

# Coronavirus Disease 2019 (COVID-19)

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## Strategies for Optimizing the Supply of Isolation Gowns

Updated Oct. 9, 2020

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Once PPE supplies and availability return to normal, healthcare facilities should promptly resume conventional practices.

### Summary of updates as of October 9, 2020:

- Added considerations for returning to conventional capacity practices.
- Moved the use of reusable (i.e., washable or cloth) isolation gowns to conventional capacity strategies.
- Edited the section on consideration of the use of coveralls.
- Added language to the section on prioritizing the use of gowns.
- Moved the crisis capacity strategy of re-use of isolation gowns to the bottom of the list and added cautionary statements about the risks of this strategy on HCP and patient safety.

**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 tools](#).

**Surge capacity** refers to the ability to manage a sudden increase in patient volume that would severely challenge or exceed the present capacity of a facility. While there are no widely accepted measurements or triggers to distinguish surge capacity from daily patient care capacity, surge capacity is a useful framework to approach a decreased supply of isolation gowns relative to need during the COVID-19 response. To help healthcare facilities plan and optimize the use of gowns in response to COVID-19, CDC has developed a [Personal Protective Equipment \(PPE\) Burn Rate Calculator](#). 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 of care.

- **Conventional capacity:** measures consisting of engineering, administrative, and personal protective equipment (PPE) controls that should already be implemented in general infection prevention and control plans in healthcare settings.
- **Contingency capacity:** measures that may be used temporarily during periods of expected isolation gown shortages. Contingency capacity strategies should only be implemented after considering and implementing conventional capacity strategies. While current supply may meet the facility's current or anticipated [utilization rate](#), there may be uncertainty if future supply will be adequate and, therefore, contingency capacity strategies may be needed.
- **Crisis capacity:** strategies that are not commensurate with standard U.S. standards of care but may need to be considered during periods of known gown shortages. Crisis capacity strategies should only be implemented after considering and implementing conventional and contingency capacity strategies. Facilities can consider crisis capacity strategies when the supply is not able to meet the facility's current or anticipated [utilization rate](#).

CDC's optimization strategies for gown supply offer a continuum of options for use when there are anticipated or known shortages of gowns. Contingency and then crisis capacity measures augment conventional capacity measures and are meant to be considered and implemented sequentially.

Decisions to implement 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 and federal, state, and local public health partners (e.g., public health emergency preparedness and response staff) to identify additional supplies
4. Facilities have already implemented other [engineering and administrative control measures](#) including:
  - Use physical barriers and other engineering controls
  - Limit number of patients going to hospital or outpatient settings
  - Use telemedicine whenever possible
  - Exclude all HCP who are not directly involved in patient care from patient encounters
  - Limit face-to-face HCP encounters with patients
  - Exclude visitors to patients with known or suspected COVID-19
  - Cohort patients and/or HCP
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 provision of patient care.

Once gown availability returns to normal, healthcare facilities should promptly resume conventional practices. Determining the appropriate time to return to conventional strategies can be challenging. Considerations affecting this decision include:

1. the number of patients requiring Transmission-Based Precautions (e.g., number of patients with suspected or confirmed SARS-CoV-2 infection)
2. whether there is evidence of ongoing SARS-CoV-2 transmission in the facility
3. the incidence of COVID-19 in the community
4. the number of days' supply of PPE items currently remaining at the facility
5. whether or not the facility is receiving regular resupply with its full allotment.

## Conventional Capacity Strategies

Note: In general, CDC does not recommend the use of more than one isolation gown at a time by HCP when providing care to patients with suspected or confirmed SARS-CoV-2 infection.

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 shortages, surgical gowns should be prioritized for surgical and other sterile procedures. Current U.S. guidelines do not require [use of gowns that conform to any standards](#). In March 2020, FDA issued an [enforcement policy for gowns and other apparel](#) [☑](#) during the COVID-19 pandemic. In May 2020, FDA issued an [Emergency Use Authorization](#) [☑](#) regarding the use of certain gowns in healthcare settings.

Reusable (i.e., washable) gowns are typically made of polyester or polyester-cotton fabrics. Gowns made of these fabrics can be safely laundered after each use according to [routine procedures](#) and reused.

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 fastening ties)
- replace reusable gowns when needed (e.g., when they are thin or ripped)
- store laundered gowns in a manner such that they remain clean until use.

## Contingency Capacity Strategies

colonized or infected with emerging highly-resistant organisms including *Candida auris*, carbapenemase-producing carbapenem-resistant Enterobacterales, Carbapenem-resistant *Pseudomonas* and *Acinetobacter*, and pan-resistant organisms.

#### Consider using gown alternatives.

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

- Disposable laboratory coats
- Reusable (washable) patient gowns
- Reusable (washable) laboratory coats
- Disposable aprons
- Combinations of pieces of clothing can be considered for activities that may involve high amounts of body fluids and when there are no gowns available:

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 fastening ties) and replace reusable gowns when needed (e.g., when they are thin or ripped)

#### Re-use of isolation gowns.

The risks to HCP and patient safety must be carefully considered before implementing a gown reuse strategy. Disposable gowns generally should NOT be re-used, and reusable gowns should NOT be reused before laundering, because reuse poses risks for possible transmission among HCP and patients that likely outweigh any potential benefits. Similar to extended gown use, gown reuse has the potential to facilitate transmission of organisms (e.g., *C. auris*) among patients. However, unlike extended use, repeatedly donning and doffing a contaminated gown may increase risk for HCP self-contamination. If reuse is considered, gowns should be dedicated to care of individual patients. Any gown that becomes visibly soiled during patient care should be disposed of or, if reusable, laundered.

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Decrease length of stay for medically stable patients with COVID-19.

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

Consider the use of coveralls.

**Coveralls** are less convenient to use in most healthcare settings. Their one-piece design covers the back and lower legs, in addition to arms and the front of the body, making them useful for situations in which vigorous physical mobility is anticipated (e.g., emergency medical services). If coveralls are used, the material and seams should be appropriate to serve the intended barrier function effectively. Facilities should anticipate challenges and potential hazards to staff related to doffing coveralls and should provide training and practice in their safe use and designated places for donning and doffing, before providing them for 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 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 made to using gowns that do and are past their manufacturer-designated shelf life. If there is no shelf life information available on the gown label 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 regulatory standards. In times of shortages, healthcare facilities can consider using **international gowns and coveralls**. Gowns and coveralls that conform to international standards, including with EN 13795 high performance gowns and EN14126 Class 5–6 coveralls, could be reserved for activities that may involve moderate to high amounts of body fluids.

## Crisis Capacity Strategies

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


Extended use of isolation gowns.

Consideration can be made to extend the use of isolation gowns (disposable or reusable) such that the same gown is worn by the same HCP when interacting with more than one patient housed in the same location and known to be infected with the same infectious disease (i.e., COVID-19 patients residing in an isolation cohort). However, this can be considered **only** if there are no additional co-infectious diagnoses transmitted by contact (such as *Clostridioides difficile*, *Candida auris*) among patients. If the gown becomes visibly soiled, it must be removed and discarded or changed as per **usual practices** .

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 other patients and staff via the soiled 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. If used for isolation purposes, the gown must be removed and changed if it becomes soiled, as per **usual practices** . Different areas of the surgical gown may provide different levels of **barrier protection**. Facilities may consider suspending use of gowns for endemic multidrug resistant organisms (e.g., MRSA, VRE, ESBL-producing organisms). Note: the organisms that are considered endemic can vary in different regions. In general, isolation gowns, as part of Contact Precautions, should continue to be used for patients