COVID-Apps: Misdirecting Public Health Attention in a Pandemic

Susan Erikson
Simon Fraser University

Abstract
When there is no vaccine for a disease, ‘Test, Trace, Treat/Isolate’ is the public health go-to directive. During the COVID-19 pandemic, mobile phone apps are designed to improve on this. But COVID-apps have not been effective as a public health tool. Countries spend millions to develop them, yet they have been shown to have terrible return on investment. This commentary explores why COVID-apps are generally championed and provides three brief case studies (Germany, Sierra Leone, Canada) of non-app public health success. In conclusion, I argue that we need to get our public health care priorities straight: Better and more testing; increased investment in manual contact tracing and treatments; hospitalization when necessary; and wrap-around care – assistance with groceries, cleaning, child- or eldercare responsibilities, telehealth doctor appointment hookups – for sick people in home isolation.

I study disease-apps and found a conundrum: They don’t work very well, yet countries spend millions to develop and promote them. COVID-apps in particular have not been shown to effectively improve health outcomes except in countries where citizens are already tracked with multiple-reinforcing surveillance systems (i.e. as in China with its closed-circuit television (CCTV) and video surveillance, facial recognition systems, and quick response (QR) code checkpoint requirements). Yet the list of countries using taxpayer monies to develop COVID-19 apps continues to grow (Covid Tracing Tracker, 2020).

There is more: COVID-apps do not replace or abbreviate the need for the serious public health architectures of manual contact tracing. Too many people still do not understand this fundamental component of infectious disease management: Manual contact tracing is essential to disease management and care, but COVID-apps are not.

Manual contact tracing works like this: Once someone tests positive for a disease, usually within 24 hours, a disease case investigator calls or visits them to take a full oral history of their movements while symptomatic. They create a list of people’s names and contact information from that person’s household and workplace, as well as anyone who was in close proximity during the time the person was contagious. Disease investigators hand off that list to contact tracers who, usually, first text and then call the contacts, inquiring as to any symptoms. Contact tracers do the hard, sometimes emotion-evoking work of telling people they have been exposed to a virus; some people cry, others are dismissive, still others deny they were exposed. Contact tracers provide the care work of the pandemic – helping people figure out what resources they may have and what resources they need to get tested, treated, hospitalized, or stay at home. When contact tracing systems work, check-ins continue for up to 14 days. When contact tracing works very well, it plugs into a larger wraparound care system for sick individuals and their families. Hospital care and mental health services are available, as needed. But, more commonly, homecare is combined with correlated services that involve relatives and service providers working together in communities of organic support. Good contact tracers advise on local resources available for food shopping, prescription delivery, child- or eldercare, employment subsidy, and home cleaning services. COVID-apps, when compared to the full-throttle wraparound care of good contact tracing, pale in comparison. They are just exposure notification gadgets that work, by one estimate, only 4 per cent of the time (Nature, 2020a).

Know one app? Then you know one app
After publishing a Global Policy essay (Erikson, 2020a) on how COVID-apps fail the people who are most at risk of getting sick, I continued to track country stories of COVID-app development. In June 2020, about 35 countries promoted their mobile phone COVID-app download and use (Nature, 2020b). At this writing (mid-August 2020), there are 48 federal apps (O’Neill et al., 2020 and COVID Tracing Tracker, 2020). Each app has an origin story.

As a medical anthropologist and steadfast practitioner of ‘slow research’ (Adams et al., 2014), I am typically less interested in quick takes than in more expansive ethnographic details and analysis (i.e. Erikson, 2018). Nevertheless, although too brief for my anthropological sensibilities, the Notes column of the open-sourced Covid Tracing Tracker (Covid Tracing Tracker, 2020; O’Neill et al., 2020) provides provocatively descriptive teasers. The Notes hint at intriguing backstories to COVID-app development and
implementation: (Algeria) ‘investigated by Amnesty International’; (Ghana) ‘focused on collecting users’ location data’; (India) app mandatory; (Indonesia) location data cross-referenced with customer phone records; (Japan) ‘riddled with issues’ since launch and ‘suspended at least twice’; (New Zealand) uses QR tracking codes; (Qatar) ‘requires access to photos’; (Thailand) [app] is both a proximity app and QR code check-in; (Turkey) phone data shared with police; (United Arab Emirates) ‘citizens can be fined for refusing to install app’; (Vietnam) requires access to contacts, media, and photos. Conclusion? If you know one app, you do not know them all. Each COVID-app has a backstory that, in a perfect world, would compel place-based anthropological research and inquiry. But even with these short notes, we can see that there is socio-political concern in many countries around privacy, overreach, policing, enforcement, and punishment for COVID-app non-compliance.

Technologies of a job well done

Over three decades, I have lived, worked, and conducted research in Sierra Leone, Germany, and Canada. Here I provide their brief COVID-19 management country narratives, which outline a cross-section of coronavirus containment technology strategies. I use the term ‘technology’ here as anthropologists do, that is, a technology is any approach that gets a job done. As a point of reference, the first cases of COVID-19 in Sierra Leone, Germany, and Canada were lab confirmed, respectively, 31 March 2020; 27 January 2020; and 25 January 2020.

Sierra Leone: A hotspot of the Ebola virus just six years ago, Sierra Leone began testing for coronavirus in February 2020. As noted in the New York Times, ‘Sierra Leone had an effective test [for COVID-19] before the United States did’ (Harris et al., 2020). It did not have its first case of COVID-19 until 31 March 2020. To date, its case counts are low. Since early in the global pandemic, the small West African country of six million people has experienced pandemic governance – government preparedness, leadership, and management of COVID-19 – of a comparatively high order. As I explain elsewhere (Erikson, 2020b), passengers arriving in Sierra Leone’s international airport were quarantined beginning on 3 February 2020. By mid-February, handwashing stations were setup throughout the capital city. Sierra Leone’s president was actively involved in pandemic management, visiting the airport, border checkpoints, and hospitals, and calmly encouraging people to use their experience with Ebola to fight COVID-19. It hasn’t been easy going; the country has had some political infighting. There have been several lockdowns, most lasting for three-days, giving public health officials time to establish new containment perimeters and quell outbreaks.

Manual contact tracing by Sierra Leoneans was central to containing Ebola in 2016. ‘Operation Ose-to-Ose’ (house-to-house) was a federal deployment of contact tracers working door-to-door checking households for people sick with Ebola (Spencer, 2015). That essential contact tracing work was slow, tedious, and unsung, but ultimately it worked.

On the digital technology front, in October 2019, two months before the coronavirus began its global trek, Sierra Leone declared ‘smart country ambitions’ (Jalloh, 2019). Its president wants to use technology to ‘leapfrog the country out of poverty’, a goal shared by tech all-star David Sengeh, head of Sierra Leone’s Directorate of Science, Technology and Innovation (Wikipedia, 2020). At the government level, the technological response to coronavirus is still largely aspirational. There is a desire to develop digital disease platforms, but digital relief for the pandemic consists mainly of SMS public health announcements and enabling social media messaging videos (e.g. UNDP Sierra Leone, 2020). Of note, though, are the facts that steady pandemic governance and manual contact tracing have thwarted the spread of COVID-19 in Sierra Leone, not tech.

Germany: Germany’s COVID-19 success is grounded in aggressive testing; it was the first country in the world to develop a rapid diagnostic test and COVID-19 testing began in January 2020 (Bennhold, 2020). Many cases were found early. By February, Germany had produced millions of test kits, and those tests were paired with Germany’s manual contact tracing regime, with about five contact trackers for every 25,000 people. The result? Germany has one of the highest COVID-19 case detection rates in the world and a low death rate. Having done my dissertation research in German hospitals, I know there is one other inestimable quality of its COVID care: most Germans trust their medical system, as well as their current chancellor, Angela Merkel (Miller, 2020).

Germany did not need a COVID-app to manage the disease. But it spent 20 million euros anyway on COVID-app development. An early version was designed to turn over phone data to centralized health authorities, which developers came to understand would be untenable for privacy-concerned Germans. A second version, launched 16 June 2020, is an exposure notification-only app that must be voluntarily downloaded onto its citizens’ mobile phones (Corona-Warn-App Open Source Project, 2020). Seventeen per cent of the population have downloaded it so far, according to COVID Tracing Tracker, which falls far short of the 80% believed necessary to prove feasibility of the app as an effective population health intervention (Hinch et al., 2020). I am not the only one to think the app is highly unlikely to further enhance the German manual contact tracing system (Kluth, 2020). But Germany is keen to have an app to call its own.

Canada: Canada’s 31 July 2020 rollout of its federal app, COVID Alert (Government of Canada, 2020), could be described as ambivalent. ‘Despite the gaps, we need to have a go at using it’, said Canada’s Chief Public Health Officer as she talked about COVID Alert’s limitations (e.g. won’t work with old phones) in a briefing a few days after the rollout (Globe and Mail, 2020). Ontario is the first province to trial COVID Alert, and, three weeks in, about 13 per cent of its population have downloaded the app. Months earlier, the Prime Minister had been lukewarm about releasing a federal contact tracing app, much as he was about the utility of temperature checks at the airport, but he came around eventually to endorsing both measures, though neither have
supporting scientific evidence. Earlier, in May, the province of Alberta introduced an app, TraceTogetherAB (Government of Alberta, 2020). But with only 6 per cent of Albertans uploading the app, the province will eventually join the federal effort.

About a week after COVID Alert’s rollout, as if in response to the federal app, British Columbia’s (BC) provincial government hired 500 additional manual contact tracers, calling them the ‘bread and butter’ of COVID-19 care. Indeed, BC manual contact tracers have been able to ‘reach 98 per cent of the contacts of each new positive case’ (Lindsay, 2020).

Some Canadians where I live in British Columbia, proud of the universal healthcare system and horrified by the mounting death toll across its southern border, view keeping the border closed to Americans as more important to the health of Canadians than uploading the app.

Prioritizing matters: manual contact tracing makes the difference, apps not so much

COVID-app appeal is hard to deny. Tech solutions offer up easy remedy. In a world awash with technology, disease apps feel inevitable, essential, and simple. They promise hope at a time when people feel confusion and despair. It seems like they should work. If only. If only COVID-apps worked to actually achieve their population-wide public health ends. But not only has there been trouble with functionality (e.g. operating systems incompatibility; unscanable QR codes), but COVID-app promoters also underestimate the public’s resistance to reporting their own COVID-19 status. Technology does nothing to eradicate the stigma of having a dread disease.

During the COVID-19 pandemic, Sierra Leone, Germany, and Canada, each in their own way, have achieved improved health outcomes through commitments to the slower, manual, less shiny, non-app measures. Testing, tracing, treatment/ isolation is a mantra because it works. The global public health community already knows how to contain infectious disease when there is no vaccine and few treatments.

Let’s be vigilant about keeping our public health priorities straight during the COVID-19 pandemic: invest in better and more testing; bankroll manual contact tracing; finance treatment and hospitalization, as well as wrap-around care for the sick in-home isolation, including assistance with groceries, cleaning, child- or eldercare responsibilities, and tele- health doctor appointment hookups. Beefing up these elements can work the world over, in countries with both resource wealth and scarcity. They have worked successfully for Ebola, SARS-1, and MERS, and they can work for COVID-19. COVID-apps misdirect our public health attentions, if we let them. Stay focused. Avoid distractions. Do the harder work. And when adopting health technologies, use technologies that work.

References

Adams, V., Burke, N. J. and Whitmarsh, I. (2014) ‘Slow Research: Thoughts for a Movement in Global Health’, Medical Anthropology [online], 33 (3), pp. 179–197.

Bennhold, K. (2020) ‘A German Exception? Why the Country’s Coronavirus Death Rate Is Low’, The New York Times, 4 April. Available from: https://www.nytimes.com/2020/04/04/world/europe/germany-coronavirus-death-rate.html [Accessed 29 September 2020].

Corona Warn-App Open Source Project (2020) Help us Improve the Corona-Warn-App [online]. Available from: https://www.coronawarn.app/en/ [Accessed 29 September 2020].

Covid Tracking Tracker (2020) Read Only [online]. MIT Technology Review. Available from: https://docs.google.com/spreadsheets/d/1ATalAS08KZMz_zJRe0oVfh1nn8-8aq1-CQvSC0w/edit#gid=1464910624. (Readers may need to be signed into a Google account to read. To see countries, see Data tab.) [Accessed 29 September 2020].

Erikson, S. (2018) ‘Cell Phones ≠ Self and Other Problems with Big Data Detection and Containment during Epidemics’, Medical Anthropology Quarterly [online], 32 (3), pp. 315–339. Available from: https://anthropsource.onlinelibrary.wiley.com/doi/10.1111/maq.12440. [Accessed 29 September 2020].

Erikson, S. (2020a) ‘COVID-19 Mobile Phone Apps Fail the Most Vulnerable’, Global Policy [online], pp. 1–6. Available from: https://www.globalpolicyjournal.com/articles/health-and-social-policy/COVID-19-mobile-phone-apps-fail-most-vulnerable. [Accessed 29 September 2020].

Erikson, S. (2020b) ‘Pandemics Show us what Government is for’, Nature Human Behaviour [online], 4, pp. 441–442. Available from: https://www.nature.com/articles/s41562-020-0871-4 [Accessed 29 September 2020].

Globe & Mail (2020) ‘COVID-19 Alert app is limited but still useful: Tam’ (Video), The Global and Mail, 4 August. Available from: covid https://www.theglobeandmail.com/canada/video-covid-19-alert-app-is-limited-but-still-useful-tam/ [Accessed 29 September 2020].

Government of Alberta (2020) ABTraceTogether [online]. Available from: https://www.alberta.ca/ab-trace-together.aspx [Accessed 29 September 2020].

Government of Canada (2020) Download COVID Alert today [online]. Available from: covid https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/covid-alert.html [Accessed 29 September 2020].

Harris, J., Kristof, N. and Ellick, A. B. (2020) ‘How America Lost 200,000 Lives to COVID-19’, New York Times. Available from https://www.nytimes.com/2020/09/29/opinion/covid-pandemic-us-response.html [Accessed 29 September 2020].

Hinch, R., Probert, W., Nurtay, A., Kendall, M., Wymant, C., Hall, M., et al. (2020) ‘Effective Configurations of a Digital Contact Tracing App: A report to NHSX’ [online]. Available from: https://cdn.theconversation.com/static_files/files/1009/Report_-_Effective_App_Configurations.pdf [Accessed 29 September 2020].

Jalloh, A. (2019) ‘Sierra Leone’s ‘Smart Country’ Ambitions’ [online]. Available from: https://www.dw.com/en/sierra-leones-smart-country-ambitions/a-50824561 [Accessed 29 September 2020].

Kluth, A. (2020) ‘Germany’s Coronavirus Tracing App Won’t Work’, Bloomberg Opinion, 15 June. Available from https://www.bloomberg.com/opinion/articles/2020-06-16/germany-s-corona-app-is-much-worse-than-singapores [Accessed 29 September 2020].

Lindsay, B. (2020). ‘B.C. to Hire 500 More Health-Care Workers to Increase COVID-19 Contact Tracing’, CBC, 12 August. Available from: covid https://www.cbc.ca/news/canada/british-columbia/b-c-premier-horgan-dix-henry-covid-1.5683456 [Accessed 29 September 2020].

Miller, S. (2020) ‘The Secret to Germany’s COVID-19 Success: Angela Merkel Is aScientist’, The Atlantic, 20 April. Available from: https://www.theatlantic.com/international/archive/2020/04/angela-merkel-germany-coronavirus-pandemic/610225/ [Accessed 29 September 2020].

Nature (2020a) ‘The App Credibility Gap’, Nature Biotechnology [online], 38 (7), p. 768. Available from: https://www.nature.com/articles/s41587-020-0610-4kciteas [Accessed 29 September 2020].

Nature (2020b) ‘COVID-19 Digital Apps Need Due Diligence’, The International Journal of Science [online], 580, p. 563. Available from:
https://media.nature.com/original/magazine-assets/d41586-020-01264-1/d41586-020-01264-1.pdf [Accessed 29 September 2020].

O'Neill, P. H., Ryan-Mosley, T. and Johnson, B. (2020) A Flood of Coronavirus Apps are Tracking Us. Now It's Time to Keep Track of Them [online]. Available from: https://www.technologyreview.com/2020/05/07/1000961/launching-mitr-covid-tracing-tracker [Accessed 29 September 2020].

Spencer, S. N. (2015) 'Invisible Enemy': Translating Ebola Prevention and Control Measures in Sierra Leone [online]. Available from: https://lost-research-group.org/wp-content/uploads/2017/05/SPP1448_WP13_Spencer_upd.pdf [Accessed 29 September 2020].

UNDP Sierra Leone (2020) Corona Fet Na We All Fet, Sierra Leone’s COVID-19 Song for National Mobilization Against the Disease [online]. Available from: https://www.youtube.com/watch?v=DEBxUX6xct8&feature=youtu.be [Accessed 29 September 2020].

Wikipedia (2020) David Moinina Sengeh [online]. Available from: https://en.wikipedia.org/wiki/David_Moinina_Sengeh [Accessed 29 September 2020].

**Author Information**

Susan Erikson is a medical anthropologist who studies health technology, data, and finance systems that shape human health experiences and global health praxes. She is Professor of Global Health in the Faculty of Health Sciences at Simon Fraser University, Vancouver, Canada. Pneet Grewal assisted with bibliographic formatting.