supply of Facemasks

Strategies for Optimizing the Supply of N95 Respirators