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Flushing Urinals Can Spread COVID-19, Study Finds

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Turns out a toilet paper shortage may not be your biggest pandemic-related restroom worry this fall. If you're not wearing a face mask in public restrooms during the pandemic, you might want to start. Why? Two words: Infectious particles. Flushing a toilet or urinal can release coronavirus particles into the air, a new study says.

In a study published Monday in the journal *Physics of Fluid*, Chinese researchers say that urinals may be even more infectious than toilets because they produce an "alarming upward flow" of particles that "travel faster and fly farther" than those produced by a toilet flush.

"Urinal flushing indeed promotes the spread of bacteria and viruses," researcher Xiangdong Liu said in a press release.
"Wearing a mask should be mandatory within public restrooms during the pandemic, and anti-diffusion improvements are urgently needed to prevent the spread of COVID-19."

Using computer models, the researchers found that just five seconds after a urinal is flushed, released virus particles can rise two feet off the ground. (In June, some of the same researchers released the results of a simulation that found a toilet flush releases thousands of particles, some of which are projected a foot above the toilet bowl in about 30 seconds.)

"It is reasonable to assume that the high-speed airflow will expel aerosol particles from the bowl to regions high in the air above the toilet, allowing viruses to spread indoors causing risks to human health," the researchers said.

Those particles may then hover in the air, where they can be inhaled by the next people using the lavatory and settle on surfaces such as flush handles and doorknobs.

Could COVID be spread by aerosolization?

Although coronavirus has been isolated in feces and urine, and it has been theorized that the virus can spread through fecaloral contact, the new study is raising eyebrows because it suggests COVID-19 might also be transmissible by virus particles in urine.

Health officials have said that coronavirus is primarily spread through in-person contact—for example, you're standing close to someone who's infected with the virus and they cough or sneeze, producing infectious respiratory droplets you can inhale and become infected. These droplets are rather large, and conventional wisdom is that they can travel about six feet before quickly dropping to the ground.

The extent to which the virus is aerosolized—that is, transmissible by smaller droplets that can linger in the air—is a topic that has gotten more attention in recent weeks. The World Health Organization said that "short-range aerosol transmission . . . cannot be ruled out." Dr. Anthony Fauci, the nation's top infectious disease expert, said, "I think that there certainly is a degree of aerosolization," during an Aug. 3 interview with the *Journal of the American Medical Association*. "But I'm going to take a step back and make sure that we learn the facts before we start talking about it."

Could it already be happening?

The Chinese researchers say that infection by aerosolization in a restroom has already happened, pointing to a case of a husband and wife who reportedly contracted the virus in a public restroom at a food market in Beijing. "Two of COVID-19 reemerging confirmed cases in Beijing have been reported to be infected from a public toilet, which practically proves the danger from the public restroom," the scientists said.

To protect yourself, do everything you can to prevent getting—and spreading—COVID-19: Wear a face mask in all public places, get tested if you think you have coronavirus, avoid large gatherings, practice social distancing, wash your hands regularly, and to get through this pandemic at your healthiest, don't miss these.