

## Question: Can cloth or homemade masks be used safely for patient care?

### Background:

Centers for Disease Control and Prevention (CDC) published new Crisis Capacity Guidelines for conservation of Personal Protective Equipment (PPE) on March 17, 2020, which state healthcare professionals (HCP) might use homemade cloth masks for care of patients with COVID-19 as a last resort if facemasks are not available.<sup>1</sup>

### Key Considerations:

We recommend hospitals focus on every avenue to conserve facemasks, face shields and N95 respirators before considering cloth masks or homemade masks. DICON and several other academic medical centers (Nebraska, Emory etc.) have provided PPE conservation strategies:

- [Instructions for Extended use of N95 and PAPR](#)
- [PPE Conservation Strategies](#)
- Review <https://dicon.medicine.duke.edu/ppe-linen-waste> for updates periodically
- [Nebraska Medicine COVID-19 PPE Guidance: Extended Use and Limited Reuse of Disposable Facemasks, Respirators and Protective Eyewear](#)
- [Reusing Face and Eye PPE - Extended Wear](#)
- [Reusing face shield, eyewear, and N95](#)

### In what instances are masks used?

There are two most common instances in which masks are used. In the first instance, masks are used to protect healthy individuals who are in contact with sick patients. In the second instance, masks are used to prevent droplet spread from infected individuals that may infect others directly or indirectly (via contaminated fomites). Cloth masks are clearly inferior to surgical masks when used to protect HCPs and others from respiratory virus transmission.

### What data support that cloth masks or homemade masks are inferior to facemasks?

Cloth masks are scientifically proven to be inferior to surgical facemasks and respirators. A 2015 study cautions against the use of cloth masks noting that particle penetration was 97% for cloth masks, 44% for surgical facemasks, and 0.1% for N95s.<sup>2</sup> Various cloth masks (made of cotton, gauze and other fibers) tested in vitro show lower filtration capacity compared with disposable masks.<sup>3</sup> Another study found that commercial surgical facemasks were three times as effective as homemade masks at preventing the spread of the influenza.<sup>4</sup> Cloth masks were associated with poor filtration, moisture retention and increased reuse resulting in increased risk of infection.<sup>2</sup> These findings suggest that cloth masks should **NOT** be recommended routinely for HCPs, particularly in high-risk situations.

### Conclusion:

Homemade cloth masks are not considered PPE, since their capability to protect HCPs is unknown.<sup>1</sup> HCP use of homemade masks should be considered **ONLY** in settings where facemasks are not available. We recommend that hospitals remain mindful of their individual and regional supply chains of PPE as

they consider these recommendations. If facemask supplies are running low, the goal should be to salvage facemasks for high-risk settings. If hospitals resort to cloth masks due to dire shortage, then HCPs should wear face shields to completely cover their face. Hospitals should continually re-evaluate supply chains and provide facemasks as soon as possible in these situations. In the meantime, we recommend facilities focus on extended use, re-use and other strategies for conservation of PPE.

**References:**

1. Centers for Disease Control and Prevention: Strategies for Optimizing the Supply of PPE <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html>
2. Quesnel LB. The efficiency of surgical masks of varying design and composition. *Br J Surg.* 1975;62(12):936–940. doi:10.1002/bjs.1800621203
3. MacIntyre CR, Seale H, Dung TC, et al A cluster randomised trial of cloth masks compared with medical masks in healthcare workers *BMJ Open* 2015;5:e006577. doi: 10.1136/bmjopen-2014-006577
4. Davies A, Thompson KA, Giri K, Kafatos G, Walker J, Bennett A. Testing the efficacy of homemade masks: would they protect in an influenza pandemic? *Disaster Med Public Health Prep.* 2013;7(4):413–418. doi:10.1017/dmp.2013.43

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