

Some doctors think face shields protect against the coronavirus as well as masks

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Now that we've gotten used to the idea of wearing masks or bandannas when we go out in public, some doctors are proposing an alternative.

They think that face shields—curved sheets of clear plastic that cover the entire face—are as good as masks on some measures of infection control while allowing for better breathing and communication.

Three University of Iowa infectious disease doctors and hospital epidemiologists recently suggested in a *Journal of the American Medical Association* article, that face shields may be a better option than masks for the general public in community settings, and some of their peers agree with them.

For example, Ravina Kullar, a spokesperson for the Infectious Diseases Society of America (IDSA) and an infectious disease consultant to Los Angeles nursing homes, recently bought a [face shield](#) for forays into her Santa Monica neighborhood. "I would say a face shield alone is better than a [face mask](#)," she said, referring to people who are not in health care settings. "You don't need both."

Daniel McQuillan, an infectious disease doctor at Lahey Hospital and Medical Center and IDSA vice president, also recently bought a shield after a hockey supply company started making them. He finds it more comfortable to wear and says he doesn't touch his face as much as when he's wearing a mask. Plus the shield covers his eyes, an entry point for the virus that is not protected by masks. "I think this is something that can be pushed out to lots of people and have a reasonable public health impact in addition to people wearing masks," he said.

The division of infectious diseases and PolicyLab at Children's Hospital of Philadelphia this month recommended that certain teachers opt for shields when schools reopen. It's particularly important, the group said, for students who are deaf or hearing impaired or have autism spectrum disorder to be able to see the teacher's entire face.

There are holdouts. Gregory Poland, a prominent infectious diseases and vaccine specialist at the Mayo Clinic, is one of them. "All of the air that you breathe with a shield is unfiltered," he said. The author of a study the Iowa doctors use to bolster their argument also worries that small virus-laden droplets could bypass a shield through the sides or bottom. "I wear a mask," said the author, William Lindsley, a research biomedical engineer at NIOSH (National Institute for Occupational Health and Safety) in Morgantown, W. Va.

The debate hinges on how the coronavirus spreads. Shield supporters say it travels primarily through large respiratory droplets that infect the body through mucus membranes in the nose, mouth and eyes. These generally fall quickly to the ground after, say, a cough and could be stopped almost completely by a shield. Like some other infectious disease doctors, Eli Perencevich, the lead author of the JAMA paper, noted that someone with a true airborne disease like measles can infect many more people than someone with

COVID-19. Measles and chicken pox typically infect 90% of household members while the [coronavirus](#) infects 10 to 15 percent.

But Poland and Lindsley say there's reason to think the virus can also spread through smaller droplets or aerosols that could travel farther before falling or even float. In that case, the gaps behind and under shields are weak points. Of course, most cloth and medical masks—the blue kind you see people wearing in medical settings—also have gaps, but they fit closer to the face. They are likely better at what's called "source control," or stopping viral spread when the mask wearer coughs.

Everyone agrees that nothing available to the [general public](#) is perfect, which is why we're also told to stay six feet away from each other and wash our hands frequently. "There is no safe," Poland said. "There's only mitigation."

The best protection is N95 masks, which fit snugly and can filter out most viruses. These are still in short supply and experts say they should be reserved for medical personnel. Within hospitals, medical workers wear N95s covered by shields during procedures that aerosolize virus, such as inserting or removing breathing tubes.

Public mask wearing has become highly politicized, with some arguing that masks are dehumanizing or impair breathing. Even Lindsley says shields are probably better than nothing for people who can't or won't wear a face mask, but adds that he personally would not wear a shield alone.

Robert Bettiker, an infectious disease doctor at Temple University Hospital, said he's not sure whether he would recommend a shield alone. "I would give it a qualified maybe," he said. "We think it's much better than nothing. It's probably as good as a mask, but we just don't have the data to support that."

Stopping large droplets, he said, would probably greatly reduce spread on a societal scale. He has been wearing a mask on shopping trips. He'll likely add a shield now.

Neither the Philadelphia nor Pennsylvania health

departments address shields in their guidance to the public. They just recommend that people cover their [faces](#) in public. James Garrow, a spokesman for the Philadelphia department, said officials there believe people are more likely to accept masks than shields. "There are situations—like for servers in restaurants—where face shields used in combination with masks can be beneficial and protective.," he said. The New Jersey health department encourages face coverings, but not shields alone.

Perencevich said shields have multiple practical advantages over masks, which are often worn incorrectly. They cover the eyes and are easily cleaned with soap and water. People are less likely to touch their faces—another way of spreading the virus—while wearing them. They're cooler and don't make glasses fog. It's easier to breathe while wearing them. People can see you smile and read your lips. Unlike masks, they are impermeable, at least in the plastic parts. (A good shield should cover your whole face, extending to the ears on the side and below the chin on the bottom. There should be no gap at the forehead.)

Lindsley's study in 2014 used flu virus and breathing and coughing simulators to measure the effectiveness of [masks](#) and shields. It found that face shields blocked 96% of flu virus in large droplets from reaching a simulator wearing a shield a foot and a half away and 68% of small droplets. The study did not look at whether it would protect others for the cougher to wear a shield. Lindsley is studying that now.

"A face shield is not going to be nearly as good as a mask at source control," he said. The mask is more likely to absorb droplets, while a shield can deflect them and send them sideways or down. He said the shields are best at protecting you from someone who is sneezing or coughing right at you.

Perencevich said that, when someone wearing a shield coughs, the droplets are likely to either stop at the [shield](#) or bounce back onto the mask wearer. "It's not a trampoline for a droplet," he said.

Poland thinks shields "have their place" but he's not convinced. "Before we migrate to what sounds

good," he said, "show me the data."

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