Department of
Public Health
CITY OF PHILADELPHIA

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Conservation and Mitigation in Settings with Shortages of Personal Protective Equipment

General Principles:

- Personal Protective Equipment (PPE) is amongst the most precious resource to protect our healthcare personnel.
- Conservation and thoughtful reductions in use are essential to manage through responses to large-scale outbreaks, such as COVID-19.
- PPE should be prioritized for use by healthcare personnel with direct face-to-face contact with known or suspected COVID-19 patients.
- Education, training and re-training of health care personnel on appropriate use of PPE and conservation techniques will be critical to maintaining supplies.
- Hoarding and theft, by the general public and healthcare personnel, is a risk and should be anticipated. Securing sites where PPE is stored is important.
- In settings with extreme shortages or outages of PPE, exclude healthcare providers at higher risk for severe illness from COVID-19 from contact with known or suspected COVID-19 patients.
- As available, designate convalescent healthcare providers to provide care to known or suspected COVID-19 patients.

Actions Pertaining to All PPE:

1. Reduce PPE use through limiting number of patient contacts that require PPE.
    - Limit groups of providers from room entry to minimal necessary to provide care.
    - Group care activities to limit number of room entries required.
    - Cancel elective procedures and surgeries to reduce unnecessary use.
2. Consider use of PPE items that are beyond the manufacturer-designated shelf life for training (contingency) or patient care (crisis).
3. Use physical barriers and other engineering strategies to limit the number of staff members exposed/requiring PPE (for example, add plastic barrier at reception desk, eliminate need for signatures on documents and substitute documenting verbal consent.
4. Reduce use of masks and gowns through extended use, re-use, and prioritization strategies listed in table below.
5. In light of emerging evidence of COVID-19 spread by asymptomatic healthcare workers, consider having healthcare workers with direct patent contact implement extended use of surgical masks (details below) throughout the workday.

Philadelphia Department of Public Health Recommendations to Optimize PPE Supply*			
	Eye Protection	**Isolation Gowns**	**Surgical Masks**
Conventional	Use according to product labeling and per CDC's Guideline for Isolation Precautions (2007)*.	Use as outlined by CDC's Guideline for Isolation Precautions (2007)*	Use according to product labeling and per CDC's Guideline for Isolation Precautions (2007)*
Contingency	• Shift from disposable to re-usable. • Implement extended use.[1]	• Preference for cloth isolation gowns, which can be safely laundered.[2]	• Remove face masks for visitor use in public areas.[7] Limit visitation in healthcare sites • Implement extended use of masks.[8] • Restrict mask use to HCP, rather than patients for source control.[9]
Crisis†	• Prioritize eye protection for high-risk activities where splashes/sprays are anticipated or when prolonged face-to-face contact with suspect or proven CoVID19patient is unavoidable. • Consider using industrial or laboratory safety glasses (must have extensions to cover the side of the eyes).	• Extended use of isolation gowns.[3] • Re-use of cloth isolation gowns.[4] • Prioritize gowns for high-risk activities where splashes/sprays are anticipated and during high-contact patient care activities such as dressing, bathing, and wound care.[5] **When No Gowns Are Available:** • Consider using gown alternatives that have not been evaluated as effective.[6]	• Continue extended use[8] and implement limited re-use of surgical masks.[10] • Restrict N95 respirators to "head procedures," such as sample collection or when performing aerosol generating procedures (use surgical masks if respirators are no longer available). **When No surgical masks Are Available:** • Use face shield that covers the entire front (extends to chin or below) and sides of the face with no mask. • Consider use of expedient patient isolation rooms for risk reduction.[11] • Consider use of ventilated headboards. • HCP use of homemade masks.[12]

*** Many healthcare institutions in Philadelphia are presently at the *Crisis* scenario**

† In a crisis scenario, refer to the CDC guidance for additional information on reuse and reprocessing of PPE: https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html

***** Siegel, J.D., Rhinehart, E., Jackson, M. and Chiarello, L., 2007. 2007 Guideline for isolation precautions preventing transmission of infectious agents in healthcare settings.

NOTES:

1. Extended use of eye protection can be applied to disposable and reusable devices. Eye protection should be removed and reprocessed when it becomes visibly soiled. Eye protection should be discarded if damaged Follow proper protocol for removing and reprocessing eye protection. User should visually inspect the product prior to use and, if there are concerns, discard the product.
2. Systems are established to routinely inspect, maintain, and replace reusable gowns when needed.
3. 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 (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 among patients. If the gown becomes visibly soiled, it must be removed and discarded as per usual practices.
4. Any gown that becomes visibly soiled during patient care should be disposed of and cleaned.
5. Surgical gowns should be prioritized for surgical and other sterile procedures. Facilities may consider suspending use of gowns for endemic MDROs (e.g. MRSA, VRE, ESBL-producing organisms).
6. Preferable features include long sleeves and closures that can be fastened and secured. Options include: disposable laboratory coats, reusable patient gowns, reusable laboratory coats, and disposable aprons.
7. Surgical masks can be available to provide to symptomatic patients upon check in at entry points. All masks should be placed in a secure and monitored site.
8. Wearing the same surgical mask for repeated close contact encounters with several different patients, without removing the mask between patient encounters. The surgical mask should be removed and discarded if soiled/damaged/hard to breathe through or if used for aerosol-generating procedures. HCP must take care not to touch their mask and if they do then they must immediately perform hand hygiene. HCP should leave the patient care area if they need to remove the mask.
9. Have patients with symptoms of respiratory infection use tissues or other barriers to cover their mouth and nose.
10. Limited re-use of surgical masks is the practice of using the same mask by one HCP for multiple encounters with different patients but removing it after each encounter. The surgical mask should be removed and discarded if soiled/damaged/hard to breathe through or if used for aerosol-generating procedures. Not all surgical masks can be re-used. HCP should leave patient care area if they need to remove the mask. Surgical masks 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 sealable paper bag or breathable container.
11. Portable fan devices with HEPA filtration that are carefully placed can increase the effective air changes per hour of clean air to the patient room, reducing risk to individuals entering the room without respiratory protection.
12. In settings where surgical masks are not available, HCP might use homemade masks (e.g., bandana, scarf) for care of patients with COVID-19 as a last resort. Caution should be exercised when considering this option. Homemade masks should ideally be used in combination with a face shield that covers the entire front (chin or below) and sides of the face.