Corporate Contact Tracing as a Pandemic Response

Since the start of the COVID-19 pandemic, a steady stream of propositions from tech giants and start-ups alike has furnished us with the idea that contact tracing apps are a vital part of the pandemic response. Google and Apple have collaborated to design an application programming interface (API) that allows their 'distinct operating systems [to] swap data with each other' (Howell O'Neill, 2020a). This permits app makers to create contact tracing apps that work across the Android and iOS platforms, opening the door to a proliferation of personalized contact tracing services. 'Despite the avalanche of services,' however, key questions such as what data will be collected, and who will have access to it, remain largely unanswered (Howell O'Neill et al., 2020). Moreover, apps vary widely with respect to how they work (e.g. whether they use GPS or Bluetooth technology, or some combination of these with other technologies). And, there are significant differences—reflective of variations in national and digital cultures—in how such interventions are implemented (how transparent they are, the level of government pressure to use them, etc.).

In striking instantiations, China deployed the Alipay Health Code, an app that risk-profiles users through a green/yellow/red colour code scheme, and which citizens must use if they want to circulate from place to place (e.g. Mozur et al., 2020). The Indian Government similarly mobilized the Aarogya Setu app for iOS and Android, which also colour codes users according to their risk profiles (Howell O'Neill, 2020b). Similar developments have emerged in cities like Moscow and Hong Kong and, as Kitchin notes, Taiwan, which has deployed 'a mandatory phone-location tracking system', even 'issuing GPS-enabled phones to those that do not own one' (2020: 2). Bypassing smartphones Singapore's government proposed issuing a wearable device to every citizen (Security Magazine, 2020).

As in previous public health emergencies, these developments reflect a rush to innovate solutions (e.g. tests, vaccines), and significant economic advantage is at stake.[1] Indeed, we have seen conflicts emerge between corporate giants and nation-states. In France and Germany, for example, the Google-Apple API was viewed as raising 'grave questions' about 'sovereignty' (Government of France, 2020) and as holding European states 'hostage' to technical, standard-setting decisions designed to serve the interests of Silicon Valley (Rosemain and Busvine, 2020).

In this commentary, we position these developments as an important locus of inquiry and debate for critical public health scholarship. While initial laudatory and promotional discourse from tech developers, companies and governments framed contact tracing apps as supplementary tools to aid the work of public health, their larger significance for the organizations and institution of public health requires increased critical scrutiny. Indeed, although we have seen the emergence of a critical commentary, particularly with respect to apps' efficacy (e.g. Leuprecht, 2020; Bay, 2020) and privacy implications (e.g. Canada, OPC, 2020; Hogan, 2020), much less has been written about their implications for the *public* ethos of public health. Correspondingly, we need to think critically about how contact tracing apps might undermine the social justice vision of public health.

To catalyze debate over the wider-reaching ramifications for public health of contact tracing apps, we suggest that they are best conceptualized as a form of *corporate contact tracing*. This concept may seem counter-intuitive, since many of the apps discussed above involve the support of state partners or have been entirely developed by state actors. However, the creation of a contact tracing app would be completely meaningless in the absence of an assemblage of platforms and infrastructures that allow it to operate. This assemblage, which happens to be privately owned and corporately controlled, is what we wish to surface with the concept of corporate contact tracing. Think of privately-owned Apple and Android mobile devices, their proprietary operating systems, the vast information holdings that they contribute to; think of privately-paid telco data plans and the

corporately-controlled infrastructure that these support; think of the infamous (e.g. Palantir) and also lesser-known data miners who extract and commercialize data from this information ecosystem for who knows what future use. With these in view, you can begin to have a sense of the larger assemblage that constitutes corporate contact tracing.

In what follows, we first discuss corporate contact tracing's potential to de-center the power of public health authorities. Then, using the frames of surveillance capitalism and disaster capitalism, we suggest how corporate contact tracing might feed the rise of corporate power in the public sphere. We question its capacity to address structural inequalities and to foster a social justice vision of public health. And, we wonder whether corporate contact tracing might actually intensify the effects of discriminatory design and algorithmic oppression. This sets up a concluding reflection on the need to broaden discussion about contact tracing apps beyond questions of privacy and efficacy.

I. Corporate Contact Tracing: De-Centering the Power of Public Health Authorities?

The US CDC describes contact tracing as 'a core disease control measure employed by local and state health department personnel for decades' and as 'a key strategy for preventing further spread of COVID-19' (US CDC, 2020: 1). It is framed as 'part of the process of supporting patients with suspected or confirmed infection' (US CDC, 2020: 1). The CDC states:

- In contact tracing, public health staff work with a patient to help them recall everyone with whom they have had close contact during the timeframe while they may have been infectious.
- Public health staff then warn these exposed individuals (contacts) of their potential exposure as rapidly and sensitively as possible.

- To protect patient privacy, contacts […] are not told the identity of the patient who may have exposed them (US CDC, 2020: 1).

We note the use of *patients* in this definition, instead of the term *case* (e.g. 'index' case), and link it to the merging of clinical care and population health (Orkin et al., 2017) where their respective goals, language, and techniques have converged into a complex system of control (Guta et al., 2016).

Whereas the above definition emphasizes contact tracing as the work of public health staff, providing counseling and support to individuals who have been 'exposed', we know that contact tracing is not always experienced as benevolent. Indeed, there have been countless examples of contact tracing being experienced as a form of policing (e.g. Hoppe, 2018; Deshman et al., 2020). It is possible that corporate contact tracing could aggravate or mitigate this legacy. In automating reporting, it could de-center the power of public health authorities; or, depending on how it interfaces with this power, it could have an amplifying effect. Regardless, what is clear is that these developments introduce new and potentially powerful actors, actants and processes (e.g. corporations, mobile devices, artificial intelligence) into contact tracing networks, adding new complexities that need to be critically assessed.

Consider the UK government's attempts to roll out the NHSX contact tracing app. Occurring in the wake of the 2015 Google DeepMind/Royal Free London Trust partnership and scandal, which involved the transfer of identifiable patient records across the Trust without the explicit consent of patients (Powles and Hodson, 2017: 351), the proposed NHSX contact tracing app has been extensively criticized for its lack of data and privacy controls, and for the ability for data extracted from contact-tracing operations to be re-used or repurposed (Culnane and Teague, 2020). Moreover, public perceptions of the app have been impacted from a further murky collaboration between the UK Government and a range of corporate actors, most notably Google,

Amazon and Palantir in the construction of Covid-19 data store to assist the government in its pandemic response. In light of such deals and amid public concern over corporate access to health information (Roberts, 2020a; 2020b), it is not surprising that the proposed app has sparked widespread unease. For instance, The Joint Committee on Human Rights, has warned against the rollout of the app unless proper privacy protections were established, and oversight 'urgently placed on a legislative footing' (UK JCHR, 2020: 4).[2]

Corporate contact tracing, though, presents serious challenges for independent oversight. This is owing, partially at least, to the 'black box' (e.g. Pasquale, 2015) nature and 'opacity' of digital disease surveillance solutions (Roberts, 2019; see also Weir and Mykhalovskiy, 2010; French and Monahan, 2020). Even in circumstances where an app has been developed to be operated by a non-profit organization that might admit a measure of oversight by public health authorities (e.g. Alsdurf et al., 2020), there are reasons why such an intervention would still qualify as corporate contact tracing, and therefore be difficult to adequately oversee. It would operate on mobile devices that have been purchased by individual consumers. It would run over telecommunications infrastructure controlled by the private sector. It would collect data, and produce knowledge using this data, which can admit multiple future uses, including by corporate actors seeking to train and perfect their AI-enabled technologies. These developments potentially de-center the power of public health authorities.

II. Surveillance Capitalism x Disaster Capitalism: Corporate Power in the Public Sphere

Part of the reason why there has been so much excitement about contact tracing apps is because these solutions are viewed as not only possibly mitigating the course of the pandemic, but also as providing unique conditions for gathering and experimenting with user-generated data. To explain

this excitement, it is helpful to locate it at the intersection of surveillance capitalism and disaster capitalism.

Surveillance capitalism describes an ethos in which powerful corporate actors have claimed 'human experience as free raw material for translation into behavioral data':

> Although some of these data are applied to product or service improvement, the rest are declared as a proprietary behavioral surplus, fed into advanced manufacturing processes known as 'machine intelligence', and fabricated into prediction products that anticipate what you will do now, soon, and later (Zuboff, 2019: 8).

These prediction products are traded in what Zuboff calls 'behavioral surplus' markets (Zuboff et al., 2019: 261). While Google was a pioneering market-maker, other centers of surveillance capitalism have emerged in recent years, including in the operations of Facebook, Apple, Microsoft, Amazon, Alibaba, Tencent, etc., not to mention a vast ecosystem of data brokers that these markets support (Zuboff, 2019: 9). 'Surveillance capitalism's products and services are not,' Zuboff writes, 'the objects of a value exchange': instead, they are 'hooks' that 'lure users into their extractive operations in which our personal experiences are scraped and packaged' (Zuboff, 2019: 10). In other words, as Zuboff argues, everyday users of information technology are not the customers of surveillance capitalism; they are not even its products. They are its raw material.[3]

In addition to work on surveillance capitalism, Klein's (2007) theorization of 'disaster capitalism', provides a useful frame of reference for making sense of corporate contact tracing in the contemporary moment. Disaster capitalism describes 'orchestrated raids on the public sphere in the wake of catastrophic events, combined with the treatment of disasters as exciting market opportunities' (Klein, 2007: 6). Klein's work suggests how publics may be particularly susceptible

during crises to the suggestions of powerful corporate actors that position themselves to profit off of disaster. Her work demonstrates the troubling alliance between corporate actors and governments under disaster capitalism, for example, between the US Government's 'holy mission to ramp up information gathering' in the War on Terror, and an 'information technology industry desperate for new markets' (Peter Swire, cited in Klein 2007: 369). Simplifying her argument for the sake of brevity, we can note that: 1) for decades, surveillance capitalists have profited from low taxes on enormous corporate wealth (taxes that could have been used to invest in public services, like public health agencies which could handle contact tracing locally, hospitals, long-term care facilities, etc.);[4] 2) now they are stepping in with an apparent solution, but one that seems likely to only further secure public dependence on their private infrastructure.

Such developments underscore the need to continue critically interrogating the role of corporate interests in public health provision, as well as the ways that corporate contact tracing may contribute to 'a rather larger issue': 'the rise of corporate funding of public health in general' (Green, 2019: 257). As Green (2019) notes, corporate action in the public health sphere may have some advantages. However, there are 'good reasons for disquiet about where the money for public health comes from': perhaps the most significant of these concerns the 'potential erosion of an ethos of public health as a public good' (Green, 2019: 258).

From this perspective, it is important to contrast corporate contact tracing with extant public sector approaches. We note that public sector approaches are nominally in the public domain. They are 'responsive to public and professional accountability' (Green, 2019: 258). Private-sector approaches stem from different sources of authority (e.g. economic, rather than sovereign, power) and are not subject to the same types of accountability measures. Green, considering the example of insurance companies, underscores the importance of this difference with respect to 'pressing questions about data, and who owns, controls and has access to them' (2019: 258). Insofar as

corporate contact tracing will create proprietary data-sets from the COVID-19 disaster, they stand to feed corporate power in the public sphere, and they warrant ongoing critical attention.

III. Will Corporate Contact Tracing Exacerbate Extant Inequality?

Will corporate contact tracing aggravate extant structural inequalities? And how might it interface with a social justice vision of public health? Arguably, surveillance capitalism and disaster capitalism are merging as never before. Under these circumstances, we need to carefully attend to the vision of public health that corporate contact tracing permits, and in particular what it means in the everyday lived realities of the COVID-19 pandemic, already marked by egregious inequality and health disparities. Consider, in this vein, Powers and Faden's argument that 'the foundational moral justification for the social institution of public health is social justice' (2006: 80). This justification is supported by 'twin moral impulses that animate public health: to improve human well-being by improving health and to do so in particular by focusing on the needs of those who are the most disadvantaged' (Powers and Faden, 2006: 82). We agree that public health should be a way of practicing social justice. With respect to corporate contact tracing, we also need to expand this view to include 'data justice,' which focuses critical attention on 'the implications that data-driven processes at the core of surveillance capitalism have for the pursuit of substantive social and economic justice claims' (Dencik et al. 2016: 9; see also Molldrem and Smith, 2020).

Can corporate contact tracing realize this social justice/data justice vision of public health? Will it be capable of capturing what Celeste Watkins-Hayes (2019: 13) calls the injuries of inequality? Injuries of inequality are 'big and small wounds to personal, familial, and community well-being'; they 'represent the mental, physical, and social toll of acute inequality' and are 'the cumulative markers and scars of economic and social marginalization, the visible and invisible evidence of disadvantage' (Watkins-Hayes 2019: 13). At the intersection of surveillance capitalism and disaster

capitalism, where corporate contact tracing has taken on the air of a natural, neutral pandemic response, we risk losing sight of injuries of inequality and the role that they play to aggravate the pandemic.

In theory, public health should serve *the public*, and this includes *everyone*. Corporate contact tracing cannot encompass everyone because not everyone can afford to own a mobile device. As revealed recently in a UK-wide survey, just over half (55%) of respondents from the critical at-risk demographic of 65 and over said they would download the proposed contact tracing app, with 17% of this demographic unable to do so *as they did not own a smartphone* (Ipsos Mori, 2020 -emphasis ours). Similar issues with purchasing and accessing the technology requisite to participate in digital contact tracing were also noted among UK sub-populations with lower levels of formal education and within lower socio-economic demographics. Although mobile telephony has grown impressively in the past 15 years, it would be mistaken to equate this uptake with something like universal coverage. As a corollary, we should ask critical questions about whether the instantiation of corporate contact tracing will create two pandemics, one mappable in populations wealthy enough to own personalized risk profiling technology, and one invisible to corporate contact tracing, excluding those who cannot afford mobile devices, data plans, and so on. In sum, the social justice/data justice vision of public health may be undermined by the instantiation of regimes of corporate contact tracing precisely because they are enacted via devices that the most disadvantaged are unlikely to possess.

IV. Intensification of Algorithmic Oppression and Discriminatory Design?

A final set of issues we wish to surface in this brief commentary concerns how corporate contact tracing could intensify *algorithmic oppression* and *discriminatory design*. The former concept directs critical attention to the myriad ways that racism, sexism and other systemic forms of oppression, are

embedded within 'the architecture and language of technology', and particularly within algorithms 'serving up deleterious information about people' with the effect of reinforcing 'oppressive social and economic relations' (Noble, 2018: 10). Elaborating Noble's argument, Gray notes that we can 'make sense of algorithmic oppression as a daily practice', wherein longstanding and new racisms and stereotypes 'have been digitally repackaged and normalized' (2019: 309). Algorithmic oppression exemplifies a broader process called *discriminatory design*. This concept, similarly, highlights 'how social biases get coded, not only in laws and policies, but in many different objects and tools that we use in everyday life' (Benjamin, 2019: 5).

With these conceptual lenses in view, consider the Google-Apple API, which has been designed to support contact tracing apps. Computer scientists have described contact tracing apps using this API as consisting of two separate components, a 'client' app, which is managed, for example, by a region's health authority, and the Google/Apple Exposure Notification (GAEN) service. This service manages the transmission of Bluetooth signals and 'plays a central role in the contact tracing functionality of the apps' (Leith and Farrell, 2020: 2). The GAEN service, as it is implemented on Google Android devices, raises discriminatory design/algorithmic oppression concerns. It is operated through Google Play Services, which 'connects to Google servers roughly every 20 minutes' (Leith and Farrell, 2020: 2). These connections 'necessarily disclose the handset IP address to Google, a rough proxy for location, and also contain persistent identifiers that allow requests from the same device to be linked together,' all of which potentially allows 'fine-grained tracking by Google of device location over time' (Leith and Farrell, 2020: 2).

Read through the critical lenses afforded by the concepts of discriminatory design and algorithmic oppression, we should ask whether this implementation might not disadvantage some users more than others? Simone Browne argues powerfully that we must not see surveillance 'as something inaugurated by new technologies'; rather, we should understand it as ongoing and 'factor

in how racism and antiblackness undergird and sustain the intersecting surveillances of our present order (2015: 9). This point resonates powerfully as we witness the intersection of the COVID-19 pandemic with a global "pandemic of racism" (BBC News, 2020). We need to ask how corporate contact tracing might intersect with other forms of surveillance in this pandemic of racism.

In the midst of increasing rates of COVID-19 infections which have disproportionately affected Black, Indigenous and People of Color (Curtice and Choo, 2020; Kirby, 2020; Yancy, 2020), Black communities and allies have taken to the streets across the United States and in global protests to call for an end to anti-Black racism and police brutality (Rahim and Picheta, 2020). While public health officials have called for protestors to get tested for SARS-CoV-2, worrying about the risks of mass gatherings during the pandemic, they have had less to say about the public health risks of tear gassing protestors (e.g. Associated Press, 2020), and other forms of state-sanctioned violence, including from local police forces and unmarked battalions (Kanno-Youngs, 2020). While we share public health officials' concerns about the growth of new cases of COVID-19, we are even more concerned about the negative public health effects of systemic racism. Considering the racial bias imbued within algorithms (used for consumer searchers but also legal risk assessment) and in emerging artificial intelligence (Hamilton, 2019; Noble, 2018; Zou and Schiebinger, 2018) we wonder about the implications of scaled-up corporate contact tracing in the current context and who will have access to such data (e.g., public health, corporations, the police). What are the risks, here, for racialized communities who are already overpoliced? We know that function creep has been a characteristic of mobile technology; a case in point is the way it has been used to track migrants. Will such developments be intensified by corporate contact tracing? Will someone who seeks a COVID-19 test have their whereabouts scrutinized and linked back with 'illegal' actions, or their 'illegal' status?

In sum, will corporate contact tracing be applied universally to produce a shared sense of risk and responsibility, or will it be used as a means to identify risk groups for targeted intervention as we have seen elsewhere (Gagnon and Guta, 2012)? Concerns have already been raised about the handling of a COVID-19 outbreak in South Korea where the cellphone-enabled contact tracing system was used to link infections to a series of LGBT nightclubs which caused public backlash against an already marginalized community (Strother, 2020). It is also not improbable to consider how the rolling out of digital contact tracing operations during highly securitized public health emergencies can exacerbate xenophobia, racism and religious tensions, illustrated by the recent eviction of dozens of Africans from their homes in Guangzhou, China because of a mistaken association with COVID-19 transmission (Davis, 2020:3). If these digital technologies are 'able to accelerate the pinpointing of outbreaks in specific neighborhoods, communities, or religious groups, it could lead to further stigma or even violence against these groups (ibid).' The merging of medicine and public health, and collaboration with legal authorities is already happening but has received little critique except in a few key areas (McClelland et al., 2019).

Conclusion

Undoubtedly, debate over the privacy risks and general efficacy of contact tracing apps is urgently needed, especially since we have already seen inappropriate data sharing (e.g., Morse, 2020). Yet, as important as questions of privacy and efficacy are in the current discussion, they leave untouched a larger set of questions about the implications of corporate contact tracing for fragile public health and medical care systems. To help broaden the current discussion about contact tracing apps, we conceptualized them as *corporate contact tracing*. We also suggested that corporate contact tracing has the potential to de-center the power of public health authorities. Then, using the frames of surveillance capitalism and disaster capitalism, we pointed out that corporate contact tracing might

feed the rise of corporate power in the public sphere. We questioned its capacity to address structural inequalities, and to foster a social justice/data justice vision of public health. And, we wondered whether corporate contact tracing might actually intensify the effects of discriminatory design and algorithmic oppression.

Historically pandemics have resulted in social change, some of which improved the health and wellness of populations, but required new ways of thinking about social, economic, legal, and political justice (Foege, 1988; Getz, 1991). As this commentary has underscored, racing to embrace corporate contact tracing without engaging fully with socially-determined health outcomes and systemic oppression 'risks undermining the goal of epidemic control' (Davis, 2020: 1). While we have raised critical questions about the current moment and the role of technology, we are reticent to make definitive claims about what has happened, or where we might be headed. Nevertheless, we wonder if the racial health disparities and injustices exacerbated by the COVID-19 pandemic might not have been better addressed if all the energy devoted to corporate contact tracing was instead channeled into improved access to healthcare and housing, workers' protections, guaranteed incomes, and other measures designed to build social solidarity?

Moving forward, we need additional critical work to describe the convergence of viruses, bodies, inequities, data assemblages and infrastructures, technologies, and modes of governance (including new articulations of fascism) which characterize the COVID-19 pandemic. We also need to uplift new and ongoing forms of resistance that will be required and made possible. Vigilance is necessary.

[4217 words]

[With References: 5626]

Notes

[1] While the predictions of market analysts should be taken with a grain of salt, one estimate valued the contact tracing market at $4.3 billion (Leswing, 2020).

[2] The UK government has now dropped the NHSX app, opting instead to bring together 'the work done so far' with the 'Google/Apple framework' (UK DH&SC, 2020). The aim is to create a de-centralized app using the Google/Apple API (the NHSX app had involved a centralized repository of contacts) while maintaining 'the highest standards of data privacy' (UK DH&SC, 2020). Details about exactly how the new app will work, or be launched, remain scarce.

[3] It is worth locating Zuboff's discussion of surveillance capitalism in a broader, critical discourse developed in surveillance studies and other fields. See, for instance, the special issue of *Surveillance & Society* on 'platform capitalism'.

[4] Apple claims that it is the 'largest taxpayer in the world' (Apple, 2017). But, in a world where many wealthy corporations do not pay taxes, what is the precise value of that claim (Cerullo, 2019)? How did companies that have exploited weaknesses in tax law contribute—however indirectly—to the conditions of inequality and public-sector fragility that are exacerbating our current situation (see: Bowers, 2017)?

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