

Face masks are an essential tool to mitigate the ongoing SARS-CoV-2 pandemic: a call to action*

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To the Editor,

Over the past several months, an increasing volume of information has expanded awareness regarding the transmission of SARS-CoV-2, the novel coronavirus associated with COVID-19. Following the pandemic declaration by the World Health Organization (WHO), global authorities immediately took measures to reduce the transmission and subsequent morbidity associated with this highly contagious disease. However, despite initial success in “flattening the curve” of viral transmission, many areas of the world are currently experiencing an increase in community transmission, threatening to replicate the early public health emergencies experienced by Italy^(1,2). In addition, the possibility of contact tracing through geosocial applications and public service platforms have been met with variable interest⁽³⁾. Given current spread and the upcoming influenza season, it is essential that we use our voices as experts in upper airway health and disease to educate and encourage all communities to adopt appropriate protective measures, including the routine use of facemasks.

Recent studies have identified the sinonasal epithelium as a clinically important site for SARS-Cov-2 infection. In addition to the first mucosal tissue exposed to many airborne viral illnesses, several cellular components of the sinonasal epithelium highly express the ACE-2 receptors bound by SARS-Cov-2. This may explain the unique olfactory symptoms experienced by many patients with COVID-19^(4,5). A simple physical barrier could effectively impact this route of transmission by both minimizing the spread of viral production, as well as one’s exposure.

While social distancing is an important aspect of prevention, it is not universally protective. On passive exhalation, respiratory droplets >0.1 mm, depending on particulate size, humidity and temperature will either evaporate or fall upon a surface within

a 2-meter (6.56 foot) range. However, coughing or sneezing propels droplets with a “muzzle velocity” of up to 50 meters/second, traveling distances as far as 6 meters (19.69 feet)⁽⁶⁾. In such cases, “safe social distancing” of 6 feet may not protect from viral transmission. The partial filtering offered by masks needs to be promoted as an essential component of standard preventative practice.

While the protection provided by facemasks varies by design, there is a benefit offered by all. In an experimental simulation comparing the filtering capacity of homemade (DIY) cloth, procedural and FFP2 certified, or N95, masks, Van der Sande et al. found that all types of masks reduced aerosol exposure and remained relatively efficacious over time⁽⁷⁾. FFP2 masks filtered out more than 99% of particles, leading to a reduction of inhaled aerosol load by 100-fold, while surgical and DIY masks lowered aerosol load by 2-4-fold, offering significant protection from inhaled aerosols. Further, significant reductions in exhaled particulates were associated with FFP2 and procedural masks, but not DIY.

There are countries like South Korea, Japan, Singapore, and even the epicenter of the pandemic - China - that seem to have controlled the spread of COVID-19. It is essential to highlight that one of the major guidelines these countries followed to contain the spread of the disease was the mandatory use of protective masks/covers in public. In Beijing, a study of community transmission found that consistent public mask use was associated with a 70% reduction in the risk of spreading SARS⁽⁸⁾. Countries around the world are therefore implementing face mask distribution strategies to accompany requirements for public use. Examples include Singapore, which has installed facemask vending machines to distribute over 5 million to its residents for free, and Hong Kong, which is currently distributing close to 8

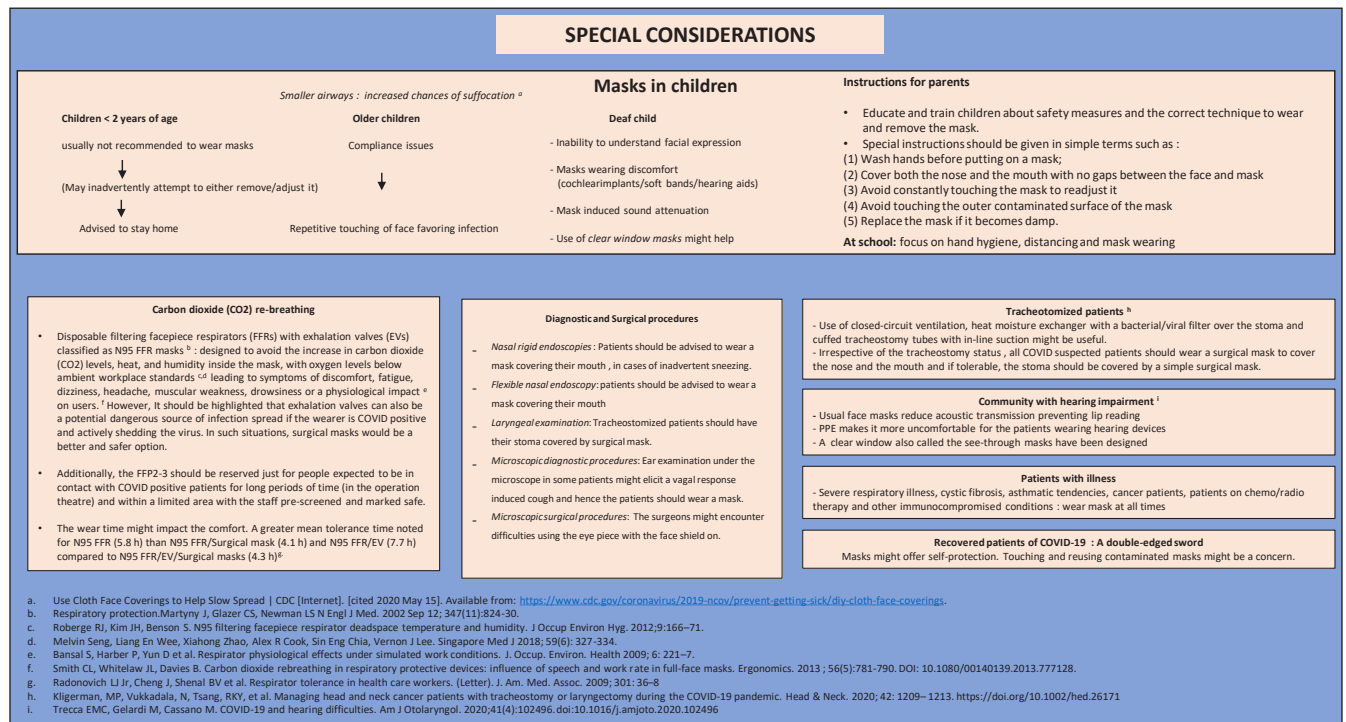


Figure 1. Special considerations.

million masks with two each to kindergarten and primary pupils under their free mask scheme: CuMask+⁽⁹⁾.

As with hand hygiene and physical distancing, population compliance plays a key role in the success of any epidemiologic intervention. For example, Vietnam has had a commendable response to the outbreak. With a total of 1,007 confirmed cases and a death rate/100,000 population of 0.03 as of August 2020, it has set an example for the world. A habitual mask-wearing population, early intervention, vigorous quarantine policies and complete contact tracing have helped Vietnam in effectively fighting COVID-19.

The WHO has reversed its early position on wearing masks in public, during home care, and in healthcare settings in areas that have reported cases of COVID-19⁽¹⁰⁾. As healthcare providers with expertise in the head and neck area and an ethical obligation to advocate for the health of our patients and communities, we must leverage the voices of our professional societies to support the universal use of protective facemasks as long as community transmission of the novel coronavirus remains a threat. There are some special considerations regarding the use of mask that needs to be discussed with the community (Figure 1). Clear guidelines for universal use of personal protective equipment are essential to limit the infection spread as communities around the world continue to grapple with this evolving pandemic. Wearing a mask is one such simple measure that would help contain the virus. But as the Little Prince said: "The essential is invisible to the eye".

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Authorship contribution

Conception or design of the work: PDM; Data collection, analysis and interpretation: PDM, AKZ; Drafting the article and final approval of the version to be published: PDM, AKZ, JML.

Conflict of interest

Association Naso Sano is a non-profit volunteer organization that promotes Otolaryngology research and treatment, focusing mainly on the prevention of diseases involving the nose, sinuses and head neck cancers. Based in Corciano in the Umbria region of Italy. <https://www.nasosano.it>

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