PRIORITIZE FAST AND ACCURATE DIAGNOSTIC TESTING IN THE SHORT TERM

Brent Skorup
Senior Research Fellow, Mercatus Center at George Mason University

Pennsylvania Senate, Communications & Technology Committee
Hearing on the Department of Health COVID-19 Contact Tracing App Oversight and Review

September 8, 2020

Good morning, Chair Phillips-Hill, Minority Chair Kearney, and distinguished members of the committee:

It's a pleasure to be with you again. My name is Brent Skorup and I'm an attorney, technologist, and senior research fellow at the Mercatus Center at George Mason University.[1]

It's commendable that lawmakers, governors, and mayors around the country, including in Pennsylvania, are prioritizing public health in response to the COVID-19 crisis.

Using contact tracing apps like the one proposed for Pennsylvania should be voluntary, lawmakers should know how they function, and users should know what information is collected and who will use it. That said, caution is warranted: the public is skeptical of using these apps. While the app under consideration doesn't track user location, the public is reasonably quite skeptical of new public health surveillance, and acclimating residents to public health surveillance has long-term social effects that are difficult to assess.

I wish to make two points today:

- Contact tracing, combined with modern technology, can slow the spread of viruses.
- However, absent a major increase in testing and diagnoses within a day of symptoms, contact tracing is unlikely to control coronavirus spread.

---

1. My thanks to Connor Haaland for research assistance.

FADING HOPE FOR CONTACT TRACING

I was cautiously optimistic about contact tracing when the COVID-19 crisis first hit the United States. Many technologists and health officials observed, for instance, South Korean officials successfully use contact tracing and technology to identify and quarantine thousands of people infected from an outbreak linked to a church and other local hot spots.[2] However, my optimism about contact tracing has faded as time has passed.

First, the coronavirus is far too widespread to control it nationwide as South Korea did. As a physician-adviser to the South Korean government told reporters, once COVID-19 proliferates, contact tracing and tracking patient movements "become meaningless."[3]

Second, we've learned that, outside East Asia, no country seems to have the public health norms, procedures, and technology in place to use contact tracing effectively for COVID-19. In South Korea, for instance, contact tracing for each person can often be completed within minutes. Largely because of the country's experience with the Middle East respiratory syndrome (MERS) epidemic in 2015 and with SARS, South Korea has a centralized data platform that allows public health officials to access a patient's GPS, CCTV surveillance, travel and medical history, and credit card purchase history in minutes. South Korea also has a publicly accessible website that records people who have been infected with COVID-19, including their age, gender, whether they were wearing masks most of the time, and whether their homes have been disinfected. Notably, this public health surveillance is done without a contact tracing smartphone app.

LACK OF INFRASTRUCTURE IN THE UNITED STATES

Quite simply, the United States doesn't have similar technology in place, nor is it clear that the American public or constitutional law would tolerate this kind of surveillance. In comparison to South Korea, US public health surveillance is rudimentary, and experiences in other states that are doing contact tracing suggest that our expectations should be modest.

The difficulties with contact tracing include a lack of adoption of contact tracing apps, undertrained and overworked contact tracers, and a lack of cooperation when people are contacted. Though the app under consideration in Pennsylvania is designed to protect privacy, people are reasonably skeptical about novel public health surveillance programs using technology they're unfamiliar with.

In France, for instance, the *Wall Street Journal* reports that less than 3 percent of French residents downloaded the contact tracing app.[4] Despite nearly 2 million downloads, only 14 people have received a notice of possible COVID-19 exposure.[5] Similarly, in Utah, less than 3 percent of residents had downloaded the contact tracing app.[6]

The *New York Times* has covered New York City as it unveiled a contact tracing app and hired a few thousand contact tracers beginning in June. The news is dispiriting. Contact tracers are demoralized

---

2. Derek Thompson, "What's behind South Korea's COVID-19 Exceptionalism?," *The Atlantic*, May 6, 2020.
3. Max S. Kim, "Seoul's Radical Experiment in Digital Contact Tracing," *New Yorker*, April 17, 2020.
4. Sam Schechner, "French Contact-Tracing App Struggles with Slow Adoption. It Isn't Alone," *Wall Street Journal*, June 23, 2020. Germany fared better but adoption was still low—about 14 percent participation.
5. Schechner, "French Contact-Tracing App Struggles."
6. Rolfe Winkler and Patience Haggin, "America Is Reopening. Coronavirus Tracing Apps Aren't Ready," *Wall Street Journal*, June 22, 2020.

and the program is disorganized.[7] As one hire told the *New York Times*, "It seems like they hired all of us just to say we have 3,000 contact tracers so we start opening up again, and they don't really care about the program metrics or whether it's a successful program."[8]

While processes in New York City have improved since June, only about 40 percent of the people interviewed this summer have provided tracers with the name of even a single contact who may have been exposed—a response rate that experts regard as too low to be effective at preventing spread.[9]

This is not a New York City–only problem. In Houston, only about half of the people contacted by contact tracers are cooperative.[10] According to health officials, people resist providing useful information about where they were and who they may have exposed because they fear, among other things, the economic effects of their workplace or neighborhood bar or restaurant being shut down.[11] It's a difficult social and cultural problem that hinders effective virus control.

DELAYS IN DIAGNOSTIC TESTING

The most serious problem undermining the effectiveness of contact tracing in the United States is the delays in diagnostic testing. Recent news from California, for instance, records that it takes six to nine days for a Californian who has tested positive to receive a call from a contact tracer. As one professor at UC Berkeley put it, those delays "essentially negate the point of contact tracing. It's horrifying."[12]

Health models published this month in the *Lancet* suggest that if people receive their diagnoses three or more days after showing symptoms, even perfect contact tracing—performed without delays—is ineffective.[13] Effective contact tracing, researchers say, requires rapid testing of people and alerts about results, ideally within one day of symptom onset.[14] Testing delays combined with contact tracing delays leave little room for optimism.

COVID-19 contact tracing and apps must be prioritized with these immediate realities in mind. I live in Virginia, and when the state unveiled its COVID-19 tracking app a few weeks ago, I downloaded it within hours and turned it on, doing my small part to assist public health officials and contact tracers in my state. However, for contact tracing to be effective, diagnostic tests need to be fast and accurate.

According to the researchers who published in the *Lancet*, per their models, "minimising testing delay had the largest impact on reducing onward transmissions" and "access to testing should therefore be optimized."[15] They conclude, "A contact tracing strategy therefore has the potential to control virus transmission, . . . but only if all delays are maximally reduced."[16]

---

7. Sharon Otterman, "City Praises Contact-Tracing Program. Workers Call Rollout a 'Disaster,'" *New York Times*, July 29, 2020.
8. Quoted in Otterman, "City Praises Contact-Tracing Program."
9. Otterman, "City Praises Contact-Tracing Program."
10. Ari Shapiro and Maureen Pao, "California and Texas Health Officials: Mistrust a Major Hurdle for Contact Tracers," NPR, August 10, 2020.
11. Shapiro and Pao, "California and Texas Health Officials."
12. Joe Eskenazi, "It's Taking a Week for Contact Tracing to Reach COVID-19 Patients," *Mission Local*, August 10, 2020.
13. If "[diagnostic] testing delay becomes 3 days or longer, even perfect contact tracing (i.e., 100% testing and tracing coverage with no tracing delay) cannot" control COVID-19 transmission. Mirjam E. Kretzshmar et al., "Impact of Delays on Effectiveness of Contact Tracing Strategies for COVID-19: A Modelling Study," *Lancet Public Health* 5 (August 2020): e456.
14. Kretzshmar et al., "Impact of Delays on Effectiveness," e458.
15. Kretzshmar et al., e452.
16. Kretzshmar et al., e458.

Quite simply, the US federal government and state governments currently have not shown that they have the public health infrastructure and technology in place to effectively do contact tracing for COVID-19. This should not be interpreted as a criticism of federal or state lawmakers or public health authorities—the few East Asian countries that were prepared for contact tracing and public health surveillance learned the hard way from their experiences with earlier MERS and SARS crises. Nor should lawmakers stand by passively—viral pandemics have hit the United States before and will, unfortunately, strike again. I trust, with leaders like those on this committee holding hearings like this one and acting on them, technologists and public health authorities will be better prepared in the months and years ahead.

Thank you for inviting me to testify today. I look forward to answering any questions.