



COVID-19

Overview of transmission and infection in humans (Updated February 18, 2020)

This is a dynamic situation with rapidly changing morbidity and case fatality rates. The websites of the [Centers for Disease Control and Prevention \(CDC\)](#), [World Health Organization \(WHO\)](#), and [Johns Hopkins Center for Systems Science and Engineering \(CSSE\)](#) should be reviewed for the most up-to-date information on COVID-19, also called 2019-nCoV.

Global

As of [February 18, 2020](#) at noon, 73,451 cases, including 1,875 deaths have been confirmed worldwide. Of these confirmed cases, 72,439 are in mainland China. Note that these are only confirmed cases. On January 30, 2020, the director-general of the WHO declared the COVID-19 outbreak a [public health emergency of international concern \(PHEIC\)](#), accepted the emergency committee's advice, and issued this advice as [temporary recommendations](#) under [International Health Regulations \(IHR\)](#).

USA

As of February 18, 2020, in the United States, 15 [cases](#) are confirmed to be positive, 392 negative, and 60 pending testing for COVID-19. These numbers do not include people in the U.S. evacuated from the Diamond Princess cruise ship. The CDC reports [person-to-person](#) spread of COVID-19 also has been seen among close contacts of returned travelers from Wuhan, but at this time, this virus is NOT currently spreading in the community within the United States.

Perspective

In comparison, the [CDC reports](#) that during this season in the United States there have been at least 26 million illnesses, 250,000 hospitalizations, and 14,000 deaths caused by infection with the influenza virus (flu). Another potentially useful comparison is to the 2003 coronavirus severe acute respiratory syndrome (SARS-CoV) pandemic. From November 2002 through July 2003, 8,098 people worldwide became sick with SARS-CoV, according to WHO. Of these, 774 died. By late July 2003, no new cases were being [reported](#), and the WHO declared the global outbreak to be over.

Origin

Although we will undoubtedly learn more in the coming days, weeks, and months, scientific manuscripts are beginning to be published that include whole genome sequencing data of COVID-19 virus isolated from humans. At this time, laboratory and medical personnel conducting this sequencing work are reporting:

- Phylogenetically, the sequence homology of samples currently available from nine clinically affected people are:
 - Very [similar](#) to each other

- Different enough from previous human coronavirus sequences in GenBank to represent a unique clade or branch of the beta group of coronaviruses distinct from MERS and SARS coronaviruses
- Most similar to SARS-like bat coronavirus sequences (up to 96% sequence identity)
- Another investigator concludes, “The levels of genetic similarity between the 2019-nCoV and RaTG13 suggest that the latter does not provide the exact variant that caused the outbreak in humans, but the hypothesis that 2019-nCoV has originated from [bats is very likely.](#)”
- Although one publication implicates snakes as a potential virus host for the 2019-nCoV, that conclusion is based on [relative codon usage](#) analysis rather than genome sequencing comparisons. The potential species of origin for 2019-nCoV, bat as compared with snake, will presumably be an area of further investigation.

The Wuhan Municipal Health Commission has reported [human-to-human transmission](#), and evidence is growing for human-to-human transmission elsewhere, including from [one of the cases in the United States](#) (transmitted from a woman who had traveled from China to her spouse, who had not).

Incubation period

The incubation period in people for COVID-19 is not yet known with confidence, but initial estimates are approximately five to seven days. [In 2003 the incubation period for SARS was typically two to seven days](#), although it was 10 to (rarely) 14 days in a very small proportion of cases. Given this estimated incubation period for COVID-19, the next two to three weeks will provide important information about how widespread an outbreak this may ultimately become.

Travel

The [U.S. Department of State has issued a travel advisory](#) of level 4: Do not travel to China. The [CDC’s level 3 health advisory](#) also recommends avoiding all non-essential travel to China. Airlines and other carriers have reduced or cancelled flights to or from China, and businesses have also adopted protective measures addressing travel and operations in affected areas.

Exposure

The infective viral dose; shedding of an infective dose prior to, or following, onset of clinical signs; route of exposure (oral, inhalation of droplets, inhalation of aerosolized virus); and potential for an intermediate host (like [civet cats](#) in SARS) have not been established for 2019-nCoV. The USDA, [CDC](#), and U.S. Fish and Wildlife Service do not appear to have altered [animal import requirements](#).

Additional information

[WHO situation reports](#) and [course](#) on *emerging respiratory viruses, including nCoV: methods for detection, prevention, response and control*

[CDC frequently asked questions and answers](#)

[FAQ on bats, coronaviruses, and zoonotic disease](#)

[Return of the coronavirus: 2019-nCoV](#)

Wikipedia: [Coronavirus](#)
[Timeline of the 2019–20 Wuhan coronavirus outbreak](#)
[2019–20 Wuhan coronavirus outbreak](#)
[Novel coronavirus \(2019-nCoV\)](#)