



2019 Novel Coronavirus: What You Need to Know

As the World Health Organization declares an international public health emergency due to the coronavirus outbreak. We are learning about the Disease from public health officials to characterize the disease, define best treatment practices and strategies to reduce transmission.

Below is some important information to keep you and your loves ones safe. For additional information visit: www.cdc.gov/nCoV.

Why is current coronavirus disease outbreak now being called COVID-19?

On February 11, 2020, WHO announced an official name for the *disease* that is causing the 2019 novel coronavirus outbreak, first identified in Wuhan, China. The new name of this disease is coronavirus disease 2019, abbreviated as COVID-19. In COVID-19, ‘CO’ stands for ‘corona,’ ‘VI’ for ‘virus,’ and ‘D’ for disease.

Formerly, this disease was referred to as “2019 novel coronavirus” or “2019-nCoV.” There are many types of human coronaviruses including some that commonly cause mild upper-respiratory tract illnesses. COVID-19 is a new disease, caused by a novel (or new) coronavirus that has not previously been seen in humans.

What is the name of the virus causing the current outbreak?

On February 11, the International Committee on Taxonomy of Viruses, charged with naming new viruses, named the novel coronavirus severe acute respiratory syndrome coronavirus 2, shortened to SARS-CoV-2. As the name indicates, the virus is related to the SARS-associated coronavirus (SARS-CoV) that caused an outbreak of severe acute respiratory syndrome (SARS) in 2002-03, however it is not the same virus. While the SARS-CoV-2 strain is closely related to the other bat SARS-like coronaviruses, it has a differentiating surface spike, ORF8 and ORF3B proteins

COVID-19 (disease) and SARS-CoV-2 (virus) are both used in reports regarding the current outbreak.

What are the updated number of cases?

As of February 11, 2020, the total number of confirmed cases on mainland China is 38,800 with 1,113 deaths. So far, adults, particularly older adults and those with other health conditions that make them susceptible to illness, appear to be most at risk for severe complications.

There have been few reports of pediatric COVID-19. The current count of cases of infection with COVID-19 in the United States is available on CDC's webpage at <https://www.cdc.gov/coronavirus/2019-ncov/cases-in-us.html>.

How can I help protect myself?

The best way to prevent infection is to avoid being exposed to this virus. There are simple everyday preventive actions to help prevent the spread of respiratory viruses. These include:

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose and mouth with unwashed hands.
- Wash your hands often with soap and water for at least 20 seconds. Use an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water are not available.

Is there anything else patients/families should know about COVID-19?

While it is always a bit scary when a new virus is discovered, the CDC and state public health officials are working hard to identify and quarantine infected individuals. Additionally, active investigation of at-risk individuals is also occurring. Most importantly though, we are in the midst a tough influenza season with more than 10,000 deaths including 68 children so far this season. Please get your flu shot if you haven't

already. It is not too late. There is still a lot of circulating influenza and the vaccine appears to be protective against the influenza A (H1N1) pdm09 strain that is circulating at higher rates than the other strains currently.

Clinical features of COVID-19?

Early reports of disease in patients in Wuhan showed severe pneumonia in men (median age 49 years; range 41-58 years), 33% of whom had comorbidities.

Fever was present in 40/41, cough in 76%, myalgia or fatigue in 44%. Pneumonia developed in 50% of the patients a median of eight days into illness.

A more recent report of 13 patients treated outside the epicenter, in Beijing, China, showed mild disease in a mainly healthy cohort (median age 34 years; 77% male) that included two children (2 and 15 years of age).

Clinical features included fever in 12, cough and URI symptoms in roughly 50% and myalgia and headache in 23%. Six had the typical ground glass opacities on CT.

COVID-19 in pregnant women?

Respiratory viral infections consistently have an increased risk for severe complications in pregnant women. SARS-CoV-1 caused severe pneumonia in 50% of pregnant women with 33% requiring mechanical

ventilation and a case fatality rate of 25%. pregnancy related complications- Premature delivery, Need for C section, gestational diabetes, severe preeclampsia).

Fever, URI symptoms, and Gastrointestinal symptoms. Abnormal Liver function tests and Bilateral ground glass opacities CT scan images.

Clinical course- Newborn ?

SARS-CoV-1 has been associated with complications in pregnant women, fetal loss in the first trimester, maternal infection and preterm delivery, but there was no disease in the infants born to infected mothers.

With SARS-CoV-2, there are two reports of neonatal pneumonia with respiratory distress, abnormal chest x-ray and elevated transaminases.

A second infant developed vomiting and respiratory symptoms at 17 days of age and was found to have pneumonia with a positive rectal swab for SARS-CoV-2; it is possible that this infant acquired disease after birth.

Treatment?

Supportive care is recommended, and intensive care is required for the most severely affected (20%)

Because secondary bacterial infection has occurred in ~10%, empirical antibiotics are considered.

While there is no recommendation for a specific antiviral treatment, two agents, one a broad spectrum, adenosine analogue antiviral that has been evaluated as a treatment for Ebola virus infection, remdesivir.

An antimalarial and autoimmune modulator, namely, Chloroquine have shown the ability to inhibit SARS-CoV-2. Its used cheap and used worldwide for Malaria.

Vaccine? When?

The most likely vaccine will capitalize on the spike protein that SARS-CoV-2 uses to invade human cells. Identifying the specific genes that code for the spike protein is the key step to vaccine development. The estimate is that a vaccine may be available in 18-24 months, which is quite amazing given that the normal estimate is that vaccine development may require up to 10 years.

Pandemic Chance?

SARS-CoV-2 is a new virus, there is a large susceptible population and the virus has spread globally. We currently do not have exact information regarding how many infected individuals have subclinical or only mild disease. In terms of transmissibility, a predictor for potential growth of an epidemic is the basic reproduction number which indicates how many new cases will occur from one infected individual.

If that number is greater than 1, sustained transmission is likely. For SARS-CoV-2, the R_0 value is 2, meaning for every case, two other people will become ill. Given what we know about the incubation period, the virus has the potential to double in size every four to seven days.

While the virus seems to have lower pathogenicity than MERS or SARS-CoV-2, it may have a higher impact on the population level and be harder to contain, since identification of cases with mild symptoms, and therefore contact tracing, may not be feasible.