## Tracking, tracing, trust: contemplating mitigating the impact of COVID-19 through technological interventions

To THE EDITOR: The use of Bluetooth-enabled apps like Australia's COVIDSafe to contact trace people exposed to coronavirus disease 2019 (COVID-19) raises challenging moral and public health questions. Leins and colleagues[1] rightly note that such tracing may endanger human rights. Yet the ethical decisions for governments and citizens are complex.

The absence of vaccines and effective treatments, and the significant asymptomatic transmission of SARS-CoV-2, compels reliance on traditional tactics of social distancing, quarantine and contact tracing.[2,3] Although the added value of digital contact tracing over manual tracing remains uncertain, even marginal improvements may interrupt disease transmission, save lives and improve public health resourcing. This could especially benefit vulnerable and disadvantaged people who suffer disproportionate harms,[4] without treating digital contact tracing as a "silver bullet".

Whether, and which, digital contact tracing options are warranted depends on tough cost–benefit judgements. COVIDSafe's centralised storage of data on Amazon's servers facilitates access by governments with extraordinary power to interfere in citizens' lives. Alternatively, decentralised data storage on smartphones has privacy advantages — but providing individual app users with the discretion to act on notifications of potential exposure to COVID-19 may compromise disease control efforts. A hard choice exists between allowing personal data to be accessible by democratically elected governments versus powerful technology giants like Apple and Google which support decentralised data storage.[5] Even greater invasions of privacy have been proposed, however, with location tracking options such as Norway's Smittestopp app (https://helsenorge.no/coronavirus/smittestopp) promoted as necessary to understand community interactions and the effects of social distancing policies for current (and future) outbreaks.

While Leins and colleagues highlight significant ethical drawbacks, a full ethical analysis of digital contact tracing must also weigh its potential benefits. Certainly, citizens should agitate for strong protections to prevent abuse of power and misuse of personal information. However, even when governments offer ethically suboptimal contact tracing options, it may be permissible and even a moral requirement, all things considered, for citizens to support options to help protect the community. For its part, the Australian government should recognise that deploying digital tracing without sufficient transparency and community and expert input leaves citizens with harder moral decisions.

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