

Short Communication

In the Early Stages of Coronavirus Disease-2019: What It is, What Precautions to Take, and Why Social Distancing is Necessary

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In December 2019, a previously unknown pathogen emerged in the city of Wuhan in central China. A novel pneumonia was caused, and on December 31, 2019, the outbreak of “pneumonia of an unknown cause” was reported to the World Health Organization (WHO).¹

The pathogen was identified as belonging to the family Coronaviridae, specifically the genera Beta-Coronavirus (β -CoVs), which are enveloped, positive-sense, single-stranded ribonucleic acid (RNA) viruses of zoonotic origin.

Some β -CoVs have already been seen to be of clinical importance to humans. About 10-15% of worldwide cases of the common cold are from the A lineage, human coronavirus OC43 (HCoV-OC43), and human coronavirus 229E (HCoV-229E). From the B lineage, severe acute respiratory syndrome coronavirus (SARS-CoV) was identified in 2003 as the virus responsible for the severe acute respiratory syndrome (SARS) outbreak in Asia during 2002-2004.

This novel coronavirus identified in 2019 was named SARS-CoV-2 and is the cause of the ongoing pandemic of the infectious disease, coronavirus disease-2019 (COVID-19). One can test positive for SARS-CoV-2, called “the coronavirus” by most media outlets, without showing symptoms of the resulting disease COVID-19.

In the United States (USA), the first confirmed case of COVID-19 was announced on January 21, 2020. There were 2000 confirmed cases by the time the White House declared it a national emergency on March 13, 2020. The number of confirmed cases

in the USA was 3000 on March 14, 2020. By March 20, 2020, that number was 25,115, with 325 deaths and 142 recoveries.

SARS-CoV-2 is transmitted *via* small liquid droplets emitted when an infected person coughs or sneezes. People standing too close to a person who has coughed or sneezed, particularly if they have not covered their nose and mouth, can become infected. Similarly, touching a surface upon which the droplets have settled, and then touching one's face, also transmits the virus.

SARS-CoV-2 has a basic reproduction ratio (R_0) between 2 and 3, compared to 1.2 for flu. This means that, without taking precautions, each infected person has the potential to infect at least two other people. Infected people, or carriers, can be asymptomatic themselves.

Precautions in keeping with the guidelines of the WHO include:

- Wash your hands with soap and water, frequently and for 20 seconds at a time.
- Stay hydrated to alleviate sore throat and help general body function.
- Carry and use alcohol-based hand sanitizer, when soap and water are unavailable.
- Carry clean napkins and paper towels to use when opening doors. Dispose of the napkins immediately after using them, and wash your hands.
- Clean your phone, keys, steering wheel, keyboard, appliance handles, and doorknobs frequently with rubbing alcohol.
- Practice social distancing with self-quarantine as much as possible. Social distancing will help slow the rate of infection. If you

must go out for necessary errands such as groceries or health-care, maintain a distance of 3 feet (1 meter) from others.

- Practice social solidarity at the same time. Illness while living alone is a major public health problem for all adults. If you live alone, connect with others *via* phone or social media messaging specifically to let them know you are all right or if you need help, and that they can contact you if they need assistance as well. Conversely, reach out to those who live alone, of all ages but particularly those who are elderly, who are at greater risk.

- Remember that racism helps no one. Many Asian-Americans have been attacked or had their businesses go under due to the avoidance of those who blame them for COVID-19. This includes patients refusing to see an Asian-American doctor. One-quarter of US doctors and one-fifth of US nurses are foreign-born, often from Asia. Outside of China, Italy is the worst affected epicenter of COVID-19 yet Italian-Americans do not experience the same level of racism in the United States.

If you have symptoms of any infectious disease, all you need to know is you got it from another person, and that you need to call your healthcare provider (Figure 1).

Figure 1. Graphic Courtesy of the World Health Organization



It should be noted that 80% of the confirmed cases are mild, according to the New York Academy of Sciences in a webinar given March 12, 2020. Worldwide, 66,216 of the 121,000 reported cases had recovered as of March 11, 2020, as reported by Johns Hopkins University

Outside of testing, there is no way to differentiate if a person has COVID-19 or the flu. Both COVID-19 and flu present much like the common cold, but have a more sudden onset and develop more severely. All of these infectious diseases include symptoms of coughing, sneezing, sore throat, chills, fever, headache, fatigue and muscle aches. Other symptoms, which occur mainly in children, include vomiting and diarrhea. Shortness of breath is an important indicator of COVID-19, as it is rarely present in cases of flu.

Monitor the health of yourself and those close to you, especially those who are higher-risk, such as those over age 60, are pregnant, or who have diabetes, heart disease or stroke.

If someone has the aforementioned symptoms, call your health care provider for the next step, rather than going immediately to the emergency room, which is likely overburdened by not just cases of COVID-19 but all other medical emergencies as well.

One should practice the same precautions for the flu. According to preliminary data from the Centers for Disease Control (CDC), there were up to 670,000 hospitalizations and 55,000 deaths due to flu complications between Oct 1, 2019, and March 7, 2020.

As COVID-19 is a previously unknown infectious disease, it will be followed in the years to come to truly know the long-term effects. Those who have had it and recovered could fall ill again, and so should take the same precautions as those who have not been diagnosed.

Self-quarantine is greatly valuable in suppressing infection rates, although we do not know yet how the pandemic will continue when people return to public spaces in the next few months. Keep in mind that COVID-19 and its effects will be tracked for years to come, and its full impact on individual, local and global health is yet to be seen.

This will include stress and trauma from loss of income due to closures of businesses, inability to access healthcare outside of an emergency room by those who are uninsured, and other socio-economic issues related to health and well-being.

One-quarter of Americans do not have paid sick leave. Many employees of large institutions and corporations do not qualify for employee-sponsored health insurance as their hours are often capped by their employer.

Currently, over 40 companies are working on treatments and vaccines specific to COVID-19, and there are reports that some existing treatments for human immunodeficiency virus infection (HIV) are effective in treating COVID-19.

Make a habit of practicing precautions, even when the pandemic subsides. Remember that the global community has successfully addressed pandemics since 2000, including H1N1 ("swine flu"), Zika virus, and other coronaviruses such as SARS and Middle East respiratory syndrome (MERS), each time with advancements in ever-evolving research and technology.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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