

Briefing

The in-MIQF transmission risk mitigation map: findings and ongoing work programme

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To:	Hon Chris Hipkins, Minister for COVID-19 Response		
Copy to:	Hon Dr Ayesha Verrall, Associate Minister of Health		

Contact for telephone discussion

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Minister's office to complete:

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| <input type="checkbox"/> Approved | <input type="checkbox"/> Decline | <input type="checkbox"/> Noted |
| <input type="checkbox"/> Needs change | <input type="checkbox"/> Seen | <input type="checkbox"/> Overtaken by events |
| <input type="checkbox"/> See Minister's Notes | <input type="checkbox"/> Withdrawn | |

Comment:

The in-MIQF transmission risk mitigation map: findings and ongoing work programme

Security level: IN CONFIDENCE **Date:** 28 September 2021

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

Purpose of report

1. This briefing presents the findings of a full review of all controls that are currently in place to mitigate the risk of transmission of COVID-19 from the Managed Isolation and Quarantine environment to the community, with specific consideration to the risks that Delta may pose.
2. This work has produced a 'In-MIQF transmission risk mitigation map' (the map) which will be reviewed and updated quarterly, and summarises the 'in-progress' and high impact 'gaps/opportunities' that were identified during the review.
3. A key element of managing risk within the Managed Isolation and Quarantine environment is ensuring there is a well resourced and trained MIQ health workforce and this briefing also provides an update on work underway to further address this.
4. This report discloses all relevant information and implications.

Summary

5. Preventing transmission of COVID-19 to returnees, staff, or to the wider community from within Managed Isolation and Quarantine Facilities (MIQF) is a critical public health objective within our Elimination Strategy.
6. There is a broad range of public health and infection prevention and control (IPC) risk mitigations in place across the MIQ system which work to collectively reduce the risk of in-MIQF transmission. The Ministry of Health (MoH) and the Ministry of Business, Innovation and Employment (MBIE) have undertaken an end-to-end mapping exercise of these mitigations, with support and input from a wide range of public health, IPC, and operational stakeholders across the MIQ system.
7. The in-MIQF transmission risk mitigation map that resulted from this exercise is a living document that will be updated over time as our system evolves, as part of our continuous improvement approach.
8. The map provides a comprehensive overview of the range of existing public health and IPC mitigations in place (or in-progress), their rationale, and the level of evidence that support them. It also provides high-level analysis of the operational challenges and implications of the mitigations, as well as an assessment of their effectiveness. Finally,

the map identified gaps/opportunities where additional or amended transmission risk mitigations could add value to the system, particularly in the light of the Delta variant.

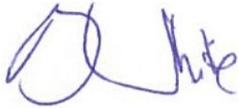
9. Overall, 44 key controls were identified across the system, 17 of which are in-progress. An additional 15 gaps/opportunities to strengthen the system were also identified. A summary of all of these mitigations is provided in **Appendix 1**.
10. These collectively form the basis of our ongoing work programme to strengthen the in-MIQF transmission risk controls across the MIQ system. This work programme is presented below in paragraphs 23 and 24.
11. Workstreams related to supporting the MIQF health workforce remain critical to this ongoing work programme, as many of the in-progress risk mitigation measures and gaps/opportunities identified in the map are enabled by the health workforce. Accordingly, an update on the progress of the following workforce-related workstreams is provided in paragraphs 25 – 53:
 - Remote health checks.
 - Review of health assessment processes in MIFs.
 - Implementation of an acuity tool to identify high needs returnees.
 - Optimising the skill-set across the health workforce.
 - Incentivising the health workforce.
 - Launch of MBIE's #treatmefairly initiative.

Recommendations

We recommend you:

- a) **Note** that we have developed an end-to-end map of the suite of public health and IPC transmission risk mitigation measures we have in place to reduce the risk of in-MIQF transmission. **Yes/No**
- b) **Note** that the in-MIQF transmission risk mitigation map is a living document that will be updated on a quarterly basis as our measures are strengthened. **Yes/No**
- c) **Note** that the in-progress mitigations and the high impact gaps/opportunities identified in the map form the basis of our ongoing programme of work to strengthen the in-MIQF transmission risk mitigations across the MIQ system. **Yes/No**
- d) **Note** that we will continue to keep you updated on progress of this work programme through our weekly reporting. **Yes/No**
- e) **Note** that the health workforce is the key enabler of many of the risk mitigation measures outlined in the map, and that as a result key work streams have been developed to respond to the need to relieve pressures in the short term and rationalise the way in which staff are deployed: **Yes/No**
 - Remote health checks.
 - Review of health assessment processes in MIFs.

- Implementation of an acuity tool to identify high needs returnees.
- Optimising the skill-set across the health workforce.
- Incentivising the health workforce.
- Launch of MBIE's #treatmefairly initiative.



Bridget White
Deputy Chief Executive
COVID-19 Health System Response
Date: 24/9/21

Hon Chris Hipkins
Minister for COVID-19 Response
Date:

PROACTIVELY RELEASED

The in-MIQF transmission risk mitigation map: findings and ongoing work programme

Background

12. Preventing in-MIQF transmission (transmission within MIQFs between those not in the same bubble) is key to the 'keep it out' pillar of the Elimination Strategy, as preventing returnees from exiting MIQFs while infectious is critical to preventing onward transmission of COVID-19 to the community.
13. Broadly speaking, in-MIQF transmission is driven by three key factors:
 - **Factor 1:** the likelihood that an individual in the MIQF is infectious with COVID-19.
 - **Factor 2:** the likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
 - **Factor 3:** Host determinants of susceptibility to infection (e.g. vaccination status or immunity from past infection).
14. We have a broad range of public health and IPC risk mitigations in place across the system – spanning pre-arrival to post-departure – which address these factors and work to collectively reduce the risk of in-MIQF transmission. This suite of risk mitigations has been progressively built upon as the system has learned from and responded to risks and incidents as part of our continuous improvement approach since the establishment of the first MIQFs around 18 months ago.
15. The MIQ system has since evolved into a mature and complex system. Given the MIQ system will continue to support the Reconnecting Aotearoa New Zealand strategy [MBIE briefings 2021-4107, 2122-0483, and 2122-1013 refer], and in the context of ongoing work to understand how the MIQ system could be modified (e.g. the use of 'short-stay MIQ') to support the Reconnecting Aotearoa New Zealand work programme, there is a need to have end-to-end oversight of the entire suite of public health and IPC risk mitigations in place.
16. From July 2021, the Ministry of Health (MoH) and the Ministry of Business, Innovation and Employment (MBIE) undertook an end-to-end mapping exercise of the suite of public health and infection prevention and control (IPC) measures in place across the entire MIQ system.
17. The results of this exercise were reviewed and refined by a wide range of stakeholders involved in the system, including stakeholders from District Health Boards (DHBs), Public Health Units (PHUs), the MIQ Technical Advisory Group (MIQ TAG), and operational leaders from across the MIQ system.
18. The result of this exercise is the 'in-MIQF transmission risk mitigation map' (the map) – a living document that will be updated over time as our system evolves, as part of our

continuous improvement approach. A high-level summary of the map is provided in **Appendix 1**.

The purpose of the in-MIQF transmission risk mitigation map

19. The maps' purpose is to:
 - Provide a comprehensive view of the range of existing public health and IPC mitigations in place, their rationale, and the level of evidence that support them.
 - Identify any challenges or operational costs (e.g. workforce burden) associated with these mitigations.
 - Clarify how and why the mitigations reduce the risk of in-MIQF transmission, and how the mitigations fit together as part of a comprehensive end-to-end approach to mitigating risk.
 - Provide a high-level assessment of the effectiveness of these mitigations.
 - Identify gaps and opportunities where additional or amended mitigations could be valuable.
20. The map will also provide the foundation for:
 - Assessing which mitigations can be enhanced to support system improvements and reduce risk across the system (i.e. high impact mitigations).
 - Assessing which mitigations can be removed or amended (i.e. low impact, high burden mitigations), to ensure resources are best directed towards the most beneficial mitigations and activities.
 - Evaluating how any new proposed mitigations fit within the existing suite of mitigations, their likely impact on the risk of transmission across the system, and their likely operational cost/burden. Whilst each gap/opportunity identified in the map will reduce the risk of in-MIQF transmission, there is generally a system cost associated with the implementation of these mitigations (e.g. on the workforce), which need to be carefully evaluated against their likely impact on transmission risks.
 - Identification of opportunities to maximise efficiency and impact, and reduce the operational burden of mitigations, particularly for the workforce.
21. Alongside the mitigations that are already in-progress, the high impact gaps/opportunities identified in the map form the basis of an ongoing programme of work to strengthen the public health and IPC mitigations we have in place. That work programme is presented below and will be added to as further high impact gaps/opportunities are identified.
22. The map has been endorsed by the MIQ TAG. Note that we are exploring opportunities to have the map independently peer reviewed and will keep you informed of our progress in our regular weekly updates.

Seventeen in-progress mitigations were identified in the map...

23. The majority of the 'in-progress' mitigations related to either returnee testing and monitoring, or managing returnee movements. Note that work to finalise the completion timeframes for some of the in-progress mitigations is continuing.

	Transmission risk mitigation actions	Lead	Timeframe
Border settings	<ul style="list-style-type: none"> Item 2: Establishment of vaccination passports 	Customs	Early 2022
In-transit to Aotearoa New Zealand	<ul style="list-style-type: none"> Item 6: Vaccination of international aircrew 	MoH	End of September 2021
Border and MIQ workers	<ul style="list-style-type: none"> Item 15: increasing the frequency of surveillance testing for MIQ workers 	MoH	Early October 2021
	<ul style="list-style-type: none"> Item 18: Systematising monitoring and management of symptomatic staff using existing applications 	MoH	October 2021
Transport to a MIQF	<ul style="list-style-type: none"> Item 28: Use of HEPA filters in buses to improve ventilation 	MBIE	MBIE is undertaking further work to clarify completion timeframes
Length of stay and overall management	<ul style="list-style-type: none"> Item 31: Increasing the length of stay for cases of COVID-19, in light of the Delta variant 	MoH	30 September 2021
Returnee testing and monitoring	<ul style="list-style-type: none"> Item 36: Introducing an additional day 6/7 routine test for returnees 	MoH	End of September 2021
	<ul style="list-style-type: none"> Item 37: Design of a saliva testing pilot for returnees to enable a mixed modality testing regime. 	MoH	End of October 2021
	<ul style="list-style-type: none"> Item 39: Implementing findings of review of health assessment processes, to improve model of care and reduce staff exposure risk. 	MoH	End of September – early December 2021
	<ul style="list-style-type: none"> Item 40: Trial of remotely working RNs to support initial health assessments and daily health check processes. 	MoH	Ongoing
Managing returnee movements	<ul style="list-style-type: none"> Item 44: Returnee behavioural insights study 	MoH	End of 2021
	<ul style="list-style-type: none"> Item 45: Investigating opportunities to provide returnees with better fitting masks 	MoH	End of 2021
	<ul style="list-style-type: none"> Item 47: Use of CCTV as a quality improvement tool for identifying and responding to bubble and IPC procedural breaches 	MBIE	MBIE is undertaking further work to clarify completion timeframes
	<ul style="list-style-type: none"> Item 49: Vaping trial for returnees 	MoH	End of 2021
Ventilation	<ul style="list-style-type: none"> Item 54: Achieving negative pressure in rooms relative to corridors 	MBIE	MBIE is undertaking further work to clarify completion timeframes
	<ul style="list-style-type: none"> Item 55: Use of air filtration units 	MBIE/ MoH	Mid October 2021
	<ul style="list-style-type: none"> Item 56: Non-sequential door interactions and reducing concurrent/sequential door opening events 	MoH	Mid October 2021

... and fifteen gaps/opportunities to strengthen our mitigations were identified in the map

24. Many of these 'gaps/opportunities' were in the 'Border and MIQ worker' section of the map. The 'gaps/opportunities' identified in the map are presented below, ranked by impact/burden and priority. Four low impact gaps/opportunities were identified which will not be progressed at this time – these have been excluded from the table below.

	Stage in returnee journey	Transmission risk mitigation actions	Owner
High impact, low burden	Border and MIQ Workers	Item 13: Ensure all Border and MIQ workers are offered other routine vaccinations e.g. MMR, seasonal influenza	MBIE
	Length of stay and overall management	Item 33: Reviewing capacity of the MIQ system.	MBIE
High impact, high burden	Transiting through the airport	Item 10: Rapid testing at the border	MoH
	Border and MIQ Workers	Item 12: Booster shot programme for Border and MIQ workers	MoH
		Item 19: Ongoing IPC education and training, ongoing professional development and refresher training	MoH
		Item 20: Establish a programme for upskilling existing MIQ health workforce to become IPC champions	MoH
		Item 21: Consistent contracts with paid sick leave to enable staff to stay home when sick, framing as 'public health' leave.	MBIE
		Item 22: Improving staff recruitment and retention.	MBIE/MoH
	Length of stay and overall management	Item 34: Improving identification of returnees with language barriers, and improving access to interpreters.	MBIE
Managing returnee movements	Item 43: Improve returnee adherence to IPC measures via targeted messaging and education at the beginning of returnees' stays.	MBIE/MoH	
Post-departure	Item 60: Arranging vaccination post-departure.	MoH	

The health workforce is a key enabler of many of the risk mitigation measures outlined in the map

25. Work streams related to reducing the burden on and maximising the productivity of the health workforce are critical aspects of the ongoing work programme.
26. The health workforce is the key enabler of many of the risk mitigation measures outlined in the map, and in particular for items 30-53 (Appendix 1). The map plays an important role in providing a consolidated view of the interplay between measures and any unintended consequences, the operational burden, and the sequencing of measures.
27. The clear benefits of introducing new mitigation measures can therefore be evaluated carefully against the additional workload required of an already stretched workforce, particularly in Auckland. The current response to the outbreak in Auckland is adding to the pressures.

Challenging context for health workforce

28. The MIQF health workforce is operating in a challenging environment, particularly in Auckland but increasingly in other areas as well. Ongoing pressures include:
 - The Delta outbreak, level four/three restrictions in Auckland and facilities operating at capacity (see Appendix 1, item 33) - have further impacted an already fatigued workforce.
 - The need to rapidly transition and staff two existing isolation facilities into quarantine facilities to accommodate community cases, as well as planning for a new facility in Christchurch.
 - Ongoing recruitment and retention issues.

- The need to recommission and staff the Ramada to accommodate deportees from Australia.
- The complex health and social needs of positive community cases while in quarantine.
- MIQF health staff being stood down as a close contact of a case.
- The unexpected influx of managed repatriation flights from NSW and evacuation flights from Afghanistan.
- Ongoing negative media scrutiny.
- Ongoing need to provide national resourcing to supplement the Auckland MIQ health teams over the next 3 to 6 months given the current challenges in recruiting to MIQ health teams in Auckland.

Maximising productive use of the MIQF workforce

29. The current COVID-19 outbreak has meant we have had to reprioritise our work programme and accelerate work to maximise productive use of the existing MIQF health workforce and find alternative ways of providing support to Auckland.
30. Four key work streams have been developed to respond to the need to relieve pressures in the short term and rationalise the way in which staff are deployed. The following five key workstreams are discussed below:
 - Review of health assessment processes in MIFs
 - Remote health checks
 - Use of an acuity tool to identify high needs returnees earlier in their stay
 - Optimising the skill mix of the healthcare workforce
 - Supplementing Auckland with Registered Nurses and Healthcare Assistants from elsewhere in the country

Review of health assessment processes in MIFs (Appendix 1, item 39)

31. Health assessment processes in MIFs have not been subject to a full review since they were rapidly stood up at the beginning of the pandemic in March 2020. Since then, our understanding of how the virus is transmitted has grown and additional mitigations such as more frequent testing (Appendix 1, item 36) and more stringent IPC protocols have been progressively introduced.
32. Because each new mitigation measure is generally added on top of existing measures, this increases the workload for the MIQF health workforce. A review was undertaken to examine health assessment practices to bring them into alignment with current knowledge of the virus, and to ensure they are fit for purpose, do not carry excessive risk and are operationally feasible.
33. Current health assessments for returnees include the arrival health and wellbeing check, daily health and wellbeing checks and the exit health check. Daily health checks for MIF staff include a health and temperature check at the beginning of each shift.
34. Key recommendations from the review include the following:

- Identify and safely manage returnees while reducing the number of face-to-face encounters between returnees and staff – remove temperature checking for non-symptomatic returnees, greater use phone checks and self-reporting, reduce movement around the facility (Appendix 1, items 48 & 50).
 - Tailor the level of health/wellbeing surveillance to the level of health need.
 - Conduct exit health assessment within 12 hours of departure rather than 3. The current requirement for the exit health check to be completed within 3 hours of release is operationally challenging and does not significantly reduce risk. Given that some cohorts leave the facility between 1 – 6 am, large numbers of returnees need to be woken during the night - this creates a challenge for the health workforce and the risk of rushing the check in order to cover the entire cohort within the timeframe. Increasing the timeframe to 12 hours ensures the health checks can be conducted during daylight hours, with a full complement of staff and time for thoroughness.
 - Explore whether the daily staff health check could be self-reported using digital tool (Appendix 1, item 17).
35. A detailed implementation plan has been developed, with the majority of the recommendations expected to be in place by late October. An evaluation plan is also under development including indicators to measure success of the recommendation.

Remote health checks (Appendix 1, item 40)

36. We have worked with Northern Managed Facilities (NMF) to pilot the use of a remote health workforce to carry out routine health checks for low-risk returnees to free up the Registered Nurses (RNs) on site to deal with higher needs returnees. The results of the health checks are recorded in the border clinical management system (BCMS) and on-site staff are alerted to follow up on any returnees whose health status changes.
37. A supervised pilot involving eight RNs employed by Lakes, Waikato, and Capital Coast DHBs to conduct initial and daily health checks remotely (via phone) took place between 24 July and 25 August 2021. 356 daily health checks and 224 initial health checks were carried out remotely at the request of the Auckland nurse coordination team.
38. This new regime preserves service quality and safety but delivers workload efficiency and opportunities for delegation. Interviews with staff involved in the pilot and suggests the remote health checks have proven popular with staff and returnees and are effective at reducing:
- The workload of the on-site healthcare staff.
 - Returnee movements (Appendix 1, item 46).
 - Door opening events (Appendix 1, items 53 & 56).
39. Auckland has now taken over the recruitment and management of the remote workforce as a crucial tool to supplement their workforce during the current outbreak. This has now become BAU.
40. Once the current outbreak is under control, we will work with Auckland to expand the scheme to strengthen the national MIQF workforce. Future options to consider include

expanding the remote workforce to include non-MIF trained RNs and other healthcare workers.

Identifying high needs returnees early in their stay by means of an acuity tool

41. Some returnees have higher health needs that require more support from the MIQF health team including advanced assessments, clinical interventions, admission to hospital for investigations or assessment and referrals for on-going post-exit care and follow-up. Identifying these returnees early in their stay is critical in terms of both providing for their health needs and determining the most appropriate workforce to provide safe and effective healthcare.
42. NMF has developed the Complexity Acuity Resource Tool (CART) which has been in operation nationally since late August 2021. A CART score, recorded on a daily basis in the BCMS for each returnee, identify the requirement for health care which is represented as the amount of time required to support the returnee over the previous 24-hour period.
43. The total CART score for each facility is used locally to inform daily planning and resource allocation across the region as well as to report and analyse data and trends. This data also enables a view of health workload nationally.

Optimising skill mix of the healthcare workforce

44. There remains a significant opportunity to improve consistency of role definition and delegation across MIQF facilities and regions to free up RNs to focus on complex health needs and coordination activities. Opportunities for improvement include:
 - Increased delegation to health care assistants (HCAs) and patient care assistants (PCAs) at the discretion of the RN coordinating the shift for activities such as regular health assessments and swabbing (a technical skill which can be learned).
 - The need for an on-site RN overnight is variable across the regions and is being reviewed in order to establish the benefits versus the risk of using alternative methods to access 24-hour access to health care.
 - Wellbeing coordinators are proving to be extremely valuable in facilities where they are used. By addressing non-health-related wellbeing concerns, RNs are spared for other activities more suited to their skill set.

Incentivising the healthcare workforce

45. Given that management of COVID-19 is likely to be required for the foreseeable future, we are examining options to establish a career pathway to attract and retain high quality health professionals to this field. While there is a place for financial incentivisation, there is also an imperative to provide a positive and viable pathway for career progression in this emerging discipline of Novel Communicable Disease Management.
46. Options we are exploring include (Appendix 1, items 19 & 20):
 - Partnering with tertiary education institutes to design appropriately credentialled education to prepare and advance health workers in this emerging health specialty.

- Recruiting new graduate nurses into a specially designed IPC education programme to prepare them for rapid response to emerging communicable diseases.
- Sponsoring specialist IPC and public health training for nurses. This training would likely be offered at both the diploma and post-graduate level.
- Working with our partners to promote this work as a viable career in an emerging specialty for health professionals.

Launch of MBIE #treatmefairly initiative

47. On 9 July MBIE launched treatmefairly@miq.govt.nz, a new reporting process for MIQ workers to report instances of discrimination or of being treated differently because they work at a MIQF.
48. MIQ workers and families should not be treated differently when accessing services such as health care and education, applying for a job or renting a flat, but we know anecdotally this is not always the case.
49. All reports from MIQ workers are reviewed by the MIQ Resolutions team which sends an acknowledgement and notification of next steps. For more serious incidents, the team will investigate and work both with the complainant and the sector involved to find an appropriate resolution. The Ministry's DHB Sector Support team is handling complaints involving MIQ workers' access to healthcare.
50. The information collected through this initiative will be critical to building our knowledge of MIQ workers' experiences and, more importantly, addressing discrimination and educating the community.
51. To ensure our messaging supports this initiative, the Ministry carried out a review of all public facing communications to ensure they support destigmatisation of MIQ workers and reinforce the importance of the work they carry out to keep New Zealand safe.

Next steps for the health workforce

52. We will continue to refine our initiatives to maximise productive use of the existing workforce, but this source of increased productivity is all but exhausted.
53. The focus over the next two months will be working with DHB CEs to design a sustainable national model for health services for the future. This will inform the work MBIE are leading to look at building or buying purpose-built quarantine facilities and the most appropriate operating model to support this.

Equity

54. We applied an equity lens throughout our development and analysis of the map and identified a range of equity-focused mitigation measures that were either in-progress or gaps/opportunities, including:
 - Appendix 1, item 21 – Gap/opportunity: ensuring consistent contracts with paid sick leave to enable staff to stay home when sick.
 - Appendix 1, item 34 – Gap/opportunity: improving access to interpreters for returnees.

- Appendix 1, item 39 – In progress: implementing findings of review of health assessment processes, to improve model of care and reduce staff exposure risk. This will enable returnees with higher clinical needs to be appropriately prioritised by the on-site health team, by ensuring other returnees who require less support are managed remotely.
 - Appendix 1, item 60 – Gap/opportunity: arranging vaccination post-departure to ensure that returnees who have not been able to access vaccination while overseas are able to be vaccinated in a timely manner after they finished their required isolation/quarantine period.
55. We will remain equity-focussed as we continue to review and update the map, and as we consider additions to our ongoing programme of work,

Next steps

56. We are working with MBIE to scope the capacity and capability required to design and the implement the high impact gaps/opportunities identified in the map, including assessing and managing the change impact on the MIQ workforce, returnees, and employers.
57. As the map is a living document, we will review and update it on a quarterly basis. We will provide you with updates on the progress of the ongoing programme of work in our regular weekly reporting.

ENDS.

Appendix 1: High level summary of the in-MIQF transmission risk mitigation map

	WHAT	WHY
BORDER SETTINGS	1. Restrictions are placed on who is able to cross the border, based on the country they have been in for the previous 14 day.	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. By reducing the number of cases coming across the border, the overall risk of in-MIQF transmission is reduced.
	2. In progress: establishment of vaccination passports	Factor 3: Host determinants of susceptibility to infection (e.g. vaccination status or immunity from past infection).
PRE-DEPARTURE	3. Pre departure testing (PDT)	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. Identifying COVID-19 positive travellers before they depart and preventing their travel
IN-TRANSIT TO AOTEAROA NEW ZEALAND	4. Gap/opportunity: Strengthening returnee IPC measures during overseas transit	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. Decreasing the risk of transmission during transit may reduce the number of cases coming across the border.
	5. PPE-use on planes	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. To prevent transmission between passengers, thereby reducing the number of cases coming across the border.
	6. Gap/opportunity: Vaccination of air crew	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. Factor 3: Host determinants of susceptibility to infection (e.g. vaccination status or immunity from past infection). To prevent transmission to and from aircrew.
	7. Aircraft ventilation	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. To prevent airborne transmission on flights.

	WHAT	WHY
TRANSITING THROUGH THE AIRPORT	8. Border screening of returnees	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. To identify COVID-19 positive returnees before they enter a MIF, so that they can be managed in a more restrictive environment.
	9. Gap/opportunity: Strengthening returnee adherence to IPC measures in the airport	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
	10. Gap/opportunity: rapid testing at the border	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19. To identify COVID-19 positive returnees before they enter a MIF, so that they can be managed in a more restrictive environment.
BORDER AND MIQ WORKERS	11. Vaccination of Border and MIQ workers	Factor 3: Host determinants of susceptibility to infection (e.g. vaccination status or immunity from past infection). To prevent transmission to border and MIQ workers, and onward transmission into the community.
	12. Gap/opportunity: Booster shot programme for Border and MIQ workers	Factor 3: Host determinants of susceptibility to infection (e.g. vaccination status or immunity from past infection). To prevent transmission to border and MIQ workers, and onward transmission into the community.
	13. Gap/opportunity: ensure all Border and MIQ workers are offered other routine vaccinations e.g. MMR, seasonal influenza	Seasonal respiratory viruses will have an impact on staffing levels – under staffing is a risk in itself regarding maintaining high IPC standards and ensuring quality of care/service is maintained.
	14. Staff surveillance testing of Border and MIQ workers, and the use of the Border Worker Testing Register (BWTR) to track compliance	Factor 1: The likelihood that an individual in the border setting is infectious with COVID-19
	15. In progress: Increasing the frequency of surveillance testing for MIQ workers.	Factor 1: The likelihood that an individual in the border setting is infectious with COVID-19
	16. Dedicated health workforce policy in MIQ	Addressing the risk of onward transmission from MIQ healthcare workers to others in community healthcare settings.
	17. Staff symptom vigilance and self-isolation & testing upon symptom onset.	Factor 1: The likelihood that an individual in the border setting is infectious with COVID-19
	18. In progress: Systematising monitoring and management of symptomatic staff using existing applications (e.g. BHR).	Factor 1: The likelihood that an individual in the border setting is infectious with COVID-19. Supporting enhanced monitoring and follow-up of workers that are symptomatic.

		WHAT	WHY
BORDER AND MIQ WORKERS	19.	Gap/opportunity: Ongoing IPC education and training, professional development and refresher training	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
	20.	Gap/opportunity: Establish a programme for upskilling existing MIQ health workforce to become IPC champions	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Upskilling MIQ workforce with additional IPC training to increase IPC knowledge and support and oversight on the ground.
	21.	Gap/opportunity: Consistent contracts with paid sick leave to enable staff to stay home when sick, framing as 'public health' leave	Factor 1: The likelihood that an individual in the border setting is infectious with COVID-19
	22.	Gap/opportunity: Improving staff recruitment and retention	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Rapid turnover in staff increases risk of transmission because new staff (and unhappy staff) make mistakes. Improving staff recruitment and retention will retain and build upon institutional knowledge and IPC comprehension etc.
	23.	Staff adherence to IPC measures	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Preventing infection to and from border workers
	24.	Use of P2/N95 particulate respirators by all MIQ staff in indoor, returnee-facing zones.	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Providing a high level of respiratory protection to the wearer reduces the risk of airborne transmission in confined, poorly ventilated indoor airspaces.
	25.	Ensuring staff accommodation and work rooms are not in the same corridor as returnee zones	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Reducing staff members' risk of exposure to infectious aerosols by ensuring staff rooms and accommodation are separated from returnee corridors.
TRANSPORT TO AMIQF	26.	Returnee adherence to IPC measures during transport to a MIQF	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
	27.	Returnee adherence to IPC measures during rest stops	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).

	WHAT	WHY
	28. <u>In-progress:</u> Use of HEPA filters in buses to improve ventilation	<u>Factor 2:</u> The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To prevent airborne transmission on buses.
	29. <u>Gap/opportunity:</u> Improve oversight of cleaning processes and turnaround times between bus trips of returnees	<u>Factor 2:</u> The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
LENGTH OF STAY IN A MIQF AND OVERALL MANAGEMENT	30. Length of stay for returnees is based on best evidence of incubation periods, disease duration and recovery time.	To reduce the risk of an individual who is incubating the virus, or still infectious, entering the community.
	31. <u>In progress:</u> increasing length of stay for cases of COVID-19, in light of the Delta variant	<u>Factor 1:</u> The likelihood that an individual leaving the MIQF is infectious with COVID-19 Data suggests that in addition to being more infectious than previous variants, individuals infected with the Delta variant can remain infectious for a longer period than previous variants.
	32. IPC audit programme	<u>Factor 2:</u> The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
	33. <u>Gap/opportunity:</u> Reviewing capacity of the MIQ system	<u>Factor 1:</u> The likelihood that an individual in the MIQF is infectious with COVID-19. MIQ system capacity determines the likelihood of there being a case in the facility at any given time. Reducing the number of cases coming across the border reduces the overall risk of in-MIQF transmission.
	34. <u>Gap/opportunity:</u> Improving identification of returnees with language barriers, and improving access to interpreters	<u>Factor 2:</u> The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Access to interpreters improves returnees' comprehension (and therefore adherence) to key IPC requirements.
RETURNEE TESTING AND MONITORING	35. Routine returnee testing regime	<u>Factor 1:</u> The likelihood that an individual in the MIQF is infectious with COVID-19 <u>Factor 2:</u> The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To support early identification and transfer of cases in order to reduce risk within MIQFs, and to exclude infection prior to departure into the community.

		WHAT	WHY
RETURNEE TESTING AND MONITORING	36.	In progress: Additional routine day 6/7 test introduced	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19 Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To support early identification and transfer of cases in order to reduce risk within MIQFs.
	37.	In progress: Design of a saliva testing pilot for returnees to enable an enhanced mixed modality (nasopharyngeal and saliva) testing regime on days 0/1, 3, 6, 9, and 12.	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19 Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To support early identification and transfer of cases in order to reduce risk within MIQFs. Increased frequency of routine testing between days 3 – 12 will also support Reconnecting Aotearoa New Zealand work programme.
	38.	Daily returnee health checks	Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19 Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To support early identification and transfer of cases in order to reduce risk within MIQFs.
	39.	In progress: implementing findings of review of health assessment processes, to improve model of care and reduce staff exposure risk.	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Reducing face-to-face contact and door openings reduce risk of exposure for staff and other returnees.
	40.	In progress: Trial of remotely working RNs to support initial health assessments and daily health check processes	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Reducing face-to-face contact and door openings reduce risk of exposure for staff and other returnees.
	41.	Gap/opportunity: strengthen clinical input into the planning of medical exemptions.	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Unnecessary/unplanned transfers increase the risk of transmission to those involved in the transfer process.
MANA GING	42.	Returnee adherence to IPC measures	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).

		WHAT	WHY
			To provide both source control and protection for the wearer.
	43.	Gap/opportunity: Improve returnee adherence to IPC measures via targeted messaging and education at the beginning of returnees' stays.	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). Improving returnee understanding of what is required of them and why is critical to reducing the risk of human error/IPC procedural breaches.
	44.	In progress: Returnee behavioural insights study	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
MANAGING RETURNEE MOVEMENTS	45.	In progress: investigating opportunities to provide returnees with better fitting masks	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To improve both source control and respiratory protection for the wearer.
	46.	Room restrictions – limiting returnee movements throughout shared spaces within MIQFs	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To minimise interaction with possible exposure events.
	47.	In progress: Use of CCTV as a quality improvement tool for identifying and responding to bubble and IPC procedural breaches	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).
	48.	Management of returnee smoking	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To minimise possible exposure events when moving to/from, and while in, the smoking area.
	49.	In progress: Vaping trial	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To minimise possible exposure events by reducing returnees' need to leave their room to smoke.
	50.	Managed access to outdoor fresh air/exercise	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To minimise possible exposure events when moving to/from, and while in, the fresh air/exercise area.
	51.	Elimination off-site exercise	Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual). To minimise possible exposure events

	WHAT	WHY
VENTILATION	52. 96-hour Cohorting of returnees	<p>Factor 1: The likelihood that an individual in the MIQF is infectious with COVID-19</p> <p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>To reduce transmission between returnees at different stages of infection, and to reduce the risk of late-stay transmission.</p>
	53. Window / Door opening protocols	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>To decrease the risk of airborne spread – reduce unpredictability of airflow and limit potentially contaminated room air from entering corridors.</p>
	54. In progress: Achieving negative pressure in rooms relative to corridors	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>To decrease the risk of airborne spread – reduce unpredictability of airflow and limit potentially contaminated room air from entering corridors.</p>
	55. In progress: Use of air filtration units	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>To decrease viral load in the air.</p>
POST-DEPARTURE	56. In progress: Non-sequential door interactions and reducing concurrent/sequential door opening events	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>To prevent airborne transmission from room to room due to rapid succession of opening of doors in that are in close proximity.</p>
	57. Public health advice to returnees upon departure	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>Reducing the risk of onward transmission to the community from the returnee.</p>
	58. Post-departure wellness checks	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>Identifying symptomatic recently departed returnees, so that they can be followed up for testing.</p>

	WHAT	WHY
59.	Post-departure testing (e.g. day 5 after departure).	<p>Factor 2: The likelihood that others will be exposed to that person (or infectious aerosols or droplets from the infectious individual).</p> <p>Reducing the risk of onward transmission to the community from the returnee, if they are infected upon departing the facility.</p>
60.	<p>Gap/opportunity:</p> <p>Arranging vaccination post-departure</p>	<p>Factor 3: Host determinants of susceptibility to infection (e.g. vaccination status or immunity from past infection).</p> <p>This does not contribute to reducing the risk of in-MIQF transmission, but does support wider public health response to the pandemic.</p>

PROACTIVELY RELEASED