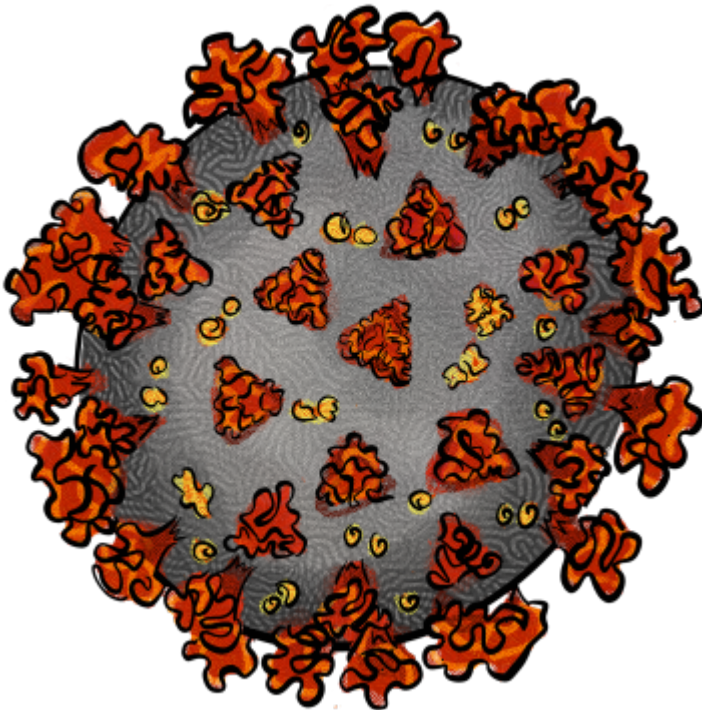


WHAT IS COVID-19 AND WHY HAS IT RECEIVED SO MUCH ATTENTION? ^[1]

Submitted by [Neysha Martínez-Orengo](#) ^[2] on 15 March 2020 - 7:00pm



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Viruses have been protagonists of many diseases and epidemics throughout the history of humanity. The novel SARS-CoV-2 coronavirus causing the Coronavirus Disease 2019 (COVID-19) is no exception to these scientific and public health challenges. COVID-19 has been classified by the World Health Organization (WHO) as a pandemic ^[3] due to the number of cases reported worldwide. In such a scenario, the general community has become interested in learning more

about what this virus is, what we know so far, and how it compares to other viruses.

There are more than 70 different virus families among which the coronaviruses [4] family is included. Members of this family can infect both animals and humans. The first description of a coronavirus in humans dates back to the 1960s. Since then, seven types of coronaviruses have been classified. There are four common types which infect people around the world every year, and their symptoms are similar to a common cold. There are three other types of coronaviruses that infect animals but have the ability to evolve and infect humans [5] as well. These include MERS-CoV, SARS-CoV and the novel SARS-CoV-2. So much attention has been given to SARS-CoV-2 due to the fact that it has not been previously identified in humans and possesses different characteristics from other coronaviruses. Therefore, we do not have yet medications or vaccines specifically for this type of coronavirus. At the moment, treatment is mainly aimed at relieving symptoms and offering medical support to people with chronic diseases and other underlying health conditions.

The following data provides an idea of the magnitude of infection and mortality of the new virus compared to other coronaviruses. In 2002, the Severe Acute Respiratory Syndrome (SARS [6]) appeared in China and spread to 26 countries. During its outbreak, more than 8,000 cases and around 800 deaths were reported (case fatality rate 10%). In 2012, the Middle East Respiratory Syndrome (MERS [7]) originated in Saudi Arabia and spread to 27 countries. Since then, around 2,500 cases and 858 deaths have been reported (case fatality rate 34%). In the case of COVID-19, the first reports came out in December 2019 from China and its origin has been linked to a seafood and live animals market. This event suggests the first contact and transmission of the virus from animal to human and then from person to person. In less than three months there have been more than 160,000 reported cases (around 75,000 recovered) and more than 6,000 deaths (case fatality rate 3.8%) in 146 countries / regions.* The data shows that, although the mortality rate of COVID-19 is lower than that of SARS and MERS, the risk of getting infected is much higher.

Despite how fast this virus is transmitted, it can be contained [8] if the preventive action is aggressive and early. If this is not achieved, you typically begin to see isolated cases of people who did not necessarily have direct contact with someone infected. In that case, it becomes difficult to contain and the next step is try to mitigate [9] the transmission by social distancing, lockdowns, and other strategies.

COVID-19 has been frequently compared to influenza [10], but these viruses are different [11]. Both cause respiratory tract infections and share some symptoms but affect the population in a different manner. Although the number of people infected with influenza and the sum of people who continue to lose their lives annually due to this cause is higher, it is no less true that the influenza fatality rate (0.1%) is well below that of COVID-19. One big difference is that we have available treatment and vaccines to prevent influenza, which we lack for COVID-19. Therefore, the most effective way to avoid getting sick with SARS-CoV-2 continues to be constant hand washing with soap and water, disinfect surfaces, wear face masks, and isolate yourself or avoid contact with other sick people.

On a side note, the coronavirus is not named after the famous beer most of us know, but instead is named after the structure [12] of the virus which has spikes around it that are similar to those of a

crown. It is precisely on these spikes that many scientists have focused their attention on since these structures make contact with receptors in our cells and allow the virus to enter. This mechanism could be key for the development of treatments and vaccines.

For the time being, case reports in China and Italy have served as the main guide to try to understand the pathology of COVID-19. Most infected people have very mild to moderate symptoms, while for others the infection can be fatal. The most affected population are people over 60 years of age and people of all ages with underlying diseases (e.g. diabetes, heart disease, lung disease, compromised immune system). It should be highlighted that in Puerto Rico there are currently a significant number of patients with asthma, cancer, and other health conditions who receive immunosuppressive therapies and this makes them a high-risk group.

Much remains to be learned about SARS-CoV-2 and COVID-19. We do not know if infected people develop immunity and if so, for how long. We do not know if people who have recovered will experience any damage or develop other long-term conditions as a result of this infection. We are also unsure of the aggressiveness of the virus and how it could change its behavior in different populations. We need to understand more about the structure and mechanisms of the virus in order to develop more effective diagnoses and therapies. These are just a few of the many questions that scientists are working diligently to answer. Therefore, scientific evidence, observations, data, and the integration of scientists and health experts in making decisions will be critical in guiding public health and policies that will be needed to help end this pandemic.

* update ^[13]: 6,797,633 confirmed cases (2,784,210 recovered) and 396,388 deaths (5.8% case fatality rate) globally as reported by the Johns Hopkins University and Medicine Coronavirus Resource Center on 6/06/2020.

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