BRIEFING

Using technology to minimise the risk of COVID-19 infection transmission in and from Managed Isolation Facilities (MIFs)

Date:	19 February 2021	Priority:	Medium
Security classification:		Tracking number:	2021-2210

Action sought

	Action sought	Deadline
Hon Chris Hipkins **Minister of Covid-19 Response**	Note work on possible technology solutions to minimise infection transmission in MIFs.	26 February 2021

Contact for telephone discussion (if required)

Name	Position	Telephone	1st contact
Kara Isaac	General Manager, MIQ Policy	Privacy of natural persons	
Privacy of natural persons	Manager, MIQ Policy		✓
Privacy of natural persons	Senior Policy Advisor, MIQ Policy		

The following departments/agencies have been consulted

Ministry of Health

Minister's office to complete:

☐ Approved ☐ Declined
☐ Noted ☐ Needs change
☐ Seen ☐ Overtaken by Events
☐ See Minister's Notes ☐ Withdrawn

Comments

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Using technology to minimise the COVID-19 risk of infection transmission in and from Managed Isolation Facilities (MIFs)

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Purpose

You have asked for advice on the options for using technology to support efforts to minimise the risk of infection transmission within, and from, Managed Isolation Facilities (MIFs). We understand you are particularly interested in how technology can help track the movements of returnees whilst in managed isolation, as well as support contact tracing efforts once returnees have left MIQ.

This briefing outlines the different technologies that could be used, or are already in use, to monitor movements in MIFs; assesses their effectiveness; and identifies possible next steps. It also explores options for better integrating the NZ COVID Tracer app within MIQ, including supporting returnees to understand why and how to use it once they leave a MIF.

Recommended action

The Ministry of Business, Innovation and Employment recommends that you:

Note the work being done on possible technology solutions to minimise the risk of COVID-19 transmission within MIFs.

Noted

Note that the MIQ trial of the Contact Harald Bluetooth card demonstrated it is not a suitable option for MIFs.

Noted

Note the rollout of wider CCTV coverage in response to the Pullman case, and the expected efficacy of this initiative in contact tracing after a case.

Noted

Note that MBIE will increase education on the purpose of the NZ COVID Tracer App for returnees and support in setting it up, to encourage use of the app on release.

Noted

Note MBIE will provide further advice on the options available for utilising CCTV for tracking movements within facilities.

Noted

Kara Isaac
General Manger, MIQ Policy
MBIE

18 / 02 / 2021

Hon Chris Hipkins
Minister for COVID-19 Response

27 / 2 / 21

Background

1. The current hotel-based MIQ model is an effective border infection control mechanism and is integral to the "Keep it Out" pillar of Government's COVID-19 Elimination Strategy. A primary objective of MIQ is to prevent infected individuals from entering the New Zealand community. In doing so, MIQ must also ensure that infection is not spread within the facilities themselves.

2. When implemented well, technology can increase the effectiveness of MIQ and create efficiencies across the system. For example, the introduction of the Managed Isolation and Allocation System (MIAS) significantly reduced the burden on MIQ staff in managing and allocating room bookings for MIQ places.

3. However, in exploring the increased use of technology in MIQ, there are a number of issues requiring consideration to ensure its use is proportionate and necessary to protect public health against COVID-19. This is of particular importance where the use of technology may result in any additional limitations on people's rights under the New Zealand Bill of Rights Act 1990 ('BORA'), or privacy.

4. Technology should be considered alongside other procedures and practices that are already in place in MIQ or are under active consideration. For example, implementing a cohort approach will reduce the risk of undetected transmission within a facility by ensuring that those in a MIF do not come into contact with others who are not at a similar point in their 14 day MIQ stay.

Technology is already supporting the operation of our MIFs...

5. There are a number of different technologies supporting MIQ operations in place already, being rolled out, or in trial stages. You have indicated your interest in how:

    a. technology is used to monitor worker and returnee movements within MIFs (to capture breaches quickly, and for retrospective analysis of movements to assist identifying the source of transmission where there is a case in a MIF or post MIF infection); and

    b. we can better prepare returnees for using the NZ COVID Tracer app once they depart MIQ (to support contact-tracing in the community).

6. This briefing outlines the different technologies that could be used, or are already in use, to monitor movements in MIFs; assesses their effectiveness; and identifies possible next steps. It also explores options for better integrating the NZ COVID Tracer app within MIQ.

CCTV

7. In August 2020, MBIE MIQ began a security enhancement programme to ensure a safe, secure and sustainable work environment for workers and returnees in MIFs and prevent the spread of COVID-19 in Aotearoa New Zealand, by:

    a. putting in place the right technology, processes and people to enable us to deter, detect, provide tiered responses and recover from security breaches as rapidly as possible

    b. continuing to monitor and improve a layered security approach, in order to ensure infection control and prevention measure such as physical distancing are being adhered to throughout the MIF

8. This programme included rolling out technology solutions to support layered security, i.e. using multiple security measures (technology, process and people) to deter, detect, respond and recover from breaches. Specifically:

a. increasing CCTV camera coverage across sites (perimeter and floors), including motion detection sensors and external cameras with thermal (Infrared) technology, so people outside at night time can be detected and viewed

b. establishing control rooms to monitor CCTV footage 24/7, door alarms and intruder detection systems

c. alarming doors (exits)

d. installing intruder detection systems (i.e. geo-fencing) at selected sites allowing rapid detection of perimeter breaches.

9. Installation across all MIFs is due to be completed by mid-March 2021 which will mean that there will be comprehensive CCTV coverage of all shared areas (corridors, lobbies, exercise and smoking areas) at each MIQ site. The ARPHS review of the Pullman cases recommended that every interaction between a staff member and a returnee needed to be digitally recorded – and that there needed to be a better system to record movements such as meal delivery, maintenance cleaning, visiting a floor and other deliveries to a room. The new CCTV system will help enable this. The next stage of this programme will include completing independent security site assessments to identify the security personnel numbers and capabilities that will be needed once CCTV and associated technology solutions are in place.

10. Given the investment made to date, and the limitations identified in the use of Bluetooth-enabled technology in MIQ (see below), we consider that CCTV and associated technologies are likely to deliver the best short-term results in terms of monitoring movements within facilities. However, the rollout is focused on monitoring the perimeter for intruders and absconders.

11. Officials will provide further advice on the options available for utilising CCTV for tracking movements in facilities and the implications for implementing them. Such advice will include information on resource, training and cost implications, as well as other considerations, such as bandwidth capability, privacy and BORA implications.

Bluetooth-enabled technology

12. The trial of the Bluetooth card in MIFs followed the Ministry of Health (MoH) trial of Bluetooth cards in the community, which you will receive separate advice on from MoH. The MIQ trial of the Bluetooth card used MoH's technology provider (Contact Harald) for reasons of costs and efficacy. The purpose of the trial was to establish whether a Bluetooth tracing card can provide quality assurance for operating procedures within MIQs to reduce the risk of transmission, and improve the speed and accuracy of contact tracing within MIQ following a positive case.

13. The trial ran at the Bay Plaza facility in Wellington, between 7-18 December 2020. Participation was voluntary, though it was incentivised though 'Prezzy card' draws. Participation amongst staff was 41 percent crude, 58 percent rolling day average. Participation amongst returnees was 12 percent crude, 13 percent rolling daily average. Of the 11 people who completed a non-participation survey, the key concerns were the high level of tracking and holding of personal information.

14. Numerous issues were found with the card data, including:

a. Of the 63 participants, data was lost for 22 of them, 14 due to weak internet connection at the point of upload, and 8 had unexplained data loss

b. Three cards had old firmware

c.   Cards were configured to record interactions longer than two minutes, however CCTV footage indicates that 80% of contact events are below 2 minutes. Often events below two minute can still be significant, particularly where there are multiple interactions under 2 minutes in a condensed time frame, and the cumulative effect of the interactions is not captured in the data records.

d.   Stationary Bluetooth beacons (placed in fixed locations across the facility) did not record interactions with cards worn by participants

e.   There were occurrences of a card registering another, but it not being reciprocated by the other card.

15.   User behaviour impacted on card data, including cards being left at the facility overnight or while the staff member was not working, and continuing to record interactions with other stationary cards or with working staff member in the vicinity.

16.   As such, our view is that the technical problems make the Contact Harald Bluetooth card unsuitable for use within MIQ, and will not achieve the objectives set out for the trial. The participation results also highlight some difficulty with a voluntary approach, and the exit survey suggests this is linked to concerns around misuse of data. Other procedural improvements, such as cohorts and transport adjustments currently under consideration, and the consistent implementation of Standard Operating Procedures (including, for example, ventilation changes and physical distancing) within facilities have a more significant impact on reducing the risk of transmission in MIQ facilities than implementing a sub-optimal technology solution.

17.   There are no plans to progress similar technologies at this stage, given the significant issues around uptake and data loss. However, if this issue is revisited in the future, the following have been identified as key requirements for Bluetooth proximity based technologies;

a.   Log any interaction (no temporal threshold)

b.   Beacons to log data of interactions with clear entry and exit times

c.   Data is extracted in real-time or at end of shift

d.   Cards are de-activated when not in use (e.g. sleep mode)

e.   Removing the human element as much as feasible.

Devices and SIM cards

18.   You requested information on the provision of cell phones and SIM cards to returnees in MIQ. Under current arrangements, devices such as cell phones are only provided to returnees in exceptional circumstances under hardship packages. The Ministry of Social Development (MSD) has provided phones and SIM cards to those who do not already have a device – usually deportees. MSD has advised that they have provided very limited numbers of devices to others (e.g. to refugees, unaccompanied children and young people or others in financial hardship).

19.   They advise that most returnees have a cell phone and while they are frequently geo-location locked, can still be used in most MIQ facilities with Wi-Fi. Returnees are advised how to unlock their device and use it in New Zealand, which they can do once they leave. Some MIQ facilities provide SIM cards to returnees where their devices are locked, though this is not consistent across all facilities.

20. As the majority of returnees within MIQ have an existing cell phone, or can be provided one in the event of financial hardship or other exceptional circumstances, officials do not recommend any changes to current practice at this stage (for example, the routine provision of devices).

The NZ COVID Tracer app

21. The main benefit of returnees having access to cell phones and SIM cards in MIFs relates primarily to wellbeing – the ability to maintain communication with friends and whānau during their stay. However, you have asked officials to explore whether there is scope to better integrate the NZ COVID Tracer app within MIQ facilities.

22. The NZ COVID Tracer app (the app) is a Ministry of Health app that allows users to:

    a. scan official QR codes to create a private digital diary of places visited

    b. use Bluetooth tracing to keep an anonymised record of the people they've been near

    c. register their contact details so contact tracers can get in touch if they need to

    d. save their National Health Index (NHI) number to speed up the process if a test is required, and

    e. find their nearest testing centre and access other useful information.

23. The information recorded by the app gives contact tracers a head start whenever COVID-19 re-emerges in the community, helping them to identify close contacts and break the chain of transmission.

Use of the app within a MIF

24. MBIE and MoH do not support the use of the app or Bluetooth within MIFs for workers or returnees. CCTV and swipe cards that have real time monitoring and reporting are far more effective methods of record keeping for contact tracing purposes in the event of a case.

25. The Bluetooth functionality on the app would work much the same way as the Bluetooth card outlined above, and would therefore be prone to similar technical issues. The app is not designed to be used in the MIQ environment. Returnees may get notifications about exposure to another case within the facility, despite processes being in place to prevent transmission. Furthermore, there is a degree of uncertainty whether the Bluetooth functionality might transmit through the wall, meaning people in neighbouring rooms may be considered close contacts despite no medically relevant contact.

26. We have considered the use of QR codes within MIQ facilities. In principle, it would be possible to set up QR codes on entry to shared areas (such as the lobby, exercise and smoking areas). This would allow the returnees an opportunity to familiarise themselves with the app and form a habit of scanning when entering public places. However, this aspect of the app is also not designed for use in the MIQ environment, and may result in the same issues of notification of contact with cases. Also the need for scanning in a highly controlled environment is very low, and this is likely to be noticed by the returnees, and may undermine the importance of doing it on release. The combination of CCTV and cohorting should be a more effective intervention than app scanners would be.

27. We actively encourage all MIF workers (and their families) to be vigilant around using the app with Bluetooth function switched on. We are assessing whether additional steps are needed to support or facilitate this. We will do this through staff communications channels.

Use of the app by returnees post-MIQ

28. There is considerable merit in ensuring that all returnees have downloaded the app before they leave MIQ, and understand how and why to use it. We therefore propose to increase the education around the app while returnees are in MIQ, so they better understand its function and importance. There is information on the MoH website, as well as YouTube, which will help facilitate this.

Other technologies

29. There are a range of other technologies that could potentially help to support the operational effectiveness of MIQ, from technologies that support COVID-19 infection prevention and control, through to those supporting compliance and quality assurance. The following areas are of interest at this stage:

   a. The Department of Corrections is currently trialling Right Crowd, which utilises proximity technology data for contact tracing purposes. The trial is expected to produce operational lessons around access card compatibility, resources and capability to administer the system and data interpretation. We will keep a watching brief on the outcome and the potential it may have in the MIQ environment.

   b. The Ministry of Health is currently running a trial of devices to detect COVID-19 in returnees using continuous temperature measurement. The Ministry is preparing a separate briefing on this for you (HR: 20210178).

   c. There is emerging research on the possibility of monitoring people for COVID-19 symptoms, with recent evidence from the US suggesting the ability for symptoms consistent with COVID-19 detected up to 7 days in advance of the infected person reporting symptoms. Emerging evidence around early physiological changes could be useful in early detection of symptomatic COVID-19. This is consistent with previous research, however these results are dependent on regular use of the devices and this will detect symptoms consistent with infections rather than COVID-19 specifically. This research is at a very early stage, much of it is currently pre-publication. However we will keep a watching brief on its development.

   d. There is an opportunity to investigate data already captured by the Building Management Systems being used at MIQ facilities. The data in these systems can include humidity, temperature, movement, air quality and other sensors designed to maximise energy efficiency. This data, coupled with our knowledge of where cases have been found (i.e. the room number) has the potential to support earlier identification of COVID-19, however it isn't clear how sophisticated these systems are in the facilities or whether a strong link can be made. The Ministry of Health intends to work with MBIE to explore this further.

   e. MBIE's Research, Science & Innovation (RSI) branch, supports the development of technologies and innovations through RSI appropriations, including the COVID-19 Innovation Acceleration Fund. A number of those technologies have been specifically designed to tackle issues that are relevant to MIFs. In addition, MIQ receives a range of unsolicited proposals and approaches directly from technology companies that could offer benefits but require detailed consideration and assessment.

30. Officials across government are in the process of developing a more coordinated approach to technology and innovation in MIQ to ensure that there is clarity on the key problems technology could help us to solve. This will be developed with reference to the Department of Internal Affairs framework, to ensure a cohesive approach. The framework will create a transparent and fair assessment process for any potential technology solutions. This will help to ensure that:

a. adopted technologies enhance service delivery, improve operational effectiveness or reduce public health risks;

b. implementation and use of technology balances human rights privacy, legal and security risks;

c. the approach to technology and innovation in MIQ is proactive, efficient, cost-effective and avoids duplication across MIQ and with other agencies; and

d. where appropriate, there is sufficient consideration of options from a range of providers that could deliver similar, or better, outcomes.

31. We will update you on the progress of this work as it develops in coming months.

Next steps

32. We will develop and deploy increased education material on the use and importance of the NZ COVID Tracer app to returnees, to encourage uptake on release.

33. Legal professional privilege