Office of the Minister for Government Digital Services

Chair
Cabinet

Using the CovidCard to improve contact tracing

Proposal

1. This paper notifies Cabinet of my intention to undertake further testing and a field trial of a Bluetooth-enabled CovidCard to test whether it can viably improve contact tracing.
2. The Minister of Health will seek joint Ministerial agreement with the Minister of Finance, to draw down $1.000 million from the COVID-19 Contact Tracing – Tagged Contingency to fund the next phase of work on the CovidCard.

Relation to Government priorities

3. This paper relates to the Government's COVID-19 response, including New Zealand's economic recovery. Additionally, it relates to the Government's priorities of healthier, safer and more connected communities.

Executive summary

4. Effective contact tracing is a critical component of the strategy to eliminate COVID-19 in New Zealand. Digital technologies can complement manual contact tracing, with Bluetooth technology, such as the CovidCard, being one potential solution.
5. Many countries around the world have tested or developed technologies to support contact tracing for COVID-19. These technologies are mostly smartphone apps. Officials have not identified a country that has developed one simple and effective technology for contact tracing.
6. The Public Private Partnership group (the PPP) produced a report in June 2020 recommending the Government consider deploying the Bluetooth-enabled CovidCard to improve contact tracing. Initial assessments have shown that the card works technically but there are issues with the card's security and false positives that require further investigation.
7. There are broader issues to consider about the deployment of technology solutions. The success of any technology solution requires strategic policy decisions to address social licence and public uptake of the contact tracing technologies. Additionally, it has not yet been addressed where the CovidCard would fit in with the wider context of New Zealand's contact tracing system and plans for using technology to improve contact tracing.
8. In order to keep multiple technology options open to improve contact tracing, I intend to proceed with a field trial of the CovidCard. This will also involve research into public sentiment about using technologies to improve contact tracing. A tentative site for the trial has been identified in the Rotorua region, pending consultation with the Caring for Communities workstream as part of the All-of-Government COVID-19 response. My expectation is that this trial would be able to be completed by the end of September 2020, subject to PPP engagement.

9. The findings of this trial will be reported back to Cabinet to inform any decision on whether to deploy the CovidCard as part of New Zealand's contact tracing system.

10. The Government Chief Digital Officer (GCDO) has worked with the PPP on the proof of concept for the CovidCard. It is important to continue to develop the CovidCard design while determining the value it adds to the objectives of contact tracing and how it could be integrated into the wider contact tracing system. Therefore, the next phase will be jointly led by the GCDO and the Ministry of Health.

Background

11. Effective contact tracing is a critical component of the strategy to eliminate COVID-19 in New Zealand, by identifying close contacts, isolating them quickly, and stopping the spread of the virus. Currently, contact tracing is a manual process where contact tracers interview people to identify close contacts. Close contacts are people that have been exposed to a suspected, confirmed or probable case and are at higher risk of being infected. This includes people that have had face-to-face contact with a case in any setting within two metres for 15 minutes or more.

12. Digital technology can complement manual contact tracing by speeding up the process, filling in memory gaps, and recording contact with strangers. It could also allow contact tracers to access information more rapidly, which can improve the chances of identifying and isolating potential cases of COVID-19 quickly.

13. The current main digital technology solution in New Zealand is the National Contact Tracing Solution, which is complemented by the QR-based NZ COVID Tracer app. The NZ COVID Tracer app has had good initial uptake. As of 29 July 2020, approximately 621,000 New Zealanders registered with the app. This means their contact details are on file to aid with contact tracing if necessary, which adds to the accuracy of the National Health Index data. Yet the NZ COVID Tracer app relies on people scanning QR codes and the percentage of people using the app to scan QR codes daily is low. One likely reason is the perception of low risk due to no community transmission of the virus.

14. The intention is to continue to improve the NZ COVID Tracer app by releasing new functions that add value over time. Since the first release, this has included enabling users to receive contact alerts if they have checked into a place that has hosted a confirmed COVID-19 case at the same time; share their digital diary with contact tracers if they test positive; and adding manual entries to their digital diary. The roadmap for future releases includes the ability to use app functions such as scanning without the need to sign in, supporting multiple languages, and enabling enhanced notification functions such as requesting a call-back from contact tracers.

15. The Ministry of Health is also planning to undertake a trial of the Apple and Google Exposure Notification Framework technology as part of the NZ COVID Tracer app roadmap.

16. Bluetooth devices are another potential solution. A Bluetooth device can automatically detect when it is close to another Bluetooth-enabled device. A method that automatically registers contacts may be the easiest solution for individuals where it only requires minimal steps by the user. A challenge with the application of Bluetooth technology is the ability to measure distance and the level of accuracy when identifying casual versus close contacts.

One simple and effective technology solution to improve contact tracing has not been identified around the world

17. Many countries around the world have tested or developed technologies to support contact tracing for COVID-19. These technologies include smartphone apps and Bluetooth wearables. Singapore has recently released the TraceTogether Token to seniors. This is a device similar to the CovidCard. It is too early to say if this has improved contact tracing.

18. Officials have not identified a country that has developed one simple and effective technology for contact tracing. Many of the solutions have had poor uptake and have not contributed much to the contact tracing process. Ireland's recent app has shown some promise with 1.3 million downloads in the first week, but it is not clear if this trend will continue or if it will assist contact tracers in a meaningful way.

19. The Ministry of Health and the GCDO are continuing to engage with the Singapore and Irish governments about technology for contact tracing. They are also monitoring developments in Australia and other countries with technology and contact tracing.

The Public Private Partnership group produced a report recommending the Government consider deploying the CovidCard

20. As directed by Cabinet [CAB-20-MIN-0175], the GCDO has worked with the Public Private Partnership group (PPP) to investigate the Bluetooth-enabled CovidCard. The PPP formed through the All-of-Government COVID-19 response, is a group of private sector volunteers and contractors, and is not a formal entity.

21. The CovidCard is designed to be worn using a lanyard and record when it comes into 'close contact' with another card (within two metres for 15 minutes), with this information only held for 21 days. With consent, this information would be given to contact tracers if a cardholder tests positive. Cards would be identified by serial numbers and would not store personal details. Cardholder contact details would be stored in a separate database.

22. The PPP produced a report that recommends the Government consider deploying the CovidCard nationwide in advance of relaxing border settings. Their report states the CovidCard would take six months to deploy from a decision to do so, at a cost of $98.5 million in the first year and $64 million in the second year. These are indicative costings proposed by the PPP and do not account for the funding of policy, regulatory or enforcement activity associated with a nationally rolled out CovidCard.

The CovidCard has potential advantages, as well as disadvantages

23. The CovidCard does not have any connections to the internet or mobile networks. One of the criticisms of contact tracing technologies is the perception that they may collect more information than people are comfortable with.

24. From a digital inclusion perspective, the cards also do not require any skills to use or for anyone to already have a device. This means the cards, unlike some other technologies, are accessible to everyone. Not everyone has a smartphone, or a modern smartphone.

25. However, this technology is expensive, largely unproven in real world environments, and it is not certain if the uptake of the cards would be any better than any other technology solution.

26. The cards are also limited to a battery life of 12 months and if they are required for longer the government would have to continue purchasing cards. Also, the cards could not be updated if they required further refinement or features, unlike some other technologies such as apps.

Initial assessments have shown that the CovidCard works technically

27. Following the issuance of the PPP's report in early June 2020, the GCDO led cross-agency work to independently assess the CovidCard and the benefits of the CovidCard for contact tracing.

Technical feasibility

28. Redacted consistent with 9(2)(f)(iv)

29. Redacted consistent with 9(2)(f)(iv)

Modelling of epidemiological benefit and value to contact tracing

30. Independent modelling by Te Pūnaha Matatini of the epidemiological value of the CovidCard was completed on 24 July 2020 and is subject to formal peer review. The modelling reported that Bluetooth apps and card-based proximity detection systems perform similarly at comparable levels of uptake, but other factors such as usability need to be considered.

31. In respect of the impact of different types of messaging on the usage of contact tracing technologies, the report noted that decentralised Bluetooth apps[1], which would include apps based on the Apple Google Exposure Notification Framework, are estimated to be less effective than centralised apps at the same level of usage. This is due to the reliance on users acting on the automatic notification in a de-centralised solution.

[1] A decentralised approach stores encrypted identifiers of other people on an individual's phone. When a person tests positive, the identifiers of the case are shared with contact tracers. These are then released if the Public Health Agency decides and the app on the phone of an exposed individual would check their phone for the identifiers of the case. Contact tracers do not automatically know who has been exposed, but can ask them to provide their details and/or make contact or take other actions. This model is already in place with the NZ COVID Tracer app.

32. Notifications from a centralised card-based system are estimated to perform similarly to a centralised Bluetooth app,[2] though with slightly reduced effectiveness, as it cannot be sent automatically and needs to be made via a separate system or contact tracer. These points would need to be factored into any proposed trial of contact tracing technologies.

Deployment options

33. Decisions on whether to deploy the CovidCard as part of our contact tracing system will be presented to Cabinet following the report back of the findings of the trial and further testing.

34. Redacted consistent with 9(2)(f)(iv)

35. Redacted consistent with 9(2)(f)(iv)

There are wider issues with the deployment of the CovidCard or another technology solution

36. There are wider issues that would need to be considered as part of any decision to deploy the CovidCard. It is not known the extent to which people would use the CovidCard as intended, where the CovidCard would fit in the broader contact tracing system, and there are key policy and regulatory issues to be considered. However, many of these issues relate to technology solutions other than just the CovidCard.

People's use of the CovidCard

37. To be effective, research indicates that at least 75 to 80 percent of New Zealanders would need to use the CovidCard routinely and correctly for a significant period. At this stage, I am not proposing to mandate the use of the CovidCard. Barriers to achieving uptake and use may include:

    37.1 *People's perceptions of the threat level* - If there is no community transmission of the virus then many people may not bother to use the card.

    37.2 *People refusing to carry the card* - Some people will likely decline to carry the card, for various reasons, such as concerns about privacy and security, ideological convictions or people simply not liking how it looks.

    37.3 *People not using the card as intended* - Doing other things that impact effectiveness, such as people forgetting to carry the card, not wearing the card in certain situations (such as at the pool, the beach, at a party etc), losing the card, using it the wrong way (such as in a wallet), inadvertently destroying it, or becoming complacent about wearing it.

    37.4 *Institutional reasons for not carrying the card* - there will be situations in which the cards cannot be used, for security reasons.

[2] For a centralised app or card-based system, the information is uploaded to a centralised contact tracing database and as such can re-identify all the associated contacts and their contact details for contact tracers. A notification is then once again optional.

The CovidCard and the broader contact tracing system and strategy to eliminate COVID-19

38. The CovidCard would need to be successfully integrated into the wider contact tracing system to add value. However, it has not been established how the CovidCard would work with manual contact tracing and other technology solutions, such as the NZ COVID Tracer app. Additionally, given the focus has been on investigating the CovidCard, further analysis would be required to assess if investing in the high-cost CovidCard is the best option compared to investing in manual contact tracing or other technology solutions.

39. It is also unclear where a contact tracing system augmented by the CovidCard would fit in with New Zealand's wider strategy to eliminate COVID-19. For example, the link between deploying the CovidCard and future moves to open New Zealand's borders has not been established.

Regulatory and policy considerations

40. There are key regulatory and policy issues to be considered for deploying the CovidCard or other technology solutions. These include:

    40.1 security settings and bespoke privacy protections that should apply (for example, not using any personal information for other purposes, such as law enforcement);

    40.2 whether contact tracing technology should be supported by legislation;

    40.3 what governance and oversight arrangements would be appropriate; and

    40.4 designing the solution in a way consistent with Te Tiriti o Waitangi, and to build the trust needed to support the contact tracing system.

The CovidCard will be investigated and trialled further

41. Uncertainty with the CovidCard reflects that using technology to improve contact tracing is not easy. However, as contact tracing is a critical component of the strategy to eliminate COVID-19 in New Zealand, I consider the CovidCard should be investigated further as part of looking at multiple technologies to optimise our contact tracing capability. We need to ensure we undertake appropriate testing to make sure we do not miss potential opportunities that may exist from different potential technological solutions.

42. I intend to proceed with the next phase of the CovidCard work, which would take from August until the end of October 2020. This would involve:

    42.1 Further closed trials involving approximately 25 people to measure card performance in social settings and get further information about the accuracy of the data collection process.

    42.2 An open field trial involving approximately 250 to 300 people to determine how the card performs in community settings with real life scenarios and testing end-to-end use of card, data collection, and use in the contact tracing process. Officials are planning for this trial to take place in mid to late September 2020. A tentative site for the trial has been identified in the Rotorua region, pending consultation with the Caring for Communities workstream as part of the All-of-Government COVID-19 response.

    42.3 Research to test public sentiment to contact tracing technologies.

    42.4 Further design work into the CovidCard and its link into the contact tracing process.

43. My intended approach of further investigating and trialling the CovidCard would provide further information about how it could work to improve contact tracing.

44. Officials considered the requirements for preparing for a full rollout alongside further trials, research and design as part of the next phase of work. I do not support that approach as I do not consider the Government should prepare for rollout until we have further information about if the CovidCard would be an effective way to improve contact tracing and what public sentiment is about contact tracing technologies. Another approach I did not support was pausing work on the CovidCard as I consider the Government needs to look at multiple technology options for contact tracing.

Redacted consistent with 9(2)(f)(iv)

New arrangements would be needed for the next phase of work on the CovidCard

46. The GCDO has worked with the PPP on the proof of concept for the CovidCard but new arrangements would be needed for the next phase. It is important that work continues on developing the CovidCard design while determining the value it adds to the objectives of contact tracing and how it could be integrated into the wider contact tracing system. Therefore, the next phase will be jointly led by the GCDO and the Ministry of Health. Senior leadership at Deputy Chief Executive and Deputy Director-General level from both agencies will be involved to ensure timely decision making and alignment with the wider contact tracing strategy and All-of-Government response to COVID-19.

47. The Minister of Health and I would report back following the next phase of work. The report will include advice on whether to proceed with a full national deployment option for CovidCard and alternative options for deployment, or use of other developing technologies.

9(2)(f)(iv)

Financial implications

50. To fund this next phase of work, the Minister of Health will seek joint Ministerial agreement with the Minister of Finance, to draw down $1.000 million from the COVID-19 Contact Tracing – Tagged Contingency, established in CAB-20-MIN-0175.

51. The costings for any deployment would be investigated in the next phase of work.

52. The Ministry of Health and the Department of Internal Affairs for the GCDO have reviewed options for reprioritising funding from within the respective agencies' 2020/21 baselines. They are unable to identify reprioritisation options while maintaining current service delivery and a committed programme of works.

Legislative implications

53. This paper has no direct legislative implications. However, legislation may have a role in supporting a future proposal on deploying the CovidCard or another Bluetooth solution.

Impact analysis

Regulatory Impact Statement

54. Regulatory Impact Analysis is not required for the paper. However, a future proposal on deploying the CovidCard or another Bluetooth solution may require this analysis.

Climate Implications of Policy Assessment

55. The Ministry for the Environment has been consulted and confirms that the CIPA requirements do not apply to this paper as the threshold for significance is not met.

Population Implications

56. Using the CovidCard or other Bluetooth technology to support contact tracing would impact the wider population but may further impact specific groups. Groups that are less digitally included (for example, some older members of society), and groups with lower levels of trust in government (for example, Māori) may be less able or willing to use the CovidCard or a Bluetooth solution. An easy to use solution available to all could reduce this risk. Additionally, if the solution is successful in improving contact tracing and efforts to eliminate COVID-19, people with higher levels of health risk would benefit.

Human Rights

57. Using the CovidCard or other Bluetooth technology to improve contact tracing could positively impact human rights if it reduces the need to manage COVID-19 by restricting freedom of movement using a lockdown.

58. Additional human rights considerations include the following:

    58.1 The CovidCard or any proposed Bluetooth solution is developed and implemented in a way that is digitally inclusive and is consistent with fundamental human rights, with rights only limited in due proportion to the objective.

    58.2 Any proposal for new legislation in relation to the use of the CovidCard or other Bluetooth technology will need to include consideration of its compliance with the New Zealand Bill of Rights Act 1990 and international human rights conventions.

Consultation

59. The Ministry of Health, the Ministry of Justice, Treasury, Government Communications Security Bureau, the Ministry of Business, Innovation and Employment, the State Services Commission, and the Department of the Prime Minister and Cabinet have been consulted on this paper.

Communications

60. It is intended that a public announcement about the next phase of work on the CovidCard, including the further trial and testing, is made following Cabinet consideration of this paper.

Proactive Release

61. I intend to publish this Cabinet paper and related Cabinet decisions, subject to any redactions, pursuant to Cabinet Office circular CO (18) 4.

Recommendations

The Minister for Government Digital Services recommends that the Cabinet:

1. note that effective contact tracing is critical to isolate COVID-19 cases and that digital technology can allow contact tracers to access information more rapidly, which can improve the chances of identifying and isolating potential cases of COVID19 quickly;
2. note that Cabinet directed officials to report back on investigating the Bluetooth-enabled card [CAB-20-MIN-0175];
3. note that countries around the world have been attempting to use technology to improve contact tracing but one simple and effective solution has not been identified, and officials will continue to monitor international developments;
4. note that the NZ COVID Tracer app has had good initial uptake and adds to the accuracy of the National Health Index data, yet it relies on people scanning QR codes;
5. note that the Ministry of Health is intending to trial an app based on the Apple and Google Exposure Notification Framework;
6. note that results from the assessment of the Bluetooth technologies show the CovidCard works but there are related security and false positive issues that require further refinement and investigation through the trial process;
7. note that the success of any technology solution requires strategic policy decisions to address social licence and public uptake of the contact tracing technologies;
8. note that issues related to social licence would be informed by further trials and market research into public sentiment about contact tracing technologies;
9. note that I intend to proceed with the next phase of the CovidCard, including further trials, as part of keeping technology options open to improve contact tracing, subject to funding being made available;
10. Redacted consistent with 9(2)(f)(iv)
11. note that the Government Chief Digital Officer and the Ministry of Health will lead the next phase of work on the CovidCard;

12. note that Cabinet will be provided advice following the further trial by the Minister of Health and Minister for Government Digital Services, after the completion of the next phase of work, on whether to proceed with a full national deployment option for CovidCard and alternative options for deployment, or use of other developing technologies; and
13. note that the Minister of Health will seek joint Ministerial agreement with the Minister of Finance to draw down $1.000 million from the COVID-19 Contact Tracing – Tagged Contingency, established in CAB-20-MIN-0175, to progress the next phase of work on CovidCard noted in recommendation 9.

Authorised for lodgement

Hon Kris Faafoi

Minister for Government Digital Services