

## In the News | COVID-19



# Wearing a Mask Can Protect Against Coronavirus Disease 2019 for the Wearer as Well as Others, The CDC Says

[Joan Stephenson, PhD<sup>1</sup>](#)

### Author Affiliations

November 17, 2020

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People who wear multilayer cloth masks protect not only the people they encounter from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) but also themselves, according to [an updated scientific brief](#) from the US Centers for Disease Control and Prevention (CDC). Previous recommendations from the CDC advising people to wear cloth masks stressed evidence that the practice helps with source control—that is, preventing people infected with SARS-CoV-2, including those without symptoms, from spreading the virus to others. Individuals with infections who are presymptomatic or

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However, last week, as cases of coronavirus disease 2019 (COVID-19) were surging across the US and threatening to overwhelm hospitals in some states, the CDC cited emerging evidence that the person who wears a mask also garners some protection against infection. “The prevention benefit of masking is derived from the combination of source control and personal protection for the mask wearer,” the brief says.

With respect to protecting other people, wearing a multilayer cloth mask can block up to 70% of fine droplets and aerosol particles and limit the spread of those that do penetrate the mask. In human experiments, masks have blocked the passage of “upwards of 80%” of all respiratory droplets, the brief notes, and some studies found that cloth masks performed as well as surgical masks as barriers to protect others.

As the updated brief highlights, wearing a mask thus offers potential benefits to persons who wear masks. “Studies demonstrate that cloth mask materials can also reduce wearers’ exposure to infectious droplets through filtration, including filtration of fine droplets and particles less than 10 microns,” the agency wrote.

The agency cites a number of real-world observational and epidemiologic human studies that have found a link between wearing of masks and reduced spread of SARS-CoV-2. In 1 case, reported in May, 139 clients at a Springfield, Missouri, salon were exposed to 2 hair stylists with symptoms and confirmed COVID-19 while both the stylists and the clients wore face masks; none of the 67 clients tested for SARS-CoV-2 developed the infection. Similarly, a report on 124 households in China with at least 1 person with COVID-19 each found that when everyone in the household wore masks as a preventive measure before the family member with the infection developed symptoms, further household spread was reduced by 79%.

A report in April also showed that masking likely protected individuals in the close quarters of the aircraft carrier USS Theodore Roosevelt during an outbreak and was associated with a 70% reduced risk of infection. Furthermore, the CDC noted,

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flights, given that other passengers and crew did not develop infections in the 14 days following exposure.

In addition, the report notes, 7 studies found that at the community level, new infections declined significantly after issuance of “directives from organizational and political leadership for universal masking.” Two of the studies, along with other analyses, showed a decline in deaths as well.

There is also evidence that mask use makes sense economically. An [analysis of US data by Goldman Sachs](#) found that “increasing universal masking by 15% could prevent the need for lockdowns and reduce associated losses of up to \$1 trillion or about 5% of gross domestic product,” per [the CDC report](#).

The brief notes that “relative filtration effectiveness of various masks has varied widely across studies, in large part due to variation in experimental design and particle sizes analyzed.” Masks that include multiple layers of cloth with higher thread counts perform better—with some filtering nearly half of fine particles of less than 1 micron—than ones with single layers of cloth with lower thread counts. Some materials, such as polypropylene, may boost filtering effectiveness by generating a form of static electricity called *triboelectric charge*, which improves capture of charged particles.

“The relationship between source control and personal protection is likely complementary and possibly synergistic, so that individual benefit increases with increasing community mask use,” the CDC said, adding that adopting universal masking policies “can help avert future lockdowns, especially if combined with other non-pharmaceutical interventions such as social distancing, hand hygiene, and adequate ventilation.”

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November 21, 2020

## Two Additional Considerations

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There are two additional means to prevent COVID, which may be as important as wearing the recommended layered masks.

The first is a lack of multi-layered masks for consumer purchase. Initially, an all cotton mask was recommended, yet all that was and still is available to purchase are cotton/poly blend (if you're lucky) or purely synthetic.

Second, a friend who has been housebound since March was diagnosed last week with Covid. Despite separate rooms, distancing with their roommate, and masks, there is only one risk left: the never-ending, proper sanitization of ones own surroundings. Along with masks ...

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### ***Joan Stephenson, PhD***

Joan Stephenson, PhD, is Consulting Editor for the Forum and *JAMA* and an award-winning independent writer and editor based in Chicago. She joined *JAMA* as a writer and editor for *JAMA's* Medical News & Perspectives department and subsequently served...

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