



Using the CovidCard to enhance protection from COVID-19 at the NZ border

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Border controls are critical in preventing future COVID-19 outbreaks in NZ. In this blog we consider the recent announcements and cross-party support for the CovidCard's use by border control workers and guests in quarantine and isolation facilities. We discuss how this is a promising move that should facilitate further improvements in border control protocols and efficient digital contact tracing.

The border is NZ's greatest vulnerability in the ongoing battle against COVID-19. Recent reporting of [low levels of COVID-19 testing of border facing staff](#) in managed isolation and quarantine (MIQ) facilities have highlighted a systems failure. Likewise, a number of [high profile break-outs](#) and reports of [guest interactions](#) at different stages of their isolation cycles (eg, a person on day 3 interacting and potentially infecting a person on day 11 of isolation) have indicated other design and operational problems.

On Thursday 20 August, both the [Government](#) and the main [Opposition party \(National\)](#) announced new border control policies that include the adoption of digital contact tracing technologies. Both mentioned the CovidCard promoted by the entrepreneur/philanthropist [Sam Morgan](#) and the private-public partnership team. The CovidCard is a credit card sized device that uses low-energy Bluetooth technology to communicate with other proximal devices (see Figure). All interactions with other cards that meet a modifiable close contact definition are recorded (eg, more than 1 minute within 2 metres). The card does not use location data, has sophisticated data security features, and does not require any user engagement – other than simply wearing it. To work effectively, it would be worn by all border workers and also all guests in MIQ facilities (from the time they leave the arriving aircraft).

The benefits of Bluetooth technology to assist traditional contact tracing have been demonstrated in a number of [modelling studies](#) (reviewed by Anglemeyer et al, 2020), but what is the point of using the CovidCard in MIQ facilities?

The most obvious benefit is identifying those workers at risk of infection by a newly identified case and being able to manage this risk more immediately and more appropriately if necessary (eg, if they had been in closer contact with this case than the protocols state). This type of approach is already used in hospitals in Singapore as part of epidemic response [protocols](#) (Tan et al, 2020). Similarly, it would allow for additional response to protect guests at the MIQ facilities who may have been exposed to newly diagnosed cases at their facility (including members within their own family/whānau group in MIQ). This process might allow for a more rigorous quantifiable assessment of risk (eg, time spent in close proximity will be precisely known) that might then guide the need for additional testing and possible extension of time in quarantine.

CovidCard data would provide an immediate trail back to the source of infection through digitally captured contact histories. Rather than trawelling through hours of CCTV footage, work roster histories and other forms of documentation, we will be able to easily find the most likely source of person to person transmission or in some cases, where environmental exposure is likely, rule it out. Clearly, the CovidCard data would supplement existing processes – such as genomic testing – but it is likely to greatly reduce the time and data processing burden for Government (and everyone else including the public) about the source of transmission.

Contact data from CovidCards would also provide ongoing evaluation and validation of MIQ facility and border protection protocols. Information on the nature and extent of any social interactions in MIQ facilities could help refine MIQ protocols to ensure the number of touch points between people in these facilities are further reduced. Such data would provide an overview of high-risk events (perhaps particular times of the day when people might be in closest proximity eg, in exercise areas) to ensure appropriate policies are in place.

A wider benefit of CovidCards in MIQ facilities might be to obtain information on performance that could inform the use of this technology in the wider community (eg, perhaps in Alert Level 2 circumstances or more routinely by adults in cities with MIQ facilities). This could supplement information gained from the [proposed community trial of the CovidCard in Rotorua](#).

Despite the likely benefits of the CovidCard in border control settings, there is also a need for the Government to consider a wide range of other [digital technologies](#) in these settings. These tools include electronic bracelets for guests (as in Hong Kong) and digital

technologies that might detect early symptoms of COVID-19 (Mishra et al, 2020). All of these digital technologies need rapid evaluation to assess their usefulness in NZ.

At a broader level, the Government also needs to take a strategic approach to border control to identify options that could reduce the risk of imported cases to as close to zero as possible, while balancing the aims of allowing entry by key groups, minimising costs, and sustaining delivery of a consistently high quality border management service. Options to consider could including:

- Making clearer decisions about manageable numbers of returnees.
- Reviewing measures such as pre-travel screening (Gostic et al, 2020) to minimise the numbers of infected people getting on flights to New Zealand (while retaining quarantine and testing in NZ). This approach has the advantage of reducing the number of cases arriving in NZ but also reducing the risk of spread within aircraft (though it also may have feasibility issues and poses additional burdens on returnees).
- Considering restricting MIQ facilities to military bases outside of cities that can accept international flights eg, [Ōhakea Air Base](#).

In summary, given the critical nature of the border in preventing COVID-19 outbreaks, we should be using every effective tool we have available to enhance our border control systems. The recent announcements and cross-party support for the CovidCard's use at the borders is a promising move towards the acceptance of digital contact tracing aids in our defences against COVID-19.

Potential competing interest: Dr Chambers was contracted by the Department of Internal Affairs as the academic lead of the CovidCard feasibility trial in Nelson Hospital (run during May 2020). Professor Wilson and Professor Baker have no competing interests to declare.

References

1. Anglemyer A, Moore THM, Parker L, Chambers T, Grady A, Chiu K, Parry M, Wilczynska M, Flemyng E, Bero L. Digital contact tracing technologies in epidemics: a rapid review. Cochrane Database of Systematic Reviews 2020, Issue 8. Art. No.: CD013699. DOI: 10.1002/14651858.CD013699.
2. Gostic K, Gomez ACR, Mummah RO, Kucharski AJ, Lloyd-Smith JO. Estimated effectiveness of symptom and risk screening to prevent the spread of COVID-19. *Elife* 9 (2020): e55570.
3. Mishra T, Wang M, Metwally AA, et al. Early detection of COVID-19 using a smartwatch. *medRxiv* 2020.
4. Tan BP, Lim KC, Goh YG, et al. Radiology preparedness in the ongoing battle against COVID-19: experience from large to small Singapore public hospitals. *Radiology: Cardiothoracic Imaging*, 2020;2(2), p.e200140.

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