

DOES MANDATING COVID-19 TRACER APPLICATION USE ACTUALLY INCREASE USAGE?

Bronwyn Howell, October 28 2021

Since May 2020, Petrus Potgieter and I have been tracking the uptake and use of New Zealand's smartphone-based COVID-19 contact-tracing application NZ COVID Tracer. Our analysis of the application compared to its Australian counterpart is contained in the peer-reviewed journal article [A tale of two contact-tracing apps – comparing Australia's COVIDSafe and New Zealand's NZ COVID Tracer](#). Application usage data up to the end of February 2021 was analysed in a Wellington School of Business and Government (Victoria University of Wellington) research note [How much is NZ COVID Tracer really being used?](#) on March 1.

NZ COVID Tracer facilitates users to record a diary of the locations they have visited by scanning QR codes displayed on entering. A feature allowing manual entry of visits to locations not displaying a QR code, and a Bluetooth-enabled proximity detector were added subsequently. If the user goes on to test positive for COVID-19, contact tracers can identify locations of interest the individual has visited when infectious, and alert those who may have been exposed there to the virus. Alerts can be made by way of the application itself, or for those without an application, via the usual public health notifications. Exposed individuals can then present for testing, to ascertain whether infection has occurred. When introduced, the application's use was entirely voluntary, although strongly encouraged by politicians and public health officials.

The key feature of our March usage analysis was how little the application was actually being used: around 2.6 million applications had been registered (a little over 50% of the total NZ population); on average, fewer than 20 percent of the registered applications were being used on any given day (peak usage never exceeded 50%); and of those that were active, on average fewer than two locations per day were being scanned. Usage did not appear to vary much, and when it did during those periods where isolated breakouts of infection were observed in the community – notably in August 2020 and February 2021 – the higher usage quickly tailed off. However, registered applications did appear to surge noticeably when outbreaks occurred.

In August 2021, community transmission of the Delta variant of COVID-19 was detected in Auckland, New Zealand. The country was moved to Level 4 lockdown – the highest possible level – on 18 August. Unlike past community outbreaks, this one was not brought rapidly under control. On [August 22](#), the Minister for COVID-19 Response announced that seven days after the current lockdown provisions were relaxed – whenever that might be – it would become mandatory for NZ COVID Tracer (or alternative manual tracking systems) to be used at all business premises and on public transport. Other locations such as churches and community venues were also required to display QR codes. All of New Zealand except Auckland (where the outbreak occurred) was lowered to Level 3 on 31 August, triggering the NZ COVID Tracer mandate from 7 September in those regions. Auckland was lowered to Level 3 on 21 September, when the rest of the country moved to Level 2.

Figure 1 shows daily scanning activity across the entire life of NZ COVID Tracer. The pattern of daily activity per active device for the period July 1 to October 27 2021 is in Figure 2. Figure 2 shows both QR scan activity and the composite of scans and manual entries.

These graphs show:

- Scanning activity per active device fell during the time the country was in Level 4 lockdown, from around 1.85 scans per day to around 1.35. This is to be expected due to reduced population mobility.
- Activity per active device subsequently climbed, not when the lockdown was relaxed, (1 September) but when scanning became mandatory (8 September). There was a minor uptick on 1 September, but usage levels did not pass pre-lockdown ones until usage became mandatory (the peak was on September 9). There was no apparent surge in activity around September 21, when Auckland moved from level 4 to level 3 and the rest of the country to level 2.
- The level of scanning per active device was higher after use became mandatory, but not by much. Average usage post 8 September hovers around 2.12 scans per active device per day; furthermore, it appears to be declining.

Figures 3 and 4 illustrate why this might be occurring.

- Prior to September 2021, only around 10 percent of the (by then) registered 3 million applications were active on a given day.
- Following use becoming mandatory, the number of active devices more than doubled, to around 1.1 million (around 35 percent - that is, 65 percent of those who have downloaded the application do not use it on any given day).

- Moreover, both the percentage of active users and scans per active user per day appear to be dropping off slightly, even though the lockdown stringency relaxed after September 21 (Auckland moved to level 3, the rest of the country to level 2), when greater movement of individuals and hence more opportunities to scan would have been expected.

While the number of scans taken increased dramatically following the use mandate (from around 600,000 per day in August to 2.5 million in mid-September), this occurred mainly because more people used the application. The actual number of scans taken per application active increased only slightly: those already using the application didn't appear to increase their usage by much. Indeed, Figure 2 suggests that, post the mandatory use obligation, there has been some degree of substitution of manual entries with scans, likely because more venues now display the QR codes than before, making manual entries less necessary QR codes issued rose from around 627,000 in early August to around 791,000 in late October). Interestingly, Bluetooth-activated devices increased immediately the outbreak became known, rising to just over 67 percent of registered applications, where it remains stable.

A caveat to this analysis is that the latest data may reflect a small under-representation of total usage due to Auckland still being under level 3 lockdown. However, the use of active devices as the denominator takes account of devices that are not used because the user didn't undertake any scanning activity on a given day. Also, the lack of evidence of an increase in activity when Auckland entered level 3 on 21 September (indeed activity appears to have fallen slightly since this date) suggests that this is not likely to substantially alter the analysis.

The conclusion drawn is that mandating usage has increased the number of people actively using NZ COVID Tracer, but that it has not led to a significant increase in the number of locations scanned each day by active users. Indeed, the vast majority of those who have downloaded the application are not using it on a daily basis. Earlier tentative conclusions appear to be supported: either active application users don't actually visit many locations in a given day, or that they don't actually scan QR codes at every location they visit, even though it is now mandatory for them to do so. Furthermore, the likelihood of scanning appears to fall off after the initial impetus to scan is provided, just as we observed in our previous analyses. While it is certainly beneficial that more people are using the application, as more information is available to contact tracers (albeit that this will lead to a higher workload for contact tracers and more "false positive" alerts from application-driven notifications, with consequences for testing services, as noted in our peer-reviewed paper), the application still falls far short of a satisfactory substitute for manual processes. At best it is a complement, and from the New Zealand experience, does not appear to be a very comprehensive one, or one that will be sustainable in the long-run, as users appear to quickly tire of the obligation to scan every premise entered. Our conjecture that the greatest benefit from the application to date has likely been an up-to-date record held by public health authorities of the current phone numbers of the three million registrants, enabling faster notification of known close contacts of infected individuals, still stands.

FIGURE 1

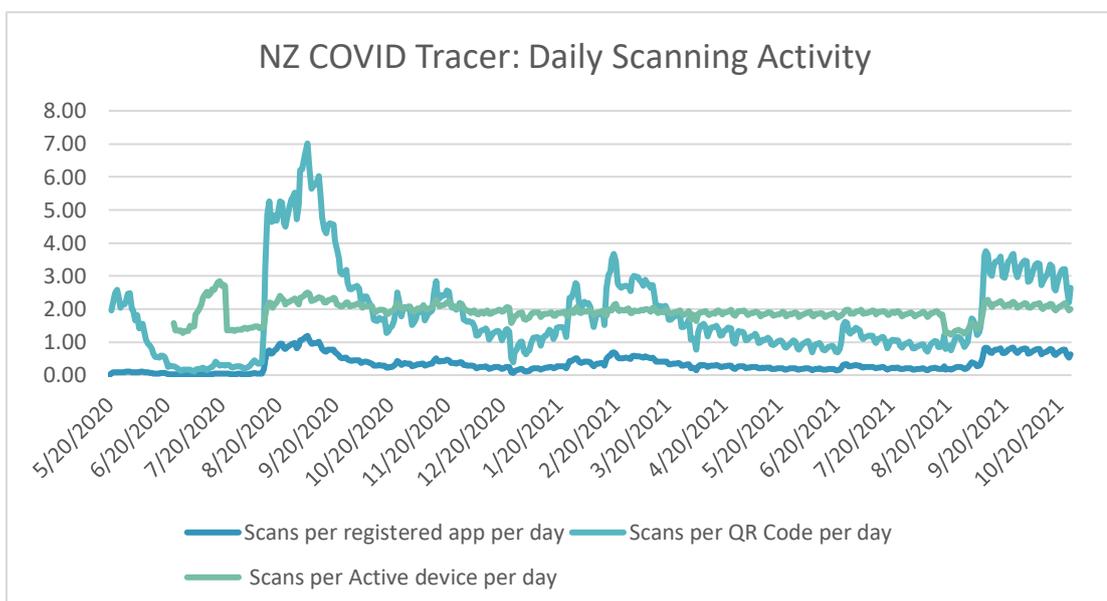


FIGURE 2

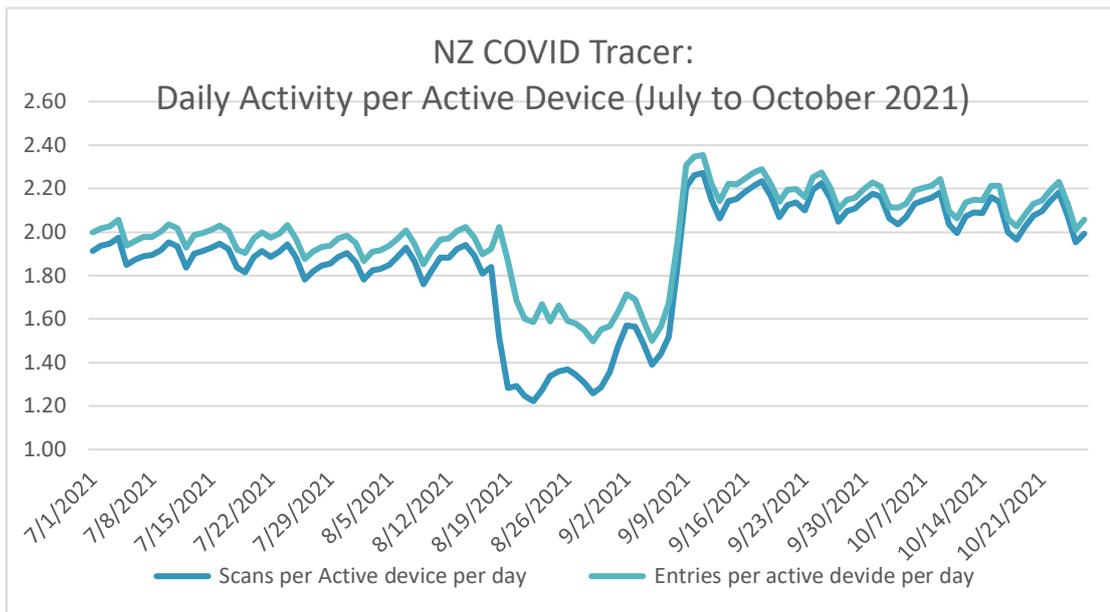


FIGURE 3

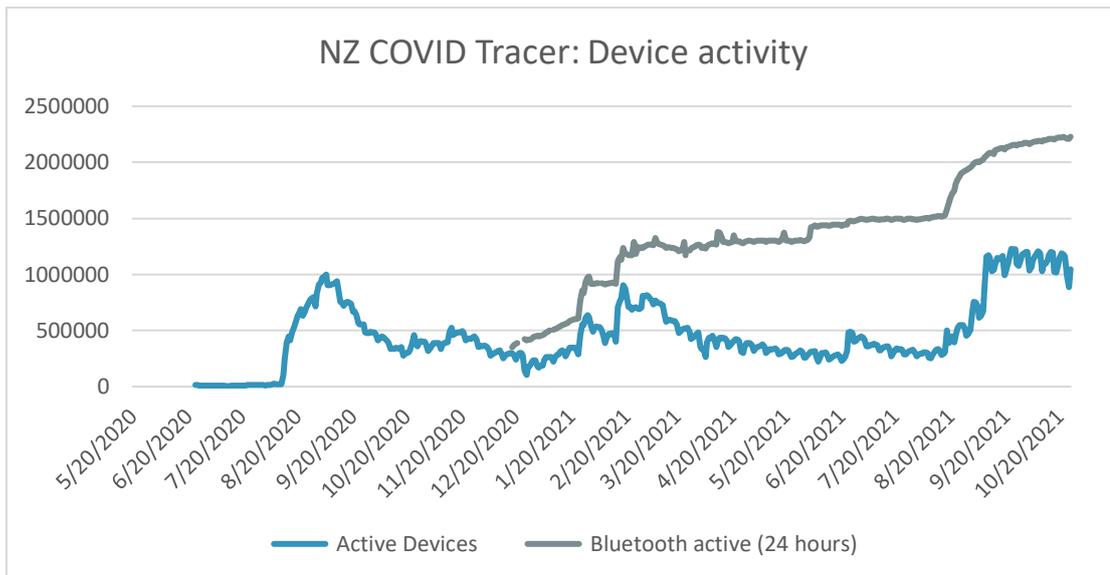


FIGURE 4

