



Online Ethics Center  
FOR ENGINEERING AND SCIENCE

# Flattening the Curve

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## Description

A case study looking at efforts to prevent the spread of the Coronavirus (COVID-19) in South Korea and the USA.

## Body

Two democracies -- the United States and South Korea -- have chosen different approaches to managing the COVID-19 pandemic and have seen divergent outcomes. We describe the COVID-19 outbreak, the efforts taken in both countries to slow the spread of the disease, and the results of these efforts.

COVID-19 is an infectious disease caused by the severe acute respiratory syndrome coronavirus 2. The virus was first identified in Wuhan, China, in December 2019 and quickly spread around the globe. In March 2020 the World Health Organization declared that COVID-19 had become a pandemic [1].

COVID-19 is a more serious illness than seasonal influenza, and many COVID-19 patients require hospitalization in an intensive care unit (ICU). The disease attacks the lungs, and the most critically ill patients require ventilators [2]. The response of most governments around the world has been to “flatten the curve”; i.e., to slow the

spread of the disease in an effort to ensure medical needs do not exceed the capacity of the healthcare system [3].

Contact tracing is a well-known technique for reducing the spread of communicable diseases such as measles, tuberculosis, and syphilis. Contact tracing can be a valuable tool for “flattening the curve” because COVID-19 spreads primarily through human-to-human contact, and a person can be spreading the virus two to three days before showing symptoms. In fact, some people never show symptoms of COVID-19 but still spread the virus. For these reasons, many people will not know they have been exposed to COVID-19 unless somebody tells them [4]. COVID-19 contact tracing relies upon case workers who interview COVID-19 patients to learn the names of the people they have been in contact with over the previous three days. They warn the individuals who have potentially been exposed to the virus without disclosing the identity of the patient. They advise the exposed persons to isolate themselves for 14 days and monitor themselves for COVID-19 symptoms.

Experts have advised that the fast-moving nature of COVID-19 calls for the use of digital technologies to supplement traditional contact tracing methods. In South Korea, public health officials are using cell phone location information, CCTV videos, and credit card records to supplement patient interviews and enhance their ability to identify everyone that COVID-19 patients have encountered in the days before they were diagnosed with the disease. They have published detailed information about COVID-19 cases to help people in the neighborhood determine if they might have been exposed. Publicly shared information includes the age, sex, public transportation used, and businesses patronized by a patient in the days before their diagnosis. Residents who get this information and believe they may have been exposed to the virus are encouraged to get tested [5].

South Korea has been successful in flattening the curve. As of July 20, 2020, the cumulative number of COVID-19 deaths in South Korea was 296, or less than 6 victims per million South Koreans [6].

The United States has not made such extensive use of digital technologies to enhance contact tracing. Americans’ suspicion of government intrusion dates to before 1776, and a prohibition against government searches and seizures without a warrant is enshrined in the Bill of Rights as the Fourth Amendment to the US Constitution. In *Carpenter v. United States*, the US Supreme Court ruled that police

violated a suspect's Fourth Amendment rights by gaining access to his cell phone location records without a search warrant [7]. A public health emergency might be an example of a special need that would justify a warrantless collection of cell phone location information [8]. Nevertheless, most Americans think government tracking of cell phone locations would not help flatten the curve [9].

Efforts at traditional contact tracing have fallen short in the United States. The number of contact tracers is too small [10]. In addition, contact tracers have found it difficult to contact everyone who has been exposed to the virus because many people are in the habit of not answering the phones when the call is coming from an unknown number [11].

As a result, governors have had to rely on blunter methods to flatten the curve, such as mandatory "stay at home" orders for all non-essential workers. These orders were enacted in 43 states and the District of Columbia [12]. These methods caused a massive shutdown of the economy. More than 50 million Americans files for unemployment between mid-March and mid-April [13]. Feeling strong political pressure to reopen businesses, the governors of many states, including Florida and Texas, ended their stay-at-home orders on April 30. Less than two months later, facing a rapid rise in COVID-19 cases, Florida and Texas began to backtrack on their reopening, closing bars and lowering capacity limits in restaurants [14]. By July 20, 2020, the cumulative number of COVID-19-related deaths in the United States was 143,636, or 434 people per million Americans [6]. The COVID-19 death rate for Blacks and Hispanics/Latinos was much higher than the death rate for whites in every age category [15].

## **Discussion Questions**

1. South Korea kept its businesses open during the COVID-19 pandemic by adopting an effective contact tracing system supported by cell phone location information, CCTV videos, and credit card data. The system enabled public health officials to accurately identify those people who needed to stay at home. Most US states implemented blanket "stay at home" orders affecting all non-essential workers. These orders closed retail stores, restaurants and bars, movie theaters, gymnasiums, and many other businesses, creating a surge in unemployment. Despite these efforts, the death rate in the United States was about 75 times higher than the death rate in South Korea. Did Americans pay

- too high a price for their protections against government surveillance?
2. In the United States private companies collect location data from cellphone users to sell advertisements [16]. Is it sensible to tolerate private companies tracking people's movements to make a profit, but to object to the government collecting the same data to save people's lives?
  3. The "common good" can be defined as "the benefit or advantage of the entire community." Has the American response to the COVID-19 pandemic been for the common good?

## References

1. Mayo Clinic Staff. ["Coronavirus Disease 2019 \(COVID-19\)."](#) Mayo Clinic (web site). Retrieved July 13, 2020.
2. Lenny Bernstein. ["More Covid-19 Patients Are Surviving Ventilators in the ICU."](#) *The Washington Post*. July 3, 2020.
3. Mark Wilson. ["The Story behind 'Flatten the Curve,' the Defining Chart of the Coronavirus."](#) *FastCompany*. March 13, 2020.
4. A. Crystal Watson, Anita Cicero, James Blumenstock, Michael Fraser, et al. ["A National Plan to Enable Comprehensive COVID-19 Case Finding and Contact Tracing in the US."](#) Center for Health Security, Johns Hopkins University. April 10, 2020.
5. Max S. Kim. ["Seoul's Radical Experiment in Digital Contact Tracing."](#) *The New Yorker*. April 17, 2020.
6. ["COVID-19 Coronavirus Pandemic."](#) Worldometer (web site). Accessed July 20, 2020.
7. Supreme Court of the United States. ["Carpenter v. United States."](#) No. 16-402. Decided June 22, 2018.
8. ["COVID-19, Digital Surveillance, and Privacy: Fourth Amendment Considerations."](#) Congressional Research Service. April 16, 2020.
9. Brooke Auxier. ["How Americans See Digital Privacy Issues Amid the COVID-19 Outbreak."](#) Pew Research Center. May 4, 2020.
10. Selena Simmons-Duffin. ["As States Reopen, Do They Have the Workforce They Need to Stop Coronavirus Outbreaks?"](#) *Morning Edition* (radio show). June 18, 2020.
11. Benjamin Siegel, Mark Abdelmalek, and Jay Bhatt. ["Coronavirus Contact Tracers' Nemeses: People Who Don't Answer Their Phones."](#) *ABC News*. May 15, 2020.

12. NASHP Staff. [“Chart: Each State’s COVID-19 Reopening and Reclosing Plans and Mask Requirements.”](#) National Academy for State Health Policy (web site). Accessed July 20, 2020.
13. Nigel Chiwaya and Jiachuan Wu. [“The Coronavirus Has Destroyed the Job Market in Every State.”](#) *NBC News*. April 14, 2020. Updated July 16, 2020.
14. Molly Hennessy-Fiske. [“In Reversal, Texas and Florida Order Bars to Shut, Restaurants to Scale Back as Coronavirus Cases Surge.”](#) *Los Angeles Times*. June 26, 2020.
15. Tiffany Ford, Sarah Reber, and Richard V. Reeves. [“Race Gaps in COVID-19 Deaths Are Even Bigger Than They Appear.”](#) The Brookings Institution. June 16, 2020.
16. Stuart A. Thompson and Charlie Warzel. [“Twelve Million Phones, One Dataset, Zero Privacy.”](#) *The New York Times*. December 19, 2019.

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