

Coronavirus: What is it and How Can We Prevent its Spread?

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In a nutshell...

This article provides an update on the coronavirus outbreak that began in central China at the end of 2019 and is currently sweeping the globe. Information on the “2019 Novel Coronavirus” is provided, including its likely animal origin, symptoms, how it is spread, and most importantly, how to help prevent its spread.

A new “coronavirus” is on the move. A pneumonia outbreak that was first identified in Wuhan, China on December 8, 2019, and forced health officials to place millions of people in Chinese cities on lockdown, is spreading [across the globe](#). According to a frequently updated feature on the website of the [Center for Systems Science and Engineering at Johns Hopkins University](#), there have been 9,776 reported cases and 213 reported deaths (all deaths in China to date) from the virus as of January 31, 2020. The World Health Organization (WHO) has declared the outbreak a [global health emergency](#).

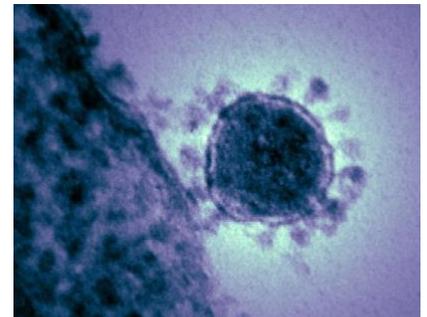
In addition to China (9,658 cases), as of January 31, there are cases of illness in many countries, including the U.S. (6 cases), Thailand (14 cases), Hong Kong (12 cases), Japan (11 cases), Singapore (10 cases), Malaysia (8 cases), the Republic of Korea (6 cases), France (5 cases), and Canada (3 cases). Public health officials from the national to the international level are closely monitoring the spread of the virus and providing guidance on preventing infection.

What Is the Coronavirus?

Coronaviruses are a large family of viruses named for the crown-like spikes on their surface (see image at right). The U.S. Centers for Disease Control and Prevention (CDC) [reports there are seven coronaviruses](#) that can infect humans, including the “2019 Novel Coronavirus” (the virus currently making headlines), [Severe Acute Respiratory Virus](#) (SARS) and [Middle East Respiratory Syndrome Coronavirus](#) (MERS).

Researchers report coronaviruses infect mammals and birds.¹ In rare cases, animal coronaviruses may evolve and infect humans, and then spread from person to person. Currently there are no reported person-to-person cases in the U.S. According to the [WHO](#), the 2003 SARS outbreak originated with civet cats and 2012 MERS outbreak with dromedary camels.

The “2019 Novel Coronavirus” was first identified in January 2020. Early cases were associated with a seafood and live animal market in Wuhan City, China. It is thought the virus might have originated in bats, then “jumped” to another animal, and then to people. Close contact with infected animals or undercooking infected meat can help spread the virus to people. Currently the virus is spreading from person to person in China as many recent cases are not associated with animal markets. The first confirmed cases of person-to-person transmission outside of China—in Germany, Japan, and the U.S.—were [recently reported](#).



The 2019 Novel Coronavirus is similar to the pictured Middle East Respiratory Syndrome (MERS) virus.

Photo Credit: [National Institute of Allergy and Infectious Diseases](#)

¹ Fehr, A.R. and Perlman, S. (2015). Coronaviruses: An overview of their replication and pathogenesis. *Methods in Molecular Biology*, v. 1282, pp. 1-23. Online. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4369385/>.

How Does the Coronavirus Spread?

Coronaviruses cause respiratory symptoms that can include fever, cough, and shortness of breath. Symptoms can appear in 2 to 14 days after exposure to the virus. Like flu and colds, coronaviruses are transmitted from person to person via respiratory droplets when an infected person coughs or sneezes. Like many cold and flu viruses it is likely that this virus can also be spread from contaminated surfaces to hands and to an individual. What researchers are unsure of is whether the coronavirus can be spread from infected people *before* their symptoms appear. That would make the virus very deadly. According to the [CDC](#), the best way to prevent infection is to avoid being exposed to the virus.

That said, [CDC](#) states, “At this time, it’s unclear how easily or sustainably this virus is spreading between people.” Meanwhile, [scientists at Imperial College London](#) have calculated the “transmissibility” of the virus using the available data. Transmissibility is defined by the researchers as the number of people who may be infected by one infected individual. An early and rough estimate of transmissibility of the 2019 Novel Coronavirus is 2.6, meaning the virus may be spread to 2.6 additional people by one infected person.² An outbreak can only be diminished (and transmissibility reduced to less than 1) by widely adopting effective prevention strategies.

How to Prevent the Spread of Coronavirus

There is no vaccine for the 2019 Novel Coronavirus, [although researchers are working to develop one](#). Here are some actions you can take to help prevent infections of many other types, including seasonal flu and coronavirus:

- ✓ [Wash your hands](#) often with soap and water for at least 20 seconds (the time it takes to sing the “Happy Birthday” song twice). If soap and water are not available, use an alcohol-based hand sanitizer. Avoid touching your eyes, nose, and mouth with unwashed hands.
- ✓ Avoid close contact with people who are sick and their immediate environment.
- ✓ Stay home when you are sick and try to avoid close contact with other household members.
- ✓ Cover your cough or sneeze with a tissue (or your elbow if no tissues are available), then throw the tissue in the trash. Immediately wash your hands.
- ✓ Wear a face mask (surgical or N95) if you are infected to help prevent spreading the virus to others (see text box at right).
- ✓ Stay informed of the progress of the outbreak by accessing the news and the CDC “[Situation Summary](#).”
- ✓ Clean and disinfect frequently touched surfaces. [The WHO recommends](#) using a diluted bleach solution made of 1 part chlorine bleach to 99 parts water.

A Word about Face Masks

A *surgical mask* worn by a virus-infected person helps prevent the spread of the virus from that person to others.

An *N95 face mask* filters at least 95% of airborne particles. N95 face masks can help prevent the spread of virus from an infected person to others and also protect the wearer from airborne viruses. N95 face masks must be fitted properly, and the wearer must meet minimum physical requirements that allow breathing without difficulty with a face mask.

To stay informed on the “2019 Novel Coronavirus,” access the frequently updated CDC online “[Situation Summary](#).” And consider adopting simple strategies—especially frequent hand washing—to help prevent the spread of infection.

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²This estimate is highly preliminary and subject to change. The value may actually be in the range of 1.5 – 3.5.