

Invited Editorial**Invited Editorial: Effectiveness of Surgical and Cotton Masks in Blocking COVID-19 Spread.**

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Received: July 19, 2020

Accepted: September 11, 2020

Published: October 30, 2020

Volume: 8 Issue: 4

Conflicts of interest: None

Funding: This work has no funding or financial source.

Key words:COVID-19,
Medical Mask,
Surgical Mask,
Cotton Mask,
Cloth Mask,
Infection**ABSTRACT**

The use of cloth mask or cotton mask by health care workers or the general public in infection prevention has been cautions in a large sampled cluster randomized trial of cloth masks compared with medical masks. The study concluded that medical or surgical mask was potent in preventing infection in the hospital setting. A new study however detected greater contamination of COVID-19 on the outer surfaces both surgical mask and cotton or cloth mask than the inner mask surfaces. This study goes contrary to the early studies on the use of surgical mask for infection prevention. This currently study is misleading and distorting the literature on the use of surgical mask in infection prevention. In the current COVID-19 outbreak, it is most anticipated that hospital as well as community prevention of the spread of the disease involves the use of medical mask and not cloth mask.

INVITED EDITORIAL

The usage of cloth mask or cotton mask by health care workers or the general public in infection prevention has been cautions in a large sampled cluster randomized trial of cloth masks compared with medical masks. The study established that medical or surgical mask was potent in preventing infection in the hospitals. Nevertheless, Bae et al indicated their study that, they detected greater contamination on the outer than the inner mask surfaces of both surgical mask and cotton mask [1]. This finding cannot be true because product of cough composes of different particle sizes. Large particles are almost in droplets forms, this droplets types ($>10\mu\text{m}$) cannot cross surgical mask but may wet cotton or cloth masks. Bae et al further stated that, although it was possible that virus particles may cross from the inner to the outer surface because of the physical pressure of swabbing, they swabbed the outer surface before the inner surface [1]. Indeed, they swabbed larger droplets at the inner surface, thus, it is very unlikely (100%) that viral load at outer surface will be more than viral load at the inner surface. You can demonstrate the above by using a cloth to cover your nose/mouth and induce cough or sneeze. You will notice large droplets on the inner

surface than the outer surface. Large droplets contain more virus than very tiny drops that are likely to even cross over to the outer surface. Nevertheless, they did not show image as prove that, droplets were not found at the inner surfaces of the both mask categories. Also, the number of patients involve in their study (4 patients) is very inadequate to arrive at their conclusions.

Bae et al explained that, the consistent finding of viruses on the outer mask surfaces was unlikely to have been caused by experimental error or artifact [1]. This findings is clearly misleading as well as wrong and not just merely experimental errors. They clarify that, the mask's aerodynamic features may explain their findings. The aerodynamic clearly does not allow droplets to cross from the inner to the outer with even the greatest of force or pressure in the surgical mask. Bae et al insisted that, a turbulent jet due to air leakage around the mask edge could contaminate the outer surface [1]. Turbulent jet cannot result in higher viral load at outer surface than the inner surfaces. Bae et al indicated further that, alternatively, the small aerosols of COVID-19 generated during a high-velocity cough might penetrate the masks. Although smaller particles are likely to cross the inner surface to the

outer surface, the viral load at outer surface can never be more the viral load at inner surface. This makes their entire findings misleading and wrong. Bae et al concluded that, their hypothesis may only be valid if the coughing patients did not exhale any large-sized particles, which would be expected to be deposited on the inner surface despite high velocity [1]. Patients who wear surgical or cotton mask does not exhale or swallow the droplets back. The droplets often remain on inner surfaces of the mask. This further make their finding misleading and wrong. Medical workers especially surgeons can affirm the claims above.

They concluded that, their observations support the importance of hand hygiene after touching the outer surface of masks [1]. Hand washing is an integral component of preventing COVID-19 because, it has been demonstrated that, the virus rest on surfaces for hours [2]. Therefore, patients are likely to touch those surfaces even wearing surgical mask and inoculate the virus after removing the Mask. Conventional, the WHO advocates that, medical masks should be reserved for healthcare workers and for people with symptoms, as well as caregivers in the same room as an infected person [3]. WHO stands is based on the rush for surgical mask by the general population depriving frontline care provides surgical mask in various countries [3]. WHO also offers advice on safe mask removal: untie it from behind (don't touch the front) and wash your hands immediately after disposal [3]. One could touch object containing the virus on surfaces and inoculate the virus on outer surface by touch the outer surface. It is worth noting that, cough and sneezing are involuntary actions and the patients cannot control it. Therefore, the healthy persons must control how they receive the droplet and aerosols generated from the caught or sneezing by wearing surgical mask. This this the reason why it is imperative every body wear surgical face mask.

Also, surgical mask offers up to 80-90% chance of preventing droplet as well as aerosol dissemination of the virus when the infected person wears it [4]. The other question is? In the community setting with asymptomatic patients how do you differentiate the infected person from the healthy persons. It is therefore imperative that everybody wear surgical mask as much as possible and not cloth masks. MacIntyre et al in a cluster randomized trial of cloth masks compared with medical masks in healthcare workers caution against the use of cloth masks [4]. They indicated that, their findings were crucial and of occupational health and safety. They concluded that, moisture retention, reuse of cloth masks as well as poor filtration may result in increased risk of infection. They indicated that, as a precautionary measure, cloth

masks should not be recommended for health care workers, specifically in high-risk situations, and guidelines ought to be updated [4]. Therefore, during this COVID-19 outbreak, it is most anticipate that hospital as well as community prevention of the spread of the disease involves the use of medical mask and not cloth mask.

A very recent comment published by Feng et al indicated face masks are commonly used by medical workers as part of droplet protections when caring for patients with respiratory infections [5]. They therefore advocate that susceptible persons avoid crowded areas as well as use surgical masks judiciously when exposed to high-risk areas. COVID-19 could be transmitted before symptom onset, community transmission might be decreased if everyone, including people who have been infected but are asymptomatic as well as contagious, wear surgical masks [5]. In conclusion, multi-infection control measures such as social or physical distancing, wear of surgical mask, frequent hand washing and the use of sanitizers will lessen the spread of COVID-19. Infected patients should not be nursed at home since they are capable of infecting care providers and the community at large.

ACKNOWLEDGEMENTS

Not applicable.

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