

Which face mask is right for you, is a respirator better?

RESPIRATOR Face mask or respirator?

a face mask that works for you

What is the effectiveness of standard face masks compared to respirators in preventing COVID-type respiratory diseases?

VERDICT

Standard surgical masks, (face mask) are as effective as respiratory masks (e.g., N95, FFP2, FFP3) to prevent infection of healthcare workers in outbreaks of viral respiratory diseases such as influenza.

A test for these COVID-19 masks has not been published yet. Neither (standard surgical mask) nor the other respiratory face masks (N95, FFP2, FFP3) protect against all infections. Both types of masks should be used in conjunction with other PPE (personal protective equipment). Respirator masks are recommended to be protected during aerosol generating procedures (AGP). Extensive research into PPE measures when generating AGP is currently underway.

Many worldwide studies comparing standard face masks with respirators have been performed in hospitals for influenza or other respiratory diseases. These studies have not been published in primary care and community care studies of severe acute respiratory syndrome 2 coronavirus (SARS-CoV-2) COVID-19 infection. Therefore, the current recommendations are based in part on circumstantial evidence, in particular from past outbreaks of influenza, SARS and MERS, as well as expert judgment, customs and practices.

Policy guidelines from various bodies (e.g., England Public Health, WHO) emphasize the need to assess the risk of a collision and use the recommended combination of equipment in that situation. A face mask and other highly effective PPE (eye protection, gloves, long-sleeved bathrobe, used for good dressing / undressing) are needed to protect against small airborne particles during aerosol generating procedures (AGPs) such as intubation. For non-AGP, there is no evidence that respirators have added value compared to standard masks when both are used in conjunction with the recommended broader PPE measures.

A recent meta-analysis of standard (face mask) and respirator (N95 or FFP) masks by the Cochrane Center in China covered six RCTs, for a total of 9,171 participants with influenza-like illnesses (including pandemic strains, seasonal influenza A or B viruses, and zoonotic viruses such as avian or swine influenza). There were no statistically significant differences in their effectiveness in preventing laboratory-confirmed influenza, laboratory-confirmed respiratory viral infections, laboratory-confirmed respiratory infections, and influenza-like illnesses, but respirators appeared to protect against bacterial colonization.

Concerns have been expressed about the limited personal protective equipment (PPE) available to UK primary and community care staff, with very limited provision of some GP practices, pharmacies and care homes. We were asked to find out if and under what circumstances standard masks pose a risk of infection for healthcare workers compared to respirator masks. A separate review (ongoing) examines other aspects of PPE.

COVID-19 is disseminated through four means: contact (directly or through phomit); droplet infection (droplets of the respiratory tract of an infected person are transmitted by coughing or sneezing to the mucosal surface or conjunctiva of a sensitive individual or environment); in the air (transmission of infectious agents in small airborne particles, especially during procedures such as intubation); and faeco-oral.^{1 2} Coughing and sneezing may produce aerosol particles as well as droplets.

This review considers respiratory protection measures, e.g. use of face masks as PPE to reduce the spread of droplets and air. Notably, in one recent laboratory study, severe acute respiratory syndrome, coronavirus 2 (SARS-CoV-2, the virus that causes COVID-19), survived in the air as long as the artificial SARS COV-1 (the virus that causes SARS) was artificially treated. aerosolized and prolonged on some surfaces.³ This finding is important because it indicates that deposited solids can be re-suspended, i.e., in air when disrupted.

A standard surgical mask (bottom), also known as a liquid-resistant surgical mask (FRSM), is designed to protect against splashes and droplets affecting the wearer's nose, mouth, and airways. It fits quite freely on the face of the user. These disposable masks are used for a variety of procedures in the community as well as in hospitals. They need to be replaced when they become wet or damaged, and they cannot be undone and hung around the neck between procedures. It should be worn with eye protection.

A restirator (bottom), available in the US as an N95 mask and in the UK as an equivalent FFP ("filtering facial part") mask, is used to prevent the user from inhaling small airborne particles during aerosol generating procedures (AGPs). . It must fit snugly against the user's face. There are three categories: FFP1, FFP2, and FFP3. FFP3 provides the highest level of protection. Again, this mask should be worn with eye protection.

respirator ffp3

Importantly, masks and respirators should not be considered the only means. Other protection includes hand hygiene, aprons or bathrobes, goggles or face shields and gloves. The World Health Organization has developed technical specifications for these items based on modeling exercises using data from previous SARS and MERS outbreaks.

A face mask or respirator worn without the additional recommended protection will be less effective. Effective training is an essential part of any PPE program, as proper wearing (dressing) and taking off (undressing) is the key to worker protection. First of all, care must be taken to ensure that the masks are not contaminated.

CURRENT GUIDELINES

Official UK guidelines issued in 2020 In February, it was claimed that both standard face masks and respirators protect 80% of SARS-CoV-2, the seasonal flu. SARS-CoV-2 is known to be more contagious and more severe than influenza, so there may be different patterns of spread. Those guidelines also recommended the use of enhanced AGP protection in suspected COVID-19 patients and in all AGP hotspots, such as intensive care units. It says little about PPE for healthcare workers in the

community, although this has led to the separation of suspected cases of COVID-19 from other patients.

More recently (21 March 2020), English public health has developed guidelines on when to use a variety of face masks and how to wear PPE in non-AGP cases. These documents emphasize the need

Before deciding which protection to wear, evaluate the level of risk of infection, especially whether AGP will be involved

Before putting on equipment, do hand hygiene, remove jewelry, tie back hair and hydrate (feedback from the front line: also go to the toilet)

Install and remove equipment to minimize contamination

The above-mentioned WHO recommendations are addressed to all health care facilities, but are mainly provided in secondary care facilities (emergency department or hospital). A recent WHO publication specifically addressed community and home care conditions and offered similar guidelines for the use of masks by health care workers (although no mention of triage).

Primary and community health facilities are indirectly "low risk" and the guidelines do not specifically address any situation where a respirator mask is required for primary care. However, most contacts in the UK will be in key and community locations, including not only general practices but also pharmacies (where many people visit with symptoms).

It is worth noting that guidelines developed by the U.S. Centers for Disease Control recommend the use of respirator masks when exposed to high and low risks, when patients are suspected to be highly contagious, and potentially severe, such as SARS. However, these guidelines were probably based on the precautionary principle and probably did not anticipate the supply shortage that front-line workers currently face.

We sought to raise awareness of the use of these different masks in primary care settings.

CONCLUSION

Studies comparing different masks were summarized in a recent high-quality systematic review and cautiously support the use of standard surgical masks outside of AGP, although empirical studies supporting this conclusion were not performed in the COVID-19 population and only one was in a community setting. It is clear from the literature that masks are only one component of a complex intervention, which must also include eye protection, gowns, behavioral measures to help properly undress and undress, and general infection control measures.

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