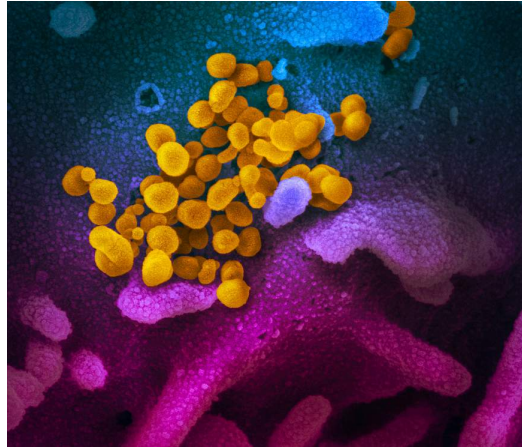


## New coronavirus stable for hours on surfaces

*SARS-CoV-2 stability similar to original SARS virus.*



This scanning electron microscope image shows SARS-CoV-2 (yellow)—also known as 2019-nCoV, the virus that causes COVID-19—isolated from a patient in the U.S., emerging from the surface of cells (blue/pink) cultured in the lab. *NIAID-RML*

### What

The virus that causes coronavirus disease 2019 (COVID-19) is stable for several hours to days in aerosols and on surfaces, according to a new study from National Institutes of Health, CDC, UCLA and Princeton University scientists in *The New England Journal of Medicine*. The scientists found that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was detectable in aerosols for up to three hours, up to four hours on copper, up to 24 hours on cardboard and up to two to three days on plastic and stainless steel. The results provide key information about the stability of SARS-CoV-2, which causes COVID-19 disease, and suggests that people may acquire the virus through the air and after touching contaminated objects. The study information was widely shared during the past two weeks after the researchers placed the contents on a preprint server to quickly share their data with colleagues.

The NIH scientists, from the National Institute of Allergy and Infectious Diseases' Montana facility at Rocky Mountain Laboratories, compared how the environment affects SARS-CoV-2 and SARS-CoV-1, which causes SARS. SARS-CoV-1, like its successor now circulating across the globe, emerged from China and infected more than 8,000 people in 2002 and 2003. SARS-CoV-1 was eradicated by intensive contact tracing and case isolation measures and no cases have been detected since 2004. SARS-CoV-1 is the human coronavirus most closely related to SARS-CoV-2. In the stability study the two viruses behaved similarly, which unfortunately fails to explain why COVID-19 has become a much larger outbreak.

The NIH study attempted to mimic virus being deposited from an infected person onto everyday surfaces in a household or hospital setting, such as through coughing or touching objects. The scientists then investigated how long the virus remained infectious on these surfaces.

The scientists highlighted additional observations from their study:

- If the viability of the two coronaviruses is similar, why is SARS-CoV-2 resulting in more cases? Emerging evidence suggests that people infected with SARS-CoV-2 might be spreading virus without recognizing, or prior to recognizing, symptoms. This would make disease control measures that were effective against SARS-CoV-1 less effective against its successor.
- In contrast to SARS-CoV-1, most secondary cases of virus transmission of SARS-CoV-2 appear to be occurring in community settings rather than healthcare settings. However, healthcare settings are also vulnerable to the introduction and spread of SARS-CoV-2, and the stability of SARS-CoV-2 in aerosols and on surfaces likely contributes to transmission of the virus in healthcare settings.

The findings affirm the guidance from public health professionals to use [precautions\(link is external\)](#) similar to those for influenza and other respiratory viruses to prevent the spread of SARS-CoV-2:

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces using a regular household cleaning spray or wipe.

#### Article

N van Doremalen, *et al.* Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. *The New England Journal of Medicine*. DOI: 10.1056/NEJMc2004973 (2020).

#### Who

NIAID Director Anthony S. Fauci, M.D., and Vincent Munster, Ph.D., a principal investigator in NIAID's Laboratory of Virology, are available to comment on this study.

This media availability describes a basic research finding. Basic research increases our understanding of human behavior and biology, which is foundational to advancing new and better ways to prevent, diagnose, and treat disease. Science is an unpredictable and incremental process— each research advance builds on past discoveries, often in unexpected ways. Most clinical advances would not be possible without the knowledge of fundamental basic research.

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