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s 9(2)(a)

By email: s 9(2)(a)
Ref: H202117964

Tēnā koe s 9(2)(a)

**Response to your request for official information**

Thank you for your request under the Official Information Act 1982 (the Act), transferred from the Ministry of Business, Innovation and Economics on 17 December 2021, for a copy of any final review or evaluation of the ëlarm trial and any papers with recommendations, conclusions and next steps.

The Ministry of Health has identified one document within scope of your request. This is released to you in full and a copy is attached.

I trust this information fulfils your request. Under section 28(3) of the Act, you have the right to ask the Ombudsman to review any decisions made under this request. The Ombudsman may be contacted by email at: info@ombudsman.parliament.nz or by calling 0800 802 602.

Please note that this response, with your personal details removed, may be published on the Ministry website at: www.health.govt.nz/about-ministry/information-releases/responses-official-information-act-requests.

Nāku noa, nā

Gaynor Bradfield
**Manager, Office of the Deputy Director-General**
**Data and Digital**

DATAMINE

# elarm Border Trial Findings

10 August 2021

MINISTRY OF HEALTH
MANATŪ HAUORA



# Purpose of this report

This report aims to provide findings from the elarm Border Worker Trial undertaken by The Ministry of Health in partnership with Datamine and provide recommendations for a subsequent phase.

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# Executive summary

- The elarm Border Trial showed that elarm is a valuable tool for added protection of border workers in New Zealand. The majority of users (77%) said they would recommend elarm to friends and colleagues for monitoring health and protection against COVID-19.
- Most workers who participated in the trial found elarm to be easy to use, and the information to be trustworthy, giving them greater confidence and peace of mind in their job. Workers were happy to wear a device all the time and thought elarm should be offered by employers.
- The number of participants entering the trial was low. However, once clear on the benefits of the offer, workers were keen to take up elarm. Failure to reach a more significant number of participants seems to be due to simply not reaching enough people with clear information on the benefits at the outset.
- Using elarm drove the right behaviour changes (proactively getting a COVID-19 swab test or increased self-monitoring), which would reduce transmission in the case of a possible outbreak at the border – to the benefit of the public and the New Zealand government.
- A wider rollout would have a positive impact.
- A program to roll out elarm and a device offered as a benefit by employers or by the Ministry of Health would be highly effective. Successful adoption would be subject to a compelling campaign to reach and engage with people and communicate the benefits of the elarm system.
- We recommend the Ministry of Health rolls out elarm and free wearables devices to more border workers with a broader rollout.





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# Trial set up

## Purpose of the trial

The Ministry of Health partnered with Datamine to undertake a trial of the elarm app for border workers, which would act as a proof of concept to determine elarm's effectiveness as a tool in reducing the spread of COVID-19 at New Zealand's borders, and an additional layer of protection for border workers.

elarm is a simple personal health app developed by Datamine to help reduce the spread of COVID-19. elarm reads data automatically from a wearable device like a fitness tracker or smartwatch and detects small physiological changes that could indicate early stages of a viral infection from COVID-19, or other problems such as colds, flu, and stress, giving the app user earlier warning and time to act if something is wrong. elarm can detect physiological changes several days before a user is aware of symptoms and notify the user using four increasing alert levels.

If the proof of concept is agreed to be successful, the Ministry of Health and Datamine will consider a rollout to a broader group of people or other use cases as the next phase of working together. This will be determined by participant feedback provided after the trial and summarised in this report.

## Obtaining Participants for the Trial

One challenge of running the trial was that there is no central register for contacting border workers.

To reach potential participants, the Ministry of Health created an opt-in questionnaire for border workers to register interest and awareness through a campaign of posters around facilities with a QR code that border workers could scan to access the questionnaire. Datamine would provide devices to participants who wanted to participate in the trial but didn't already own a wearable device. Participants would get the wearable for free and could keep it after completion of the trial.

The poster messaging was around a general opportunity to give feedback on ways to help protect workers at the border - rather than specific information about wearables or benefits of taking part in the trial. These benefits, including getting a free device, were offered at the end of the registration questionnaire to not bias potential participants.

The posters were sent out to all Auckland MIQ facilities on Saturday 8th May 2021, starting registrations for the trial. *Appendix A* shows the poster used to recruit participants.

## Trial Duration

Trial participants used elarm for four weeks and provided feedback on their experience at the end of the trial period by being emailed a survey.

Due to slow uptake, the trial was agreed to close off on 16/07/2021, with the agreement that there was enough data to evaluate the effectiveness of the trial. Participants who were partway through their 4-week period were also asked to complete the survey.

# Trial Response

## Response Rate

There was a reasonably good response rate in the first week of the trial, however, this reduced in the subsequent weeks. To increase participant uptake, new information about the trial went out in the MIQ staff newsletter on 11th June to all facilities in New Zealand. The Civil Aviation Authority (Avsec) also sent an email out to their teams nationwide on June 23rd and Auckland Airport sent out an email to a small team of people on July 8th. These did not significantly increase the number of responses.

A total of 182 responses to the registration survey were received. Responses were assessed against an acceptance criterion and were welcomed into the trial by email if met.

| | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8-15 May | 16-22 May | 23-29 May | 30 May – 4 June | 5 -11 June | 12 – 18 June | 19 – 25 June | 26 June – 2 July | 3-9 July | 10-16 July | 17-23 July |
| Registrations of interest: | 65 | 23 | 11 | 0 | 4 | 38 | 14 | 13 | 8 | 1 | 0 |
| Accepted/Invited into trial: | 36 | 19 | 11 | 0 | 2 | 22 | 7 | 2 | 5 | 0 | 0 |
| Fitbits sent: | 1 | 14 | 20 | 0 | 1 | 4 | 4 | 3 | 3 | 0 | 0 |

## Trialist Drop off

There were very few touchpoints for participants who already had a wearable device: if they met the acceptance criteria, they were sent an email invitation to join elarm on the same day as their welcome to the trial email and could begin using elarm straight away.

Participants who required a Fitbit had more touchpoints to begin the trial and, therefore, more chances of dropping out before onboarding to elarm.

- These participants needed to provide delivery details through a website link
- The courier required a signature on delivery, which sometimes added a delay in participants receiving their device
- Once the device was received, the participant was given instructions on how to set up the device. The device is then required to be worn for a period of two to three days to gather baseline data
- Then the participant was sent an invitation to join elarm and could onboard their device with elarm

Once data was first received under a user's elarm account, the 4-week period started, and they were considered as being successfully onboarded to the trial.





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A total of 46 participants created their elarm account and connected their device, meaning that some initial wearable data was seen for those participants.[1] All onboarded participants were sent a completion survey, and 31 responses have been received – a 67% response rate.

| | |
|---|---|
| Registrations of interest | 182 |
| Were accepted into Trial | 72 |
| Created an elarm account | 51 |
| Connected a device (*trial start point*) | 46 |
| Completed the end-of-trial survey | 31 |

## Fitbit vs Bring-your-own-device uptake

A total of 8 participants onboarded their own device for the trial.

The remaining 38 participants onboarded the Fitbit they were sent. 50 Fitbits were sent out to participants in total at the time this report was collated.

| | |
|---|---|
| Trialists who used their own device | 8 |
| Trialists who used a provided Fitbit device | 38 |
| (Fitbits sent out) | 50 |



[1] Of the 46 participants, 22 did not onboard correctly using their invitation to the The Ministry of Health elarm account, which was set up to monitor trial participation. Those participants used the free version of elarm which has fewer features.



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# Summary of Trialist Feedback

1. Did you enjoy using elarm?

| **Yes** | **84%** |
|---|---|
| Neutral | 13% |
| No | 3% |

2. How likely are you to recommend elarm to a friend or colleague?

| **Highly likely or likely** | **77%** |
|---|---|
| Neutral | 10% |
| Unlikely | 13% |

3. How satisfied were you with the ease of use? (ie. How easy the app was to navigate and understand)?

| **Satisfied** | **94%** |
|---|---|
| Neutral | 3% |
| Unsatisfied | 3% |

4. Did you bring your own wearable for the trial?

| Yes | 13% |
|---|---|
| **No** | **87%** |

5. Please tell us how true you find this statement: *"elarm gave me greater confidence around my health and protection against COVID19"*

| **Strongly agree or agree** | **67%** |
|---|---|
| Neutral | 23% |
| Disagree | 10% |

6. Please tell us how true you find this statement: *"I trusted the alerts elarm sent me"*

| **Agree** | **62%** |
|---|---|
| Neutral - no opinion | 33% |
| Disagree | 5% |





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7. Did you receive any elevated or heightened alerts that surprised you throughout the trial?

| | |
|---|---|
| **Yes** | **68%** |
| No | 32% |

8. If you received an alert outside of the normal range, did you take any action(s)?

| | |
|---|---|
| **Yes – I got a COVID test** | **19%*** |
| **Yes – observed carefully for next few days** | **56%** |
| No | 25% |

***Three participants were tested.*** *In one of those cases a trialist commented that elarm gave them alerts several days before coming down with cold-like symptoms.*

9. Did you experience any technical or onboarding issues?

| | |
|---|---|
| Yes | 19% |
| **No** | **81%** |

**Of the participants who responded to have onboarding issues, the common theme in trialists comments pointed to user error. Improved onboarding instructions are recommended.*

10. Were you happy wearing a wearable device all the time?

| | |
|---|---|
| **Yes** | **100%** |
| No | 0% |

11. How likely are you to continue using elarm now that the trial has completed?

| | |
|---|---|
| **Likely** | **81%** |
| Neutral | 13% |
| Unlikely | 6% |

12. Would you use elarm to monitor your underlying wellness beyond COVID19?

| | |
|---|---|
| **Yes** | **55%** |
| Maybe or not sure | 39% |
| No | 6% |

13. Do you think your employer should offer elarm as an employee benefit?

| | |
|---|---|
| **Yes** | **78%** |
| Neutral | 19% |
| No | 3% |





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# Findings

Overall the feedback points to elarm's effectiveness and acceptance among workers.

Some participants experienced onboarding issues, which pointed to user error in the set-up phase.

Most participants involved enjoyed using elarm, have been actively using elarm and will continue using it beyond the trial. As intended, elarm gave trialists increased confidence in managing their health, and they were happy with the content of the alerts that it generated.

All the trialists were happy to wear a wearable device continually, and the majority believe employers should also offer it.

Most importantly, having the app encouraged proactive behaviour in response to elevated alerts. (19% of workers who received unusual warnings went to get a COVID-19 test based on the information, and a further 56% started taking extra care observing their health level.)

# Conclusion

**The elarm Border Trial showed, despite a low number of participants, that elarm is a useful tool for added protection of border workers in New Zealand.**

Failure to reach a more significant number of participants seems to have been due to simply not reaching and engaging enough people at the outset - given that once starting the survey, people were interested in wearables, elarm and additional protection, and if accepted, were happy with the app. A free wearable device is also a desirable incentive for adoption and enables a more significant number of workers to access elarm without having to purchase their device. Successful adoption will depend on a better and more compelling campaign to reach and engage people.

elarm is desirable and easy for workers to adopt and gives valuable information to benefit the well-being and peace of mind of the user.

Using elarm drives the right behaviour changes, which would reduce transmission in the case of a possible outbreak at the border to benefit the public and the New Zealand government. A wider rollout would therefore have a positive impact and enable the protection of boarder workers and New Zealand.

Successful adoption by a larger group is supported by the fact that workers believe it should be offered by employers. A program to roll out elarm and a device provided as a benefit by employers or by the Ministry of Health could be made to be highly effective.





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# Recommendations

Based on the trial results, we recommend The Ministry of Health continues to roll out elarm and free Fitbit devices to more border workers with a broader campaign.

The campaign should clearly explain the benefits of elarm, and the added incentive of a free wearable included.

Datamine would like to work with The Ministry of Health to provide elarm accounts, end-user support, and distribution of Fitbits to additional border workers.



# Contact

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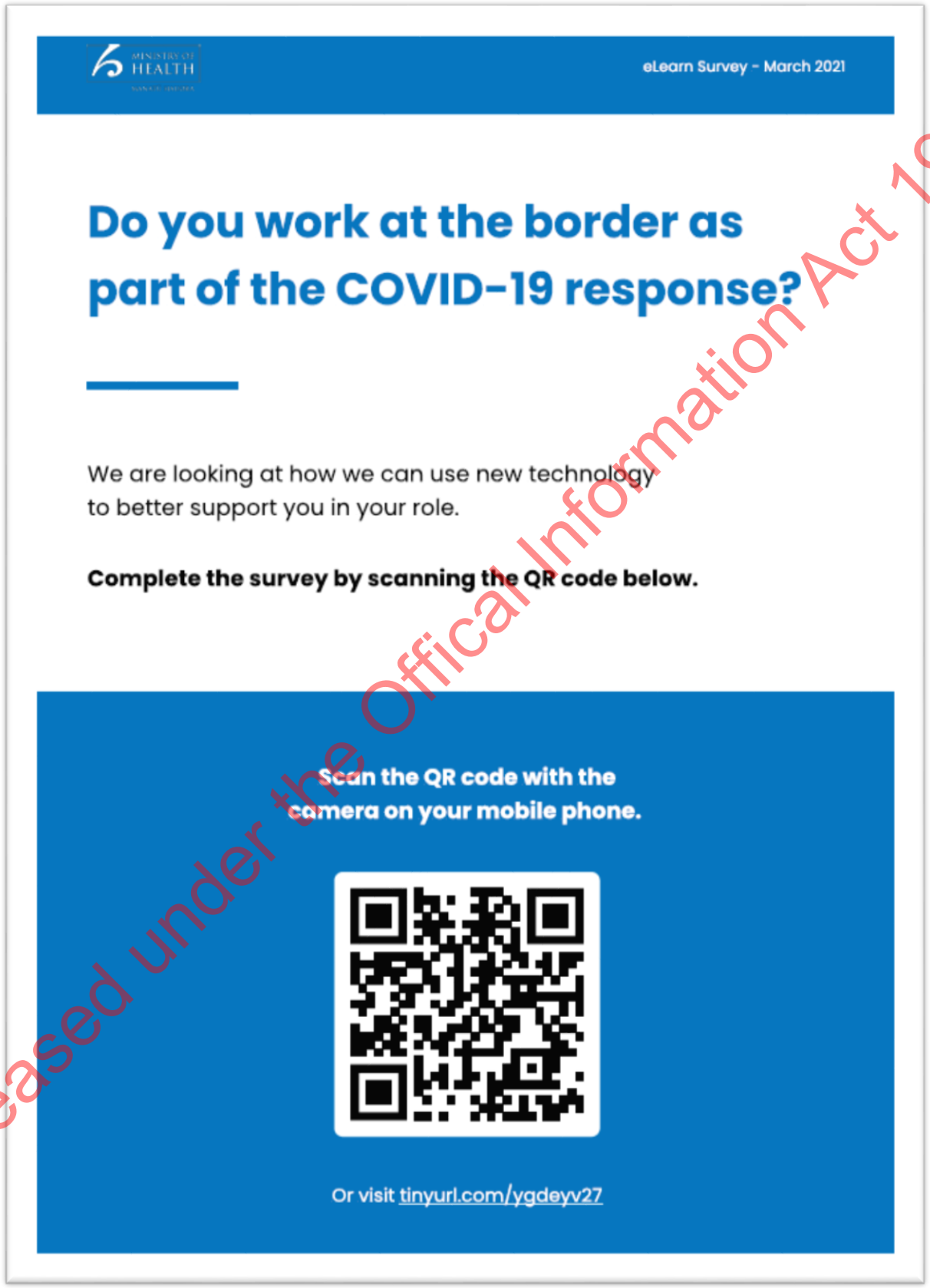
Appendix A: Recruitment Poster





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# Appendix B: elarm Info

**What is elarm?**

elarm is a mobile app, with apps in the Apple and Google Play stores. elarm connects to consumer wearable devices including Apple watch, Fitbit and many other smaller brands and detects early warning signs of viral infection and alerts the user using a four tiered warning level.

**How elarm works?**

elarm works by detecting the early biometric changes during the inflammatory response phase, in data collected by wearable devices. It then notifies the user if they are likely to be in this presymptomatic highly viral period.

elarm does this by monitoring any changing variables from a person's wearable device. elarm reads the biometric data - for example data from an Apple watch, fitness tracker, or Oura Ring - and feeds it through a clinically developed artificial intelligence model to assess any anomalies based on similarity to data from observed COVID-19 cases.

For each user, elarm calculates a personalized baseline. This baseline is calculated regularly from recent periods of rest and variables are compared to this base. A continuous baseline is calculated throughout the day to account for natural changes in the user's circadian rhythm, with exercise automatically detected and filtered out where possible.

Differences from normal baseline are calculated for each biometric and then fed into the model to test the changes in elevation for similarity to COVID-19 symptomatic changes.

elarm uses a four tiered warning level - from Normal to Highly Elevated - to communicate the severity of variations from a persons normal baseline wellness range. At lower warning levels (Slightly and Moderately Elevated) you may be aware of other forms of stress on your body that could be causing elevated results, and the warnings can be ignored or monitored further, or precautionary action can be taken such as self-isolation.

elarm also gathers event information added by the user over time, for example times of exertion, stress or alcohol, so that it can adjust for these effects and improve over time.

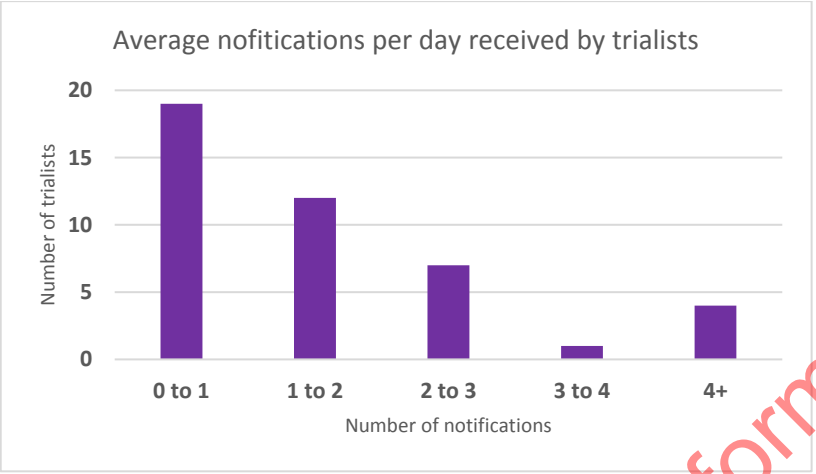
Note that elarm is not a medical device and does not replace a clinical test - it will not offer a diagnosis of COVID-19. It helps track symptoms, detects elevated biometrics relative to the user, and communicates via the user's Health Status score how closely the levels of elevation match COVID-19 symptoms.

For more information on elarm, please visit the website at www.elarm.health

## Appendix C: elarm usage statistics

**How often did people receive notifications?**

- Trialists received on average 1.5 notifications per day. *(Note: notifications are optional unless a user is elevated).*




**How often did people wear their wearable device?**

- 70% of users provided wearable data at least every day, the remaining 30% between 1 and 2 days on average.

**Typical app open and notification types**

- Average customer 7-day engagement is 114% – that is, on average users are visiting the elarm dashboard 1.14 times per day in a normal week.
- Typical notification types:
  - Level 1 of 4 (Normal): 90%
  - Level 2 of 4 (Slightly Elevated): 8%
  - Level 3 of 4 (Moderately Elevated): 2%
  - Level 4 of 4 (Highly Elevated): <1%





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