

Briefing

Update on the Bluetooth-enabled Contact Tracing Card and the NZ COVID Tracer App

Date due to MO:	9 July 2021	Action required by:	22 July 2021
Security level:	IN CONFIDENCE	Health Report number:	20211350
To:	Hon Chris Hipkins, Minister for COVID-19 Response		
	Hon Dr David Clark, Minister for Digital Economy and Communications		

Contact for telephone discussion

Name	Position	Telephone
Shayne Hunter	Deputy Director-General, Data and Digital	s 9(2)(a)
Gaynor Bradfield	Manager, Office of the Deputy-General, Data and Digital of Health	

Minister's office to complete:

- | | | |
|---|------------------------------------|--|
| ☐ Approved | ☐ Decline | ☐ Noted |
| ☐ Needs change | ☐ Seen | ☐ Overtaken by events |
| ☐ See Minister's Notes | ☐ Withdrawn | |

Comment:

Update on the Bluetooth-enabled Contact Tracing Card and NZ COVID Tracer App

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Date: 9 July 2021

To: Hon Chris Hipkins, Minister for COVID-19 Response

Hon Dr David Clark, Minister for Digital Economy and Communications

Purpose of report

1. This report responds to the request from the Minister for COVID-19 Response for:
 - a. advice on next steps of the Bluetooth-enabled contact tracing card (the Card) based on the Rotorua trial
 - b. an update on work underway to improve usability of the NZ COVID-19 Tracer App (the App) and encourage more consistent scanning.

Summary

2. The Ministry of Health (the Ministry) is continuously investigating how digital tools could be improved to enhance our overall contact tracing system.
3. Following the trial of the Card in Rotorua, the Ministry and the Department of Internal Affairs (DIA) do not recommend a nation-wide rollout of the Card. This is because mandated use of the Card by all New Zealanders would be required for it to be effective, which would likely erode our current social licence, and it is not interoperable with other digital technologies. Additionally, the cost of rolling out the Card outweighs the contact tracing benefits we would gain.
4. The Ministry has continued to work on adding new functions to the App to improve its usability and encourage more consistent scanning. The next update (Release 8) in mid-July 2021 will include automated reminder notifications. Also underway is further work on QR codes, including a re-design of the posters and a self-service option for businesses to update their details and reprint posters.
5. Several studies have been undertaken to understand New Zealanders' attitudes and behaviours in relation to the App. We are using the findings of those studies to inform how we could improve the user experience and use of the App.

Recommendations

We recommend you:

- a) **Note** that rates of scanning and general use of the COVID Tracer App (the App) are persistently low during times of no COVID-19 community transmission and this has been the subject of ongoing work by officials **Noted**
- b) **Note** that based on the findings from the Bluetooth-enabled contact tracing Card trial, the Ministry of Health and the Department of Internal Affairs do not recommend a national rollout of the card, as the card would need to be legally mandated, would erode social licence and is not interoperable with other COVID technologies **Noted**
- c) **Agree** that the Bluetooth-enabled contact tracing Card is not to be rolled out nationally

Yes/No

Minister for COVID-19 Response

Yes/No

Minister for Digital Economy and Communications

- d) **Agree** for officials to proactively release the programme findings of the Bluetooth-enabled contact tracing Card trial and associated research reports for transparency of advice and to acknowledge the significant learnings from community participation in this trial

Yes/No

Minister for COVID-19 Response

Yes/No

Minister for Digital Economy and Communications

- e) **Note** that officials will continue to monitor wearable technologies as they continue to develop and assess their value in supporting our contact tracing system **Noted**
- f) **Note** that the Ministry of Health is continuing to investigate how the App could be improved to encourage more consistent use and is incorporating several key improvements in Release 8 of the App, due in July 2021 **Noted**
- g) **Note** that a reminder push notification was trialled on 4 June 2021 (ahead of Queen's Birthday weekend) and the findings were mixed, with an increase in scans for some users while others removed the App from their phone **Noted**

- h) **Note** that development is underway to allow the App to notify people a certain amount of time after their last diary entry (i.e. QR code scan or manual entry) to continue using the App, which will be included in Release 8 of the App in July 2021. **Noted**



Shayne Hunter

Deputy Director-General of Health, Data and Digital

Date: 9 July 2021



Hon Chris Hipkins

Minister for COVID-19 Response

Date: 15/7/2021

Hon Dr David Clark

Minister for Digital Economy and Communications

Date:

Update on the Bluetooth-enabled Contact Tracing Card and the NZ COVID Tracer App

Background

6. 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.
7. Digital tools, including the NZ COVID Tracer App, complement manual contact tracing and improve the overall effectiveness of the contact tracing system by speeding up the process, filling in memory gaps, recording contact with strangers and giving users exposure alerts. A range of technologies is needed to maximise population coverage and support more effective contact tracing, for example wearables.
8. In June 2020, the Public Private Partnership group (the PPP) recommended use of a Bluetooth-enabled card (the Card) to improve contact tracing. The Card removes the need for a person to carry a smartphone and manually sign into locations using the App, therefore reducing the hassle and inconvenience of scanning.
9. On 3 August 2020, Cabinet agreed to trial the Card [CAB-20-MIN-0370]. Officials from the Ministry and the Government Chief Digital Officer (GCDO) in DIA established the Contact Tracing Technologies Prototype Research Programme (the Programme) to conduct the trial.

Findings of the Bluetooth-enabled contact tracing card trial in Rotorua

10. A trial of the Card in Ngongotahā, Rotorua, examined how New Zealanders' stated preferences matched their behaviours in the real world, the acceptability and utility of the Card in community settings, and the potential for the Card to improve contact tracing.
11. The trial of the Card identified the following issues:
 - a. Lack of interoperability: the Card is not interoperable with other digital technologies, so it is unlikely the Card would achieve the coverage needed to support more effective contact tracing. We do not recommend mandating the use of the Card, as this is unlikely to be acceptable by the public, raises privacy concerns, and risks undermining social licence and public trust;
 - b. Privacy concerns: the Card has centralised data storage. Colmar Brunton market research indicates data and privacy concerns are a key barrier to uptake, indicating a decentralised data model that gives people more control and anonymity of their data may be more acceptable. This is consistent with the approach taken to the App and is supported by the Office of the Privacy Commissioner; and
 - c. Cost: national deployment of the Card would be costly with minimal benefits.
12. As the trial of the Card was led by both the Ministry and DIA, and falls within both the COVID-19 Response and Digital Economy and Communications portfolios, a joint

decision is appropriate on whether to roll out the Card nationwide from the Minister for COVID-19 Response and the Minister for Digital Economy and Communications. The request made by Cabinet in August 2021 to report back on the Card [CAB-20-MIN-0370] was fulfilled by a verbal update to Cabinet on the preliminary findings of the trial on 7 December 2021.

13. Based on the findings of the trial, the Ministry and DIA do not recommend a national rollout of the Card.

Community partnership approach to the Card trial

14. The partnership and codesign approach adopted with Te Arawa for the community trials of the Card, with a stated intent to adhere to the Principles of Te Tiriti o Waitangi, was a success. This indicates that a community-led roll out can achieve good results among Māori and potentially other priority populations.

Adopting the insights and learnings from the Programme, as well as the co-design and engagement approach developed with Te Arawa, will contribute significantly to success for ongoing initiatives and strengthen the Māori-Crown relationship for the COVID-19 response. Work is underway to identify a date and plan a hui in the Ngongotahā community in late July 2021 in order to report back to the community on the results and outcomes of the trial.

Proactive release of the research findings

15. The Ministry and DIA believe that it would be useful to release the reports of the findings of the trial and the research reports done as part of the trial. There has been a high level of interest in the work, as evidenced by the number of Official Information Act requests received to date. The academic institutions that worked on the research and produced the subsequent reports (the Universities of Otago and Waikato) are seeking to publish their work. In addition, this will publicly acknowledge our appreciation to Te Arawa and the Ngongotahā community for their significant role in this COVID-19 work.

NZ COVID Tracer App

16. The App has the following features that assist contact tracing:
 - a. a digital diary stored locally on the device, which allows users to add entries by scanning QR codes or adding manual entries. If a person tests positive for COVID-19, this information can be provided to the NCTS to aid the case investigation process.
 - b. Bluetooth tracing capability, which uses the Apple/Google Exposure Notification Framework to automatically exchange anonymous keys with other App users and allows for push notifications and rapid contact tracing to be sent to other phones in the event a person tests positive.
17. To effectively support contact tracing, the digital diary and location contact alert functions rely on people consistently recording their visits by scanning QR codes and adding entries manually. Bluetooth should also be enabled.

While there is good uptake of the App, people are not scanning consistently when the perceived risk of transmission is low and there are no community cases

18. We have seen that rates of scanning and opting-in to Bluetooth tracing increase during times when the perceived risk of COVID-19 is higher (i.e. during time of community transmission). For example:
 - a. during the February/March 2021 community outbreak in Auckland there were approximately 1.5 million scans per day. This reduced to approximately 400,00-600,000 per day over the weeks in May and early June 2021; and
 - b. following the Wellington Region being placed at Alert Level 2 on 23 June 2021 rates of scanning immediately increased.
19. Despite efforts encouraging people to use the App, consistent usage is below where it needs to be during times of no community transmission. This issue has been the subject of significant investigation during our COVID-19 response.
20. While the number of people registered with the App has increased, the average daily number of scans and active users has progressively decreased.¹ This shows that a high number of New Zealanders have downloaded the App, but only a small fraction actually use it on a daily basis when there are no community cases (i.e. during Alert Level 1).
21. Bluetooth tracing functionality has proven to be a valuable addition. As it works passively in the background, users only need to take one action to turn it on rather than the habitual recording of visits through the digital diary functions. However, almost half of devices with the App do not have Bluetooth tracing activated (either because the device does not enable it, or the user has not turned it on).

Research on public attitudes and behaviours towards use of the App

22. Studies have been undertaken to understand New Zealanders' attitudes and behaviours towards use of the App.
23. Finding from the May 2021 study by TRA indicated that:
 - a. the public do not understand the need to continue using the App when there is no COVID-19 community spread;
 - b. most people who have the App are motivated to use it to avoid an Alert Level change but are not making that connection that this requires scanning when there is no perceived risk;
 - c. an 'expectation to scan' appears to be a weak motivator for people;
 - d. people view use of the App as the least important behaviour to do consistently. Staying home when sick, good hygiene and wearing a mask are all seen as more important behaviours to prevent the spread of COVID-19;

¹ Official NZ COVID Tracer App data (at 9 July 2021) indicates there are just over 2.89 million App registrations, which is a reasonable approximation for the total number of devices with the App. Only around 11 percent of devices (about 300,000) on average were active on a given day (i.e. recorded at least one diary entry during the day) in the month prior to 23 June 2021 when Wellington escalated to Alert Level 2. The number of daily QR code scans has decreased from around 730,000 scans on average in April 2021 to around 580,000 in the month prior to 23 June 2021. This indicates that a minority with the App contribute to most daily scans.

- e. there is a lack of understanding of the Bluetooth functionality and what its purpose is; and
 - f. just under half of people either were not worried about COVID-19 or did not see a need to scan if Bluetooth tracing is enabled.
24. In November 2020, PwC conducted research into behavioural barriers that prevent people from consistently using the App to scan. The study identified the following barriers:
- a. the hassle and inconvenience of scanning, for example posters may not be conveniently located and/or people may be too tired to turn their minds to scanning;
 - b. individuals are strongly impacted by social norms, and at present that is not to scan. Embedding a social norm of scanning would likely increase app usage;
 - c. individual behaviour is frequently shaped by timing. This opens the possibility of exploring prompts on certain days of the week and over summer breaks to ensure people remember to scan; and
 - d. many individuals are not in the habit of scanning. While it may be understated, behavioural science suggests the key to increasing App scans is to make the behaviour automatic. For example, a staff member prompting individual to scan as they enter the store may lead to the customer scanning as an automatic habit overtime.
25. These insights have been used to support continuous improvement of the App and associated communications.

Campaign

26. In July 2021, there will be a 'Unite Against COVID-19' App campaign to encourage New Zealanders to download the App, turn on Bluetooth tracing and scan QR codes. The campaign repositions the need to scan QR codes as an everyday activity to protect the things we love.

Equity concerns with reliance on the NZ COVID Tracer App

27. Without the Card we will remain reliant on the App to achieve effective contact tracing. Many Māori, priority and other (often vulnerable) people in communities do not have access to digital devices and will require proactive support and resources to equitably access contact tracing technologies.
28. Options to fill the technology gap in supporting contact tracing are limited. Due to the evolving situation with COVID-19, development of these types of technologies has not been a priority. Officials are monitoring wearable technology trends internationally as they continue to develop. As the technology improves and cost decreases, the Ministry will advise further on wearable technologies to support the App.

Announcement push notification trial over Queen's Birthday weekend

29. On Friday 4 June 2021, a notification was sent as a trial to all users who had updated the App and opened it at least once since this feature was added. The notification reminded people to stay home if sick, use the App whenever possible, and encouraged people to turn on Bluetooth tracing.

30. Over 1.6 million people received the notification. This is significantly lower than the 2.8 million registered users of the App. The difference is believed to be mostly made up of people who have not opened the App since Release 6 (April 2021).
31. Results from the trial were mixed. While there was a slight uptick in scanning and use of Bluetooth tracing, a larger than usual number of people deleted the App. Initial observations from the trial were:
- a. people noted on social media and in emails that the notification caused them anxiety;
 - b. about 6,000 people switched on Bluetooth tracing following the alert (significantly more than a normal day, but not as much as expected);
 - c. There was a significant increase in the number of manual entries compared to the week before (Friday 28 – Saturday 29 May). There was only a slight increase in the number of scans².
 - d. more people uninstalled the App than expected.
32. Development of a feature to allow users to opt-out from receiving these notifications is underway. We recommend that further announcement notifications are not sent until this feature is released. Furthermore, we intend to use these notifications only for public health announcements.

Automated diary reminder notifications

33. Automated notifications after a period of inactivity are a common pattern in mobile apps that seek to establish habitual usage. These can be very effective but can also cause annoyance. It is possible that too many notifications from the App may risk people becoming complacent towards automatic notifications, and may lead to people underestimating the importance of a notification when there is a serious message to communicate.
34. Development is underway to allow the App to notify people, after a certain amount of time of inactivity from their last diary entry (i.e. QR code scan or manual entry), to continue using the App. This timeframe is likely to be one week, but will be informed by feedback from pilot testing with a group of volunteers.

Upcoming work for the NZ COVID Tracer App and related technology

35. The next update of the App (Release 8) is expected to be ready by mid-July 2021. The proposed features it will introduce to further enable people to assist in our contact tracing efforts are:

² Scanning was higher than might otherwise have been expected, but the trial did not produce a significant increase in scanning. There were about 20,000 more scans (3 percent increase) on 4 June than the Friday/Saturday before and about 44,000 more scans (9 percent increase) on 5 June than the Saturday/Sunday before. The Friday/Saturday of 4/5 June saw a significant one-off increase in manual diary entries, where nearly 17,000 more manual diary entries were made than the Friday/Saturday before (a 63 percent increase).

- a. the ability for users to add QR code diary entries without scanning (i.e. enable users to save favourite locations so if they forget to scan at one of their regular locations, they can create a manual entry). This makes it more convenient for users to scan and may support more consistent scanning;
 - b. reminding users to turn on Bluetooth tracing from the scan screen, in order to make it easier for users to see whether Bluetooth is enabled or not; and
 - c. automated reminder notifications for users with low scanning history (discussed above).
36. Other work being progressed that could provide additional tools for our contact tracing efforts includes:
- a. Rapid QR poster – a self-service option for businesses to update their details and reprint posters (expected to align with a new QR poster design proposed by DPMC in July 2021);
 - b. re-designing the QR code poster to align it with the upcoming campaign; and
 - c. a Near Field Technology Communication (NFC) trial (tap to scan) is planned on the Victoria University of Wellington campuses for July 2021.

Next steps

37. The Ministry will roll out Release 8 of the App by mid-July 2021.
38. DPMC is currently progressing work to mandate record keeping for contact tracing purposes and mandate the use of face coverings in certain settings at Alert Level 2.

ENDS.

Appendix 1 – COVID Tracer App data

1. The Ministry of Health receives daily anonymised statistical information about App use for reporting purposes, which is also available live on the App dashboard. The below chart illustrates the daily App use from 20 May 2020 to 3 July 2021 (1pm to 1pm NZDT) and includes the following four variables:
 - a. QR code poster scans (not including manual diary entries, which are small compared to the scan numbers);
 - b. total App registrations - provides a reasonable approximate of the total number of devices with the App;
 - c. Bluetooth Active - this measures the number of devices daily which have the Bluetooth tracing functionality activated; and
 - d. active device count - this is the number of devices that have either scanned a code or added a manual entry during the 24-hour period (i.e. the App was used at least once during the day).
2. As indicated in the graph, the amount of people who consistently scan and use the App daily is small (and decreasing) compared to the App user population, which is increasing.
3. The spikes in scans and active devices coincide with the periods where New Zealand experienced community COVID-19 outbreaks, notably the August/September 2020 and February/March 2021 outbreaks, where the country escalated Alert Levels. In addition, scans significantly increased following the recent escalation to Alert Level 2 in Wellington. On 4/5 September, following the February/March 2021 community outbreak, a record 2.5 million scans were recorded by just under 1 million active devices in a 24-hour period (out of approximately 2.1 million App users, or around 47 percent).

