COVID-19 Contact Tracing:
From Local to Global and Back Again

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ABSTRACT

This article surveys the rise of contact tracing technologies during the COVID-19 pandemic and some of the privacy, ethical, and human rights issues they raise. It examines the relationship of these technologies to local public health initiatives, and how the privacy debate over these apps made the technology in some cases less responsive to public health agency needs. The article suggests that as countries enter the return to normal phase, the more important and more invasive contact tracing and disease surveillance technologies will be deployed at the local level in the context of employment, transit, retail services, and other activities. The smart city may be co-opted for COVID-19 surveillance, and individuals will experience tracking and monitoring as they go to work, shop, dine, and commute. The author questions whether the attention given to national contact tracing apps has overshadowed more local contexts where privacy, ethical, and human rights issues remain deeply important but relatively unexamined. This raises issues for city local governance and urban e-planning.

KEYWORDS

Centralized, Contact Tracing App, Decentralized, Ethics, Exposure Notification, Human Rights, Pandemic, Privacy, Surveillance, Workplace

1. INTRODUCTION

This article reflects on the trajectory of debates over the use of technology to assist in contact-tracing during the COVID-19 pandemic. It begins by exploring how global interest in contact-tracing apps took hold rapidly, generating international coalitions around technological development as well as around privacy and security concerns. It considers the role of technology in contact-tracing debates, and how privacy, at least at the global level, became a focal point overshadowing other important public policy, ethical and human rights issues. The article examines how the relevant geographies for contact-tracing apps shifted over the course of the pandemic – creating local, national, and international levels of engagement. As countries began to enter the 'return to normal' phase, attention became more centred on local concerns, shifting from a focus on apps to other methods (and spaces) for identifying relevant contacts. Although privacy, ethics and human rights issues exist in these spaces as well, in contrast with high-profile contact-tracing apps, they have received relatively little public attention. Despite the furor over national level contact-tracing apps, the 'return to normal' phase will likely entail a concentration of efforts – both public and private at the local level. This will inevitably raise technology governance issues for cities. It may also raise issues around the embedding of certain

types of surveillance technologies into urban e-planning frameworks. Although far less attention has been paid to privacy, ethics and human rights issues at these levels, when it comes to contact-tracing technologies and COVID-19, the issues and the particular way in which they manifest at the local level should not be overlooked.

This article is based upon a literature that has evolved rapidly and in real-time, including academic contributions, news reports, opinion pieces, privacy impact assessments, and government reports. The challenges of writing about a situation that has evolved rapidly and continues to change are frankly acknowledged. The author is a legal scholar, based in Canada, and recognizes the influences as well of both discipline and geography in this account.

2. THE RAPID RISE OF CONTACT-TRACING TECHNOLOGIES

2.1. Manual Contact-Tracing

Manual contact-tracing is a typical public health response to the outbreak of a contagious disease (CDC 2020, Kahn 2020). It often occurs at the local level, with data sharing with public health authorities at regional and national levels. People who are known to be infected are screened by a contact tracer who questions them about their movements and contacts during a window of time considered relevant to the contagious nature of the disease. Tracers then communicate with the infected person's contacts to notify them that they have been exposed to the disease and to advise them to take appropriate steps. Data about contacts collected by public health authorities can also be used in deidentified form for analysis and modeling of the spread of the disease and may prove useful in designing appropriate public health responses (Kahn 2020). The balance between privacy rights and the public interest is met by the fact that the person who is providing this information is known to be infected, and their close contacts may be at risk of contracting and spreading the disease.

2.2. Early Contact-Tracing Technologies

The high level of infectiousness of COVID-19 and the absence of pre-existing immunity within the population proved challenging to public health authorities (Kahn 2020) – some of whom, at least in North America, had seen their budgets and resources undermined over years of government cutbacks (Warnica 2020, Scheck & Hing 2020; Hawkins & Wang 2020). Additional weaknesses in manual contact-tracing for COVID-19 included the fact that people often had trouble remembering all the places they had been and people they had encountered in the two weeks preceding their positive test. In addition, while they might remember specific encounters with known individuals (family members, friends or colleagues) they might have also encountered many people whose identity would be unknown to them (for example, shopping in stores or riding public transit). In the contemporary big data and high-tech environment, it is not surprising that individuals, organizations, and governments began to speculate about whether technological solutions could supplement or replace manual contact-tracing.

Early attempts at digital contact-tracing did not necessarily involve apps and instead focused on the kind of data that was readily available because it was routinely collected by private sector organizations. This included cell phone location data and data from credit or debit card expenditures (Amit 2020, Daflos 2020). This data could be used to supplement the recollection of individuals, reminding them of places they had been so that they could reflect on those with whom they might have had contact. It could also be used to issue generalized warnings (e.g. that an infected individual had been on a particular public transit vehicle on a particular day and time). Public health authorities could also use this data for disease modeling and analytics. Data of the kind collected in so-called smart cities could also be conscripted for contact-tracing, including video-surveillance data (Kleinman & Merkel 2020, Kharpal 2020, COVID-19 National Emergency Response Center 2020). In countries such as South Korea, Singapore, Taiwan and China, multiple existing data sources were brought to

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