

# Your mask cuts own risk by 65 percent

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Scientific evidence is clear: Social distancing and wearing masks help prevent people from spreading COVID-19, and masks also protect those who wear them, two UC Davis Health experts said on UC Davis LIVE: COVID-19.

A range of new research on face coverings shows that the risk of infection to the wearer is decreased by 65 percent, said Dean Blumberg, chief of pediatric infectious diseases at UC Davis Children's Hospital.

"On the issue of [masks](#), I'd like to restart—because we've learned a lot," Blumberg said. "We've learned more due to research and additional scientific evidence. What we know now is that masks work and are very important."

Blumberg and William Ristenpart, a professor of chemical engineering at UC Davis, appeared on the July 2 livestream devoted to explaining how the virus spreads and how to prevent [transmission](#).

In their comments and answers to questions from viewers, Blumberg and Ristenpart repeatedly made the point that research continues to support the fundamental methods to prevent spreading COVID-19: Wear masks, maintain social distance and keep social interactions outdoors whenever possible.

### **Transmission by droplets**

There are two primary methods of transmission, they said. The first is

via droplets a carrier expels, which are about one-third the size of a human hair but still large enough that we can see them. Masks create an effective barrier against droplets.

"Everyone should wear a mask," Blumberg said. "People who say, 'I don't believe masks work,' are ignoring scientific evidence. It's not a belief system. It's like saying, 'I don't believe in gravity.'"

"People who don't wear a mask increase the risk of transmission to everyone, not just the people they come into contact with. It's all the people those people will have contact with. You're being an irresponsible member of the community if you're not wearing a mask. It's like double-dipping in the guacamole. You're not being nice to others."

## **Transmission by aerosol particles**

The second major transmission method is via the [aerosol](#) particles we expel when we talk. Those are about 1/100th the size of a human hair and are more difficult to defend against. Social distancing and staying outdoors, where there is more [air flow](#), are helpful, Blumberg and Ristenpart said.

"Studies in laboratory conditions now show the virus stays alive in aerosol form with a half-life on the scale of hours. It persists in the air," Ristenpart said. "That's why you want to be outdoors for any social situations if possible. The good air flow will disperse the virus. If you are indoors, think about opening the windows. You want as much fresh air as possible."

This is why, he said, places like bars are particularly hazardous for aerosols, on top of the likelihood of minimal distancing. "The louder you speak, the more expiatory aerosols you put out," he said.

## Other topics

Plexiglass and cubicles as protection?—The plexiglass shields in stores and restaurants only help somewhat. The same is true for office cubicles. But after a lengthy time, transmission is possible from aerosols if the air flow is not good, they said.

"The way to think about that is to think about smells," Ristenpart said. "If the person on the other side of a cubicle or plexiglass is wearing perfume, eventually, you'll smell it. The aerosol particles are small enough to travel on air much like aromas. That's why air flow is so important, along with other actions like wearing masks and social distancing."

Time of exposure matters—"If you're going past someone very quickly in a grocery store," Blumberg said, "the risk of getting infected is very low. It's really lingering and talking that does it."

Ristenpart added: "It's really important to know that just because you're standing 6 feet or 7 feet away, if you have a prolonged conversation, there is still a risk. These aerosols can be carried along on weak air currents."

Surface contact is less of a threat—There is no precise research on the prevalence of transmission from hand contact. "For ethical reasons, we can't contaminate a bunch of people's hands, then have them touch their faces or other people's faces," Ristenpart said. "But backtracking infections and following transmission events shows surfaces or hand contacts are not a primary method."

Which brings researchers back to droplets and [aerosol particles](#) as the primary methods of transmission.



"We know from other coronaviruses that this is primarily a respiratory transmitted illness," Blumberg said. "There is a very small chance of transmission via groceries or mail or things like that. But washing hands is still always good."

Children and COVID-19—Children are less likely—by half—to be infected if they are exposed, less likely to be symptomatic and less likely to have a severe case if they do get sick, Blumberg said.

"They appear to be less likely to infect others," he said. "This is different from other infections like the flu when they are carriers. This appears to be much more of an adult disease. But children can still get sick and can still transmit it to others, so it's important to be as hygienical with them as their development allows."

## Connecting the research

Both scientists said the evidence has become even more powerful for wearing masks and social distancing. For instance, research shows that about 30 percent of infections are caused by people who do not know they have COVID-19 because they are asymptomatic or their symptoms have not appeared yet.

"So we don't know who might spread it," Blumberg said. "We do know [social distancing](#) reduces the risk of transmitting the virus by 90 percent, and wearing masks decreases the risk by 65 percent.

"Wearing a mask affects everyone," he said. "If you care about your family or friends, or if you care about your community, wear a mask."

Provided by UC Davis

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