

In brief

Mask type for COVID-19 positive wearer

11 February 2022

Summary

- Throughout the pandemic, masks have been used to protect healthcare workers and the community to prevent the onward transmission of COVID-19.
- Most of the available literature on different mask types looks at the prevention of COVID-19 infection and is not specifically carried out in COVID-19 positive people.
- In experimental studies on COVID-19 positive patients, surgical masks have been shown to be less effective in filtering viral particles compared with N95 masks.^{1, 2}
- A literature review on oral and maxillofacial surgery found N95 respirators are preferred over masks against viral respiratory pathogens, particularly during aerosol-generating procedures or when a patient's COVID-19 status is positive or unknown. There were two exceptions: when performing non-aerosol-generating medical procedures on symptomatic patients which favoured surgical masks; and when performing aerosol-generating medical procedures on COVID-19 positive patients which favoured N99 respirators.³
- Australian Government guidance on personal protective equipment in hospitals states that patients with acute respiratory symptoms or confirmed or potential COVID-19 wear a surgical mask. The World Health Organization suggests disposable medical masks be worn by people who have recently tested positive for COVID-19.^{4, 5}

Background

- According to the [World Health Organization](#), certain masks can be used for the protection of health care workers and to prevent onward transmission of COVID-19.⁵
- The [US Centers for Disease Control and Prevention](#) recently updated their advice to clarify that some types of masks and respirators provide more protection than others. Loosely woven cloth masks provide the least protection and well-fitting NIOSH-approved respirators (including N95s) offer the greatest protection.⁶
- [Systematic reviews](#) show that face mask use can result in a [reduced risk of infection](#). Generally there is a [stronger association with N95](#) or similar respirators compared with disposable surgical masks or similar.⁷⁻⁹

Peer reviewed literature

- A [literature review](#) on oral and maxillofacial surgery found overall, N95 respirators are preferred over masks against viral respiratory pathogens. There were two exceptions: when performing non-aerosol-generating medical procedures on symptomatic patients which favoured surgical masks; and when performing aerosol-generating medical procedures on COVID-19 positive patients which favoured N99 respirators.³

- Experimental and simulation studies on COVID-19 positive patients have shown:
 - [surgical masks were less effective](#) in filtering viral particles and N95 masks efficiently blocked SARS-CoV-2 particles in seven COVID-19 positive patients. The patients were asked to cough five times while they wore the different types of masks.¹
 - [neither surgical nor cloth masks effectively filtered SARS-CoV-2](#) during coughs by four infected patients. The test compared surgical and cotton masks.²
 - cotton masks, surgical masks and N95 masks had a [protective effect with the transmission](#) of droplets/aerosols and that the protective efficiency was higher when masks were worn by the virus spreader.¹⁰
- An [article in nature](#) on respiratory illnesses indicate that surgical masks can effectively reduce the emission of influenza virus particles into the environment in respiratory droplets, but not in aerosols.¹¹

Grey literature

- [Australian Government guidance](#) on personal protective equipment in hospitals states that patients with acute respiratory symptoms, or confirmed or potential COVID-19, wear a surgical mask upon presentation to hospital, during transfer and during certain circumstances such as labour for pregnant women, if tolerated. It also states healthcare workers providing direct care, or working within the same zone for individuals where risk assessment suggests a likely high-risk of transmission (including COVID-19 positive patients), should use P2/N95 respirators rather than surgical masks.⁴
- The [World Health Organization](#) has a series of videos on masks in the context of COVID-19, suggesting surgical masks are preferred compared with cloth masks for people with COVID-19.¹²
- [WHO](#) also suggests disposable medical masks be worn by people with symptoms, awaiting test results or who have recently tested positive for COVID-19. A respirator or medical mask be worn by caregivers at any setting where care is provided to patients with suspected or confirmed COVID-19.⁵

To inform this brief, the PubMed and Google searches were conducted using terms related to (mask OR surgical) AND (n95 OR respirator) AND COVID-19 on 31 January 2021. Wording of the summary was updated on 9 March 2022 but an updated search was not carried out.

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