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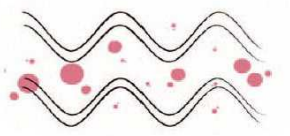
How long does Coronavirus live on surfaces?

The coronavirus can survive on common materials for hours or even days. Here's what you need to know and how to protect yourself.

GEORGE PETRAS, RAMON PADILLA, KARINA ZAIETS AND VERONICA BRAVO/USA TODAY

Tiny, infected water droplets that drift in the air or land on surfaces have multiplied into a global pandemic. Typically, an infected person's cough or sneeze spreads SARS-CoV-2 — the coronavirus that causes the disease COVID-19, a highly contagious respiratory illness. To slow the rising number of infections — tens of thousands of Americans have been infected since Jan. 20 — researchers are looking for the coronavirus' limits. Just how long can it last outside the human body?

According to the New England Journal of Medicine, here's how long the virus could live on a variety of surfaces.

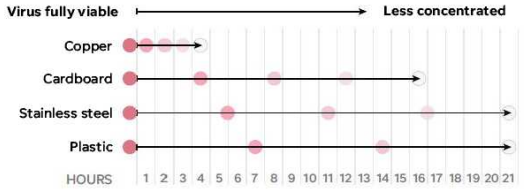


Airborne droplets containing the virus can survive up to **3 hours**

The report also noted the half-life, or rate of decay, of the virus on various materials. That's the time it took for half of the virus sample to die.

The decay rate is important because though the virus may linger on surfaces for days, people are less likely to become infected as the virus dies off.

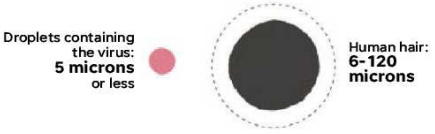
Virus' rate of decay depends on surface



Note: Circles indicate "half-life" of virus – every time half of the virus becomes inactive

Most infections start with water droplets, tiny globes of water 5 microns or less in size. That's much smaller than a human hair, which is 60 to 120 microns thick.

In all settings, viruses need water to survive. "Viruses can withstand a small amount of dehydration," says Dr. Paul Meechan, a former director of safety at the CDC and president of the American Biological Safety Association.



The problem is knowing "how long it will take a virus to dry out and become non-infectious," Meechan says. "Eventually, the virus deteriorates and becomes inactive." The speed at which that happens depends on whether the virus is in the air or on a surface.

Let's start with air. Researchers don't know how many virus-laden particles people infected with COVID-19 expel in the average droplet. An average cough, however, can produce as many as 3,000 droplets and a single sneeze can make up to 40,000, according to multiple studies cited in a 2009 World Health Organization report.

A droplet's size determines where it goes after being expelled. Gravity forces larger ones to the ground.

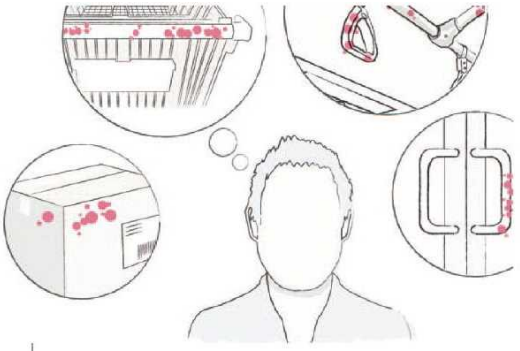
"Aerosols are different," says Dr. Stanley Deresinski, clinical professor of medicine and infectious diseases at Stanford University. "Very small particles may be suspended in the air for a long time, sometimes for hours. They're suspended by air currents."

Airborne droplets can stay suspended long enough for someone to walk through and inhale the virus. Outdoors, wind disperses the virus.

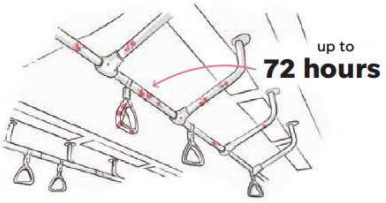
A virus that doesn't reach the ground or floor can fall on shared surfaces — or be transferred there by those with the pathogen on their hands. Whatever the case, unsuspecting people can pick it up. How long a virus lives depends on the surface:

Cleaning these materials

The CDC defines cleaning as the removal of germs, dirt and impurities from surfaces. Disinfecting involves the use of chemicals to kill pathogens on surfaces. The agency says surfaces should be cleaned, then disinfected to lower infection risk.

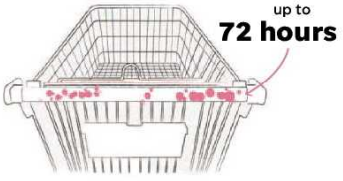


Steel



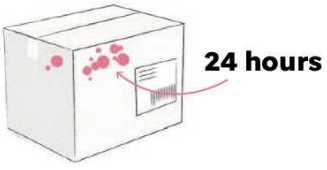
The coronavirus can exist on stainless steel objects for two to three days. That's a problem because steel is commonly used in public transportation and in scores of other public places such as restroom stalls, faucets, and manual paper towel handles.

Plastic



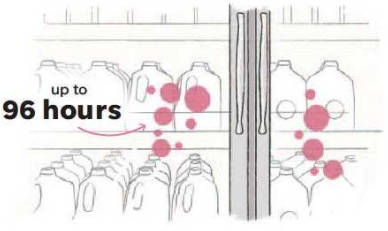
Plastic objects can harbor the virus for two to three days. That's a special concern because many shared items are made of plastic and may not be sanitized often enough or completely enough. Take out food containers, light switches, cellphone cases, elevator buttons and more are commonly made of plastics.

Cardboard



The virus can last on cardboard up to 24 hours. That's noteworthy because many customers are using online delivery services during the coronavirus outbreak instead of going to stores in person. Food products packaged in cardboard could also be a risk.

Glass



A virus can last as long as four days on glass, depending on location and temperature, according to a separate study by The Journal of Hospital Infection published in January. That report charted the persistence of the SARS-CoV virus, which is similar to the current virus causing COVID-19. Items such as cellphone screens, mirrors and inside glass doors can also support the virus.