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Editorial: Facemasks revisited: what should health professionals be telling the public now about the use of masks?

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Introduction

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/nhs.12977](https://doi.org/10.1111/nhs.12977)

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Prior to the Covid 19 pandemic, who could have imagined athletes wearing colorful cloth masks on the podium in the Olympic games or that masks themselves would become such a divisive issue? Just over two years ago, in Western countries, people were told to remove masks because they scared others (Omura et al., 2020) and were unnecessary. At the time, there was an acute shortage of personal protective equipment (PPE) for health professionals and widespread inappropriate use of facemasks, and our recommendation, in line with the World Health Organization, was for the general public to prioritize handwashing and social distancing over mask use (Stone et al., 2020; WHO, 2020). Later, facemasks for the general public were mandated or recommended in many settings, and currently, these rules are being relaxed across the globe. In this editorial, we revisit the topic of facemasks for the general public and the advice we should be giving them on the effective use of masks.

Public health advice

As the fight against the COVID-19 pandemic intensified, the Governments of many countries made wearing facemasks mandatory or strongly recommended. However, with the emergence of the highly infective Delta variant of the SARS-CoV-2 virus, the Centers for Disease Control and Prevention (CDC) in the US reversed their guidance and recommend that fully vaccinated adults and even children in schools should wear masks indoors in high transmission communities as they could carry more virus than previously thought (CDC, 2021).

The World Health Organization (World Health Organization, 2022a), updated health advice in May 2022 after the omicron variant emerged, issuing clear guidelines on who should wear a mask, which should be worn, and when. The accepted position is that when community transmission is high, wearing a mask should be part of a suite of infection control measures along with simple precautions such as physical distancing, hand hygiene, cough etiquette, avoiding crowds, and good ventilation (Australian Government, Department of Health [Aust Gov, DoH], 2021;(World Health Organization, 2022a). However, despite health advice and legislation, there is still resistance to mask-wearing among the general public and inadvertent improper use of the masks. Politicians have been reluctant to mandate masks, for example citing “public fatigue” or because they have been seen as a symbol of “elite oppression” <https://blogs.bmj.com/bmj/2021/09/28/on-the-psychology-and-politics-of-wearing-masks/>

, and legislation may not reflect best health practices. As health professionals, it is our role to educate people to correctly use, store, dispose, or clean masks and to attempt to keep up with the latest research on the topic.

What has changed since last we wrote?

Accepted Article

There have been several substantial changes since the last editorial. Supplies of facemasks have greatly improved, and there is no need to reserve them for frontline healthcare staff. There is also more clarity about the mode of transmission for the coronavirus SARS-CoV-2 that causes Covid 19. An analysis of the disease on the *Diamond Princess* cruise ship showed that airborne transmission by small aerosols containing SARS-CoV-2 was most likely the dominant mode of COVID-19 transmission (Azimi, Keshavarz, Laurent, Stephens, & Allen, 2021). In contrast, WHO and the CDC had previously held that the virus was transmitted primarily through larger respiratory droplets and direct and indirect contact, while airborne aerosol transmission of the COVID-19 virus was unlikely to be a major route of transmission other than in clinical settings where there were aerosol-generating procedures (Azimi et al., 2021).

Disinfection of surfaces, handwashing, and hand sanitizer were foregrounded as a means of avoiding infection, and research showed that traces of the virus could remain infectious on hard surfaces for several days, and billions of dollars have been spent on cleaning by the public and authorities (Lewis, 2021) but the likelihood of transmission via surfaces is thought to be very small unless someone touches a surface on which an infected person has recently coughed or sneezed (within 1-2 hours) (Goldman, 2020).

The emergence of variants has also been a game-changer. For example, the Omicron variant was three to six times as transmissible as Delta (Callaway & Ledford, 2021). However, new variants such as the BA.2.12.2 are more transmissible and infectious (Lennon, 2022), reinforcing the importance of mask-wearing because evidence indicates that masks reduces transmissibility (Howard, et al., 2021). Conversely, the perception is that Omicron is less severe, and the narrative in many countries has become more about living with the virus than preventing it. Many countries are in a stronger position than they were at the beginning of the pandemic, with much of their population vaccinated. However, vaccine distribution has been unequal, leaving poorer countries vulnerable (World Health Organization, 2022b).

How effective are the masks people are wearing, and what advice should we give to enhance effectiveness?

There is no high level of evidence regarding the efficacy of face masks used by the public on the transmission of SARS-CoV-2 because of ethics and logistics in this pandemic (Howard, 2021). However, a recent systematic review and meta-analysis of 6 case-control studies concluded that mask-wearing could reduce the risk of COVID-19 transmission (Li et al., 2021). There has been much controversy on the effectiveness of mask use among the general population, but it is likely that mask use has substantially prevented the spread of infection (Lyu & Wehby, 2020).

Masks protect other people from large droplets from coughs and sneezes emitted by the wearer and may also block a significant proportion of aerosol droplets (Greenhalgh, 2020).

In terms of the type of mask, there are differences in efficacy. A random controlled trial in Vietnam compared cloth and medical masks with over 1,600 hospital workers found that cloth mask users had a much higher rate of symptoms like influenza and viral infections thus cloth masks should be used with caution (MacIntyre et al., 2015). Cloth masks may not wholly block droplets, but most double-layer masks seem to filter more than 90% of them (Greenhalgh, 2020). The best cloth masks have a removable filter or three layers of material, a tighter fabric weave, and are made of flexible rather than stiff material (Pan, Harb, Leng, & Marr, 2021). Donning and doffing are not as critical for the general public as in a clinical setting, but mask users should be advised to wash their hands after removing the mask and not to launder it with other washing (Greenhalgh, 2020).

When buying a surgical mask online, care should be taken because it is hard to distinguish between genuine masks and fakes and even on well-known online retail sites (Chen, 2021).

Resistance and misinformation about mask-wearing

Why are some people reluctant to or even refuse to wear a mask? In the US, factors that are reported to influence mask-wearing in public include age, gender, and political affiliation. Females are more likely to wear a mask than males, and we saw how former president Trump influenced his followers on the matter (Brenan, 2020; Jerry, 2020): the reason for this may be that men see mask-wearing as “unmanly” (Zagury-Orly, 2020). Experts in psychology explain the anti-mask attitude in terms of psychological reactance (Taylor & Asmundson, 2021). An individual’s opinion of risk and inclination to risk behavior may impact the decision to wear a mask and the way they wear it. These people may feel threatened or their freedom violated when given an order from authorities. As a result, they chose not to wear a mask to re-establish their freedom to behave the way they want (Wall, Balani & Larkin, 2020).

People may not wear masks because they do not believe they work. For example, a 2021 survey of over 2000 adults from the US and Canada found negative attitudes towards wearing masks related to the belief that masks are ineffective (Taylor & Asmundson, 2021).

How can we encourage the public to wear masks?

Showing consensus is a persuasive strategy to motivate people to adhere to public health guidance. When people repeatedly see a particular widespread behavior, they are encouraged to do the same (Wall et al., 2020). A desire for conformity may dissuade people from wearing masks if others are not doing so (Zagury-Orly, 2020). People may accept the guidance, especially when clear messages consistently come from a trusted source; however, some suggest personalized persuasion or modifying the messages based on people's personal beliefs (Wall et al., 2020). The publication of fact-checks to combat common myths about Covid-19 is effective in the short term (Carey et al., 2022).

Correcting misinformation about masks is also an important role of health care professionals. There is a widespread belief that masks may interfere with breathing. However, there is no evidence that this is the case, and the prolonged use of medical masks does not lead to CO₂ intoxication or oxygen deficiency (Jarry, 2020). However, there is some dissent about this (Kisielinski et al., 2021).

What are the downsides of wearing a mask?

Most concerns about mask-wearing, such as skin irritation and discomfort, are minor for members of the general public, but health workers wearing N95 and goggles for extended periods may experience headaches, acne, and rashes (Han *et al.*, 2020) as well as skin abrasions. In addition, masks may obscure the lower peripheral vision, especially if wearing glasses: the lower peripheral vision is an essential sensory function that guides us when we walk to prevent tripping or falling (Kal, Young, & Ellmers, 2020). Therefore, the authors advise people to slow down and avoid looking at their feet to avoid tripping (Kal et al., 2020). This is particularly important for older people. People should ensure that the mask fits tightly around the nose and cheeks to avoid fogging up glasses and that a drop of washing up detergent on spectacles may reduce fogging (Kal et al., 2020).

The use of PPE and masks during the pandemic, while unavoidable, has significant environmental impacts. In China alone, 468.9 tons of medical waste are generated every day associated with COVID-19. Across Asia, the total medical waste generated in Asia was estimated to be around 16,659.48 tons/day. The sheer bulk of this has overwhelmed resources and led to environmental contamination with surgical facemasks, a source of high microplastic fibers (Sangkham, 2020). Mask loops threaten marine animals and birds who may become entangled or ingest the mask: snipping the loops before disposing of a mask is optimal (Silva et al., 2021). An estimated 1.6 billion disposable masks ended up in the ocean in 2020, and masks will take 450 years to degrade, releasing potentially hazardous chemicals and microplastics (Silva et al.,

2021). Therefore, urgent development of biodegradable or reusable masks is required, and consideration to the wearing of washable cloth masks for the general public.

What strategies can health professionals use to persuade people to wear masks?

It is imperative that you have the latest advice on mask use before advising other people. Links in this article provide you with information current at the time of publication. Among the World Health Organization's many free online courses for health professionals is "Guidance on mask use in the context of Covid-19" <https://openwho.org/courses/COVID-19-mask-use>, and you will be provided with a certificate on successful completion of the quiz.

Conclusion

Health advice on the wearing of facemasks has been rapidly changing, and at times it appears that WHO and CDC advice lags behind the latest research on the topic. Regardless of vaccination status, people should be advised to continue wearing masks when on public transport or unable to physically distance themselves. Our advice to the public should be to wear an effective mask, use it properly, and ensure you don and doff safely - but at the end of the day, any mask is better than none. We may "over" Covid, but Covid is not yet over us.

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