

SARS-CoV-2 transmission and mask wearing.



The fast expansion of SARS-CoV-2 infected cases (2.2M cases as of 18th April 2020) has drawn attention to the viral transmission mechanisms and raised questions about the virus viability in the environment. According to Doremalen *et al.*, SARS-CoV-2 (viral DNA) is detectable for up to 3hrs in aerosols and between 3 hrs and 2 days depending on the surface (Doremalen *et al.*, 2020), **thus suggesting aerosol and fomite SARS-CoV-2 transmission**. Various preventive measures are being taken in different countries to contain the pandemic, including but not limited to social distancing and frequent hand-washing (with soap) which aims to reduce fomite transmission. Use of face masks, has gained much attention, with the World Health Organization urging people to use them wisely as there is a worldwide shortage. As a result, the general public has started using cloth masks as an alternative, although their efficacy remains to be proven.

If a complete shortage of N95 and medical masks (surgical masks) occurs health care workers (HCWs) may be required to find alternative personal protective equipment. ***Are cloth mask still suitable for the HCWs?*** In 2011, MacIntyre and colleagues conducted a randomised clinical trial to compare the effectiveness of disposable medical masks (surgical masks) to that of cloth masks against respiratory infections in HCWs. They randomised HCWs (n=1607) three arms: medical masks worn during the entire shift, cloth masks worn during the entire shift, and a control arm with standard practice, which may or

may not include mask use. Interestingly, the cloth masks arm was found to present the highest risk (incidence) of respiratory infections. The authors cautioned against the use of cloth masks by HCWs. Several factors are likely to increase the infection risk including “the physical properties of a cloth mask, reuse, the frequency and effectiveness of cleaning, and increased moisture retention”. The quality of cloth masks varies considerably around the world and depends, inter alia, on the fineness of the weaves and the number of layers.

However, are cloth mask still suitable for the general public?

Recently published research by Leung et al., demonstrate reduced detection of coronavirus* RNA in aerosols when surgical masks were used (Leung et al., 2020). Based on this, cloths masks should also aim to reduce aerosol spread. Use of cloth face masks may give individuals a false sense of protection, which may lead to relaxing of other preventative measures such as social distancing and frequent hand washing. Further studies are needed to help design effective cloth masks and establish guidelines for use to provide a safe and low-cost option for HCWs in times of N95 and surgical mask shortages, as well as the general public.

**Coronavirus strains detected by Leung et al., are NL63, OC43 and HKU1 responsible for the common cold.*

Reference:

- Doremalen et al., 2020. [Aerosol and surface stability of HCoV-19 \(SARS-CoV-2\) compared to SARS-CoV-1.](#) NEJM
- Leung et al., 2020. [Respiratory virus shedding in exhaled breath and efficacy of face masks.](#) Nature Medicine
- MacIntyre et al. 2015. [A cluster randomised trial of cloth masks compared with medical masks in healthcare workers.](#) BMJ Open

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