

# Hand-Sewn Masks

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## Overview

- There is conflicting research presenting on the use of homemade masks.
  - **Study One:** Homemade masks maybe half as effective as surgical masks and up to 50 times less effective than N-95 masks.<sup>3</sup>
  - **Study Two:** Compared to homemade masks, surgical masks performed three times better in a bacterial filtration test and twice as well at blocking droplets in a cough test.<sup>4</sup>
- The Centers for Disease Control and Prevention (CDC)<sup>1</sup> does not suggest cloth material as a first-line defense against the coronavirus, causing COVID-19.
- While fabric masks are not to be used in the care of COVID-19 patients, according to the CDC, fabric masks are a **crisis response option** when other supplies have been exhausted.
- Fabric masks can also be helpful in other areas of patient care, as supplies of PPE are depleted.
- Cloth masks work well for other conditions and can help conserve precious reserves of N-95 respirator masks.

**\*\*\* Caution should be exercised when considering this option\*\*\***

## Crisis Capacity Strategies

In settings where face masks are not available, healthcare personnel (HCP) might use homemade masks (e.g., bandana, scarf) for the care of patients with COVID-19 as a last resort.

- HCP who at high risk for severe illness from COVID-19 should be excluded from using cloth face masks.
- However, homemade masks are **not considered PPE**, since their capability to protect HCP is unknown.

## Application and Wearing

Homemade masks should ideally be used in **combination with a face shield** that covers the entire front (that extends to the chin or below) and sides of the face.

- Not all face masks can be re-used.
  - Face masks that fasten to the provider via ties may not be able to be undone without tearing and should be considered only for extended use, rather than re-use.
  - Face masks with elastic ear hooks may be more suitable for re-use.
- As it is unknown what the potential contribution of contact transmission is for SARS-CoV-2, care should be taken to ensure that HCP do not touch the outer surfaces of the mask during care, and that mask removal and replacement be done in a careful and deliberate manner.

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## Sterilization Wrap

- If homemade masks are used, **new, unused** surgical overwraps made of spunbound/meltblown layers may be a possible solution as they have the ability to prevent microbial penetration.
- Recommend reading the manufacturer indication to determine microbial effectiveness.<sup>5</sup>
- The following considerations should be made if using or reusing sterilization/instrument wrap including Customize Procedure Tray (CPT) wrap:
  - Inability to identify micron hole protection that breaches the integrity
  - If stapling and sewing is used in mask construction this could create a path for organism penetration
  - Double wrap provides a higher level of bacterial filtration efficiency (BFE) and particle filtration efficiency (PFE) than a single layer
  - Companies who make these products do not have an Emergency Use Authorization (EUA) for the use of this product as a face mask
  - Concerns have been voiced about sterilization exposure prior to mask use degrading the fabric's ability to provide protection as expected as well as concerns about lack of control of environment in which hand-sewn masks are made
- Medline states that if using their Gemini Bonded Wrap:
  - Product should not be previously exposed to steam sterilization.
  - Two, 7.5 x 7.5 inch pieces of material, pleated are needed to create one mask.
  - Contact your local Medline supplier rep for further information regarding product and mask specifications.
- Strongly recommend contacting sterilization wrap manufacturers for information or further specifications regarding use of their products for mask construction.

## Sterilization Filters

- Innovative Sterilization Technologies (IST)/One Tray is donating 500,000 sterilization filters which can be used as an adjunct to PPE for healthcare providers. The filters are microbial and fluid barriers. Testing has shown that the material comply with ASTM F2101 and AS4381 standards for fluid resistance and particulate filtration. To see instructional videos, step by step instructions or to order your free box of filters, visit <http://covid19.onetray.com> or call 937.619.0138. Limit two boxes per facility. Instructions to use the filter to create a face mask or cover to extend the life of N-95 PPE masks is shown below.

## Cleaning and Maintenance

There is limited evidence found to-date on the recommendations or guidelines on how to maintain a homemade mask properly. Some of the findings around maintenance included the following:

- Discard if the material is degraded or if there any visible tears
- If the face mask is removed, it should be done so in a fashion that carefully encloses the outer portion/surface is folded inward and then stored in a clean, sealable paper bag or breathable container.
- Wash mask frequently to eliminate droplet particles that may be residual on the mask.
  - Information on specifics regarding how the mask should be laundered (e.g., water temperature, disinfectants) is unclear.

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### **Additional Clinical Recommendations**

- Designate convalescent HCP for provision of care to COVID-19 patients.
- Consider use of expedient patient isolation rooms for risk reduction (portable fans with HEPA filtration to increase air exchanges).
- Consider use of ventilated headboards. National Institute for Occupational
- Safety and Health (NIOSH) has developed the ventilated headboard that draws exhaled air from a patient in a bed, decreasing risk of HCP exposure to patient-generated aerosol.

### **References:**

1. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html>
2. <https://www.healthline.com/health/coronavirus-mask>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2440799/>
4. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2440799/>
5. <https://www.infectioncontroltoday.com/environmental-hygiene/choosing-sterilization-wrap-surgicalpacks>

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