

What Makes COVID-19 So Different?

COVID-19, the disease caused by a new coronavirus, has drastically changed lives around the world. This is not the first time that a disease caused by a novel coronavirus has been introduced in recent history: in 2002, Severe Acute Respiratory Syndrome (SARS) was identified, and in 2012, the Middle East Respiratory Syndrome (MERS) was identified. And yet COVID-19 has impacted the world in a way that SARS and MERS never came close to. College students were forced out of their campus housing with less than a week of warning. The working class is either working from home or getting laid off. Healthcare workers are overworked and starting to fall ill. Students of all levels are transitioning to online classes on a whim. Parents are having to balance full-time parenting with working full-time jobs from their houses. Hospitals are running out of supplies. People are spending days on end inside their homes, leaving only to shop for groceries—and even then, staying at least six feet away from anyone else. They are losing parents, grandparents, aunts, uncles, cousins, siblings, coworkers, peers, and friends. Within a matter of weeks, the entire world turned upside down.

COVID-19 does not have as high a death rate as other coronaviruses like SARS and MERS, but it is much more contagious than either of these diseases. This has already allowed it to cause more casualties than SARS or MERS did in the entire time they were a threat to the human population. The SARS outbreak began in 2002 in Guangdong, China. It spread first within Mainland China, and reached Hong Kong in March of 2003. By June of 2003, Singapore, Vietnam, and Taiwan all had cases of their own (Hung, 2003). It was mostly contained by July of 2003, and there have not been any known cases since 2004. Before SARS met its end, it infected people in 26 countries in North and South America, Europe, and Asia. In total, there were 8,098 people who were reported to have had SARS, and 774 of them are reported to have died from it (Chow and Wu, 2020). In some of the countries with larger outbreaks of SARS, hospitals were initially overwhelmed, but the virus was contained rather effectively and quickly and the surge eased (Hung, 2003). The CDC reports a fatality rate of 9.6% for SARS (CDC, 2003). This is a significant proportion of the amount of people who contracted it, but the virus was contained quickly enough to prevent as drastic of an impact as COVID-19 has had.

MERS spread even less than SARS did, though it caused more deaths. The MERS outbreak began in 2012 in Saudi Arabia. In total, 27 countries have reported cases of MERS, but

Saudi Arabia is responsible for about 80% of the world's cases. To date, there have been 2,494 total reported cases of MERS, and 858 of those cases were fatal (WHO, 2019). The World Health Organization reports the fatality rate of MERS to be about 35% (2019). Though there were much fewer cases of MERS than SARS, there have been more total deaths from MERS due to its high mortality rate. Unlike SARS, there have been known cases of MERS since its initial outbreak in 2012, though it is very rare (WHO, 2019). Though MERS was more lethal than SARS, it still does not compare to the damage that COVID-19 has already done.

COVID-19 has already spread farther than SARS or MERS ever did, and in less time. As of April 13, 2020, the total confirmed cases in the world is 1.8 million (Ortiz-Ospina, Ritchie, and Roser, 2020). And between the lack of readily available tests for the virus, especially in the United States—a country responsible for most of the cases worldwide—and the possibility of asymptomatic cases, this number is almost certainly a gross underestimate of the true number of COVID-19 cases. Even still, it only took fifty-three days for the number of COVID-19 cases to be higher than the total number of cases ever recorded of SARS (Chow and Wu, 2020). The fatality rate of this newest coronavirus varies between countries, and can change from day to day. For reference, the current estimate for the United States is 2.3%, which is significantly lower than the rates for both SARS and MERS. The total number of deaths, however, is a different story—as of April 13, 113,513 people have died from COVID-19 (Ortiz-Ospina, Ritchie, and Roser, 2020). This is north of 100 times the number of people who died from either SARS or MERS, and COVID-19 is still spreading rapidly.

All three of these coronaviruses are respiratory syndromes, so they have a lot of symptoms in common. SARS typically presented with a fever, a cough, and other flu-like symptoms, while diarrhea and vomiting occurred less frequently (Hung, 2003). In MERS patients, fevers and coughs were also common, as was shortness of breath. Diarrhea was also occasionally reported, and in more severe cases, patients had pneumonia or even respiratory failure that required a ventilator for survival (WHO, 2019). COVID-19 presents coughing and shortness of breath in its mildest symptomatic cases, and often fevers and fatigue in slightly more severe cases. At its worst—usually in its weakest patients—it causes pneumonia and organ failure (Washington Post, 2020). The viruses all present similarly in patients, though severe and deadly cases occur at different rates. What sets COVID-19 apart from SARS and MERS is its

ability to spread incredibly efficiently, thus infecting hundreds of thousands more people, and effectively killing thousands more as well.

A disease which seems more comparable to COVID-19—though it itself is not caused by a coronavirus—is the flu. The flu is a consistent seasonal threat caused each year by a different strain of the influenza virus. Symptoms of COVID-19 and the flu overlap almost completely: fever, cough, fatigue, shortness of breath, and aches are all common to both diseases. The flu also frequently comes with a stuffy nose, which is rarer (but still possible) in COVID-19 (Huang, 2020). The two diseases are also transmitted similarly. People infected with either virus release droplets from their noses and mouths when they cough, sneeze, talk, or even breathe, and these droplets can spread the diseases to a healthy host. The droplets can spread directly from one person to another by kissing, touching, or talking within a close range. They can also reside on common surfaces where a healthy person can touch the droplets, then touch their face, thus infecting themselves (Huang, 2020). Having similar symptoms and transmission pathways to the flu, however, does not make COVID-19 any easier to figure out.

The flu has been around for decades, so scientists have had time to research and understand it. COVID-19 is brand new. Flu vaccines have circulated since the 1930's, and each year a new one is developed based on the predicted strain of the virus in order to decrease its threat. There are also treatments like Tamiflu that can slow down the virus once a patient is infected. There are not currently any vaccines or treatments for COVID-19 (Huang, 2020). The flu is known to be most prevalent during winter months, when the weather is coldest. This allows for somewhat of a reprieve as the weather warms up, and gives scientists the opportunity to develop new vaccines for the next winter's flu. COVID-19 does not show any promise of following the same patterns—the virus has already wreaked havoc in countries with warm climates, and shows no signs of slowing down as the weather warms in the northern hemisphere (Huang, 2020). The flu's impact changes from year to year, but the average mortality rate in the United States is 0.1% (Huang, 2020). The current estimate for the mortality rate of COVID-19 in the US is 2.3%—over twenty times higher (Ortiz-Ospina, Ritchie, and Roser, 2020). Only between one and two percent of people who catch the flu are hospitalized, and those who are stay in the hospital for five to six days, on average. In contrast, 20% of people who test positive for COVID-19 have been reported to be hospitalized, and they stay there for an average of eleven

days. (Huang, 2020). But none of these differences are the most important aspect of COVID-19's complete world takeover.

Aside from the higher reported mortality rate, what makes COVID-19 more dangerous than the yearly flu is its unmatched ability to transmit from one person to another before being recognized. Some people can be infected with COVID-19 and never realize they have it—it just presents as a common cold (Washington Post, 2020). Sometimes people are infected with the disease before they start showing any symptoms (Huang, 2020). They are contagious, but unaware that they are capable of infecting other people. If they are still in contact with people, or even if they leave their house and cough on a communal surface, they can spread the virus before they realize that they are sick themselves. Even one person never gets seriously sick from the virus, one of the people they unknowingly pass it to could be hospitalized or even die from it. Each person who gets COVID-19 is believed to infect between 2 and 2.5 more people, thus allowing the virus to spread exponentially. Each person who gets the flu, on the other hand, infects about 1.3 new patients (Huang, 2020). This is the key to COVID-19's efficiency as it spreads and infects large percentages of populations in countries all over the world.

COVID-19 affects more than just those it infects. Because it is so contagious, drastic measures have been taken in order to try and slow its spread and “flatten the curve” in order to prevent a spike of cases that would completely overwhelm hospitals around the country (Washington Post, 2020). And while these measures are critical for public health, they can present new unique challenges. One of the first measures taken in the United States was to halt in-person college classes and give students short deadlines to move out of their on-campus housing. It was understood that the virus could easily spread very quickly in large gatherings of people, and college classes, dorms, and dining halls all fall under that category. Housing, food, health insurance, and jobs that colleges provide for their students are suddenly being stripped away—and some students do not have anything else to rely on (Kamenetz, 2020). Many colleges are allowing students who do not have safe homes to return to, or who live in countries with more severe outbreaks, to apply to stay on campus, but nothing is guaranteed to them. Students are starting groups to raise money for their peers who are unable to return home and have nowhere else to turn (Kamenetz, 2020). Even in a best-case scenario, students have no more than a week to completely pack their rooms, say goodbye to their friends, move out, and drive or fly home.

Once college students get home—if they can—they and their teachers have to make the transition to online classes. This change extends to students and teachers all the way down through high school, middle school, and elementary school. The most interactive way to teach online is using platforms such as Zoom, where a teacher and their class can all video- or voice-chat one another, and the teacher can show their computer screen to students in order to present materials. Other options include posting screencast video lectures or written materials online that students can access (Ebrahimji, 2020). At best, students are deprived of in-person learning and possibly even interaction with people outside their families. At worst, they have to scramble for internet access or a computer to learn with. Public middle and high schools are sending surveys in order to gauge their students' abilities to learn online, and some are able to provide students with materials to help (Ebrahimji, 2020). But governors and mayors across the country are prioritizing public health for the time being, and hoping that students can return back to school come fall.

Someone in the working class likely faces one of three scenarios: they are an “essential worker” who has to continue leaving their home to go to work, and puts their life at risk by doing so; they are capable of working from home and their employer is capable of paying them, but they lose human interaction; or they are laid off or furloughed from their jobs and forced to rely on government unemployment payments, and they still lose human interaction. Only an estimated 29% of people are capable of doing their jobs from their homes in the United States, and the rest are either essential or lose their jobs (Thompson, 2020). Essential workers extend beyond the healthcare professionals dealing directly with the crisis—they include people who work in transportation, food service and gas stations, banks, the media, as janitors, and more (Casiano, 2020). Typically, people in many of these fields receive not only less respect, but lower pay than white-collar workers. But now, they are putting their lives at risk every day so that other people can continue to live with some shred of normalcy and access to food. Of those losing their jobs, 16.8 million people have applied for unemployment benefits from the middle of March until the beginning of April in the United States. In March, the unemployment rate in the was 4.4%, and it is predicted to reach double digits before the economy recovers (Kurtz and Tappe, 2020). With fewer people leaving their homes, businesses are losing money and are no longer to support as many employees. As COVID-19 continues wreaking havoc on the United States, businesses will be forced to lay off more and more of their employees.

Being able to work from home is safer than having to continue to go outside, and allows workers to still make money. It is the best-case scenario in the current world, but it still comes with its own unique set of challenges. Employees who are used to seeing coworkers in person every day are suddenly confined to seeing them on video conference calls or talking to them over the phone. This eliminates the small talk and socialization that they are accustomed to, which, ordinarily, increases productivity and maintains sanity in the workplace (Thompson, 2020). The line between work and home life—that many already have trouble drawing—is no longer existent. Working from home presents an extra challenge to parents, especially those with young children. No children are in school, and there is no daycare or summer camp for their parents to send them to. Between stress from work, having to occupy one or more kids, and general panic and anxiety about COVID-19, parents are overwhelmed (Cluver et al., 2020). At this point, it is a privilege to be able to keep working, and it is a privilege to be able to stay safe at home, but the transition into working from home is not an easy one to make.

The reason behind campus closures, online classes, layoffs, and working from home is “social distancing.” A matter of months ago, this term was relatively unknown. Now, nobody is capable of existing for five minutes without hearing it, thinking about it, or doing it. Social distancing bans large gatherings, encourages people to stay home as much as possible, suggests a six-foot gap between people when they must go outside, and encourages regular hand-washing for at least twenty seconds. The United States government has also recently expanded the definition to suggest that people wear masks and gloves when leaving their homes (Washington Post, 2020). In addition to social distancing guidelines, 42 states, as well as Washington, DC, Puerto Rico, and counties in 3 additional states are under mandatory stay-at-home or shelter-in-place orders from their individual governments. Residents are given examples of specific essential activities that allow them to leave their houses, but are otherwise mandated to stay in their homes (Lu, Mervosh, and Swales, 2020). People are limited to social interaction with only those they live with, unless they use video chats or phone calls. Social distancing was enacted in order to slow the exponential spread of COVID-19, so that hospitals would not be completely overwhelmed within a matter of days.

Despite social distancing measures in the United States, hospitals are still treating massive amounts of patients with COVID-19, and are quickly running out of supplies in doing so. Hospitals are running low on ventilators, masks, gloves, and tests (Lagasse, 2020). The lack

of tests prevents people from finding out whether they have COVID-19 early enough to start treating it, and prevents accurate data from being recorded about how the virus is spreading. The lack of ventilators could eventually prevent people in critical condition from being treated to the fullest capacity. The lack of masks, gloves, and other protective gear is putting healthcare workers at an even higher risk of contracting COVID-19 while interacting with patients. Hospitals in Washington, Massachusetts, Maryland, Pennsylvania, and more states have already reported employees that are testing positive for the virus. In China, where the COVID-19 outbreak originated, 3,387 healthcare workers were reported to have gotten the virus (Bernstein et al., 2020). Since the total number of people in the United States with COVID-19 is already higher than in China, it is likely that the toll on American healthcare workers will be even greater than it was in China. Doctors, nurses, and other healthcare workers are incredibly important to managing this epidemic, and it is absolutely vital that they are protected as well as possible while on the front lines. They are continuously putting their own lives at risk in order to try and slow the spread of the disease, and they need adequate supplies in order to do so as efficiently as possible.

No sickness has been able to shut down as much of the modern world as COVID-19 has already been able to—and it has not even finished running its course. There are no specific treatments or vaccines for the virus, and it is incredibly contagious. Its ability to spread exponentially caused complete social shutdown, partial economic shutdown, and a rushed transition online for education systems and some companies. The virus is spreading faster than supplies can be produced. SARS and MERS, though both are coronaviruses like COVID-19, never caused as many cases or deaths as COVID-19, and did not come anywhere near having the same impact on everyday life. Even the flu, which consistently kills hundreds of thousands of people around the world on a yearly basis, does not cause this much of a disruption. No one alive has ever seen anything like COVID-19, and until the pandemic is over, no one can predict how it will end.

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