MINISTRY OF HEALTH
MANATŪ HAUORA

Memorandum

Positive COVID-19 test results post stays in managed isolation and quarantine facilities

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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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Action for Private Secretaries

N/A

Date dispatched to MO:

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Positive COVID-19 test results post stays in managed isolation and quarantine facilities

Purpose

1. This memo provides information on potential reasons for positive cases of COVID-19 being identified in the community, post leaving managed isolation and quarantine facilities (MIQF).

Background

2. Since 1 January 2021, six cases of COVID-19 have been identified in the community, following a stay in a managed isolation facility, with two having been confirmed as historical cases. Investigations of the six cases to date have identified the following:
   a. very few had respiratory symptoms
   b. no cases, when tested, had a high viral load as measured by Ct Value
   c. apart from one household group, there has been no onwards transmission
   d. the facility that has been at the centre of five of the six recent cases (the Pullman Hotel in Auckland) operated without incident for months prior to the recent PCR positive test results following MIQF stay
   e. extensive environmental swabbing in the facility (undertaken recently) failed to detect viral RNA anywhere.
3. In each case we have been able to rule out a false positive result by repeating the test, and re-swabbing.
4. Two cases were classified as historical cases following repeat PCR testing, serology, whole genome sequencing, and case history.
5. There is also the potential, in the case of individuals who completed managed isolation in the Pullman Hotel, that some of them caught COVID-19 within the facility.
6. The enhanced transmissibility of some viral variants necessitates ongoing optimisation of testing protocols and procedures, and risk management strategies within MIQF to further strengthen our surveillance and elimination strategies.
7. There are seven main hypotheses as to why we may see people returning positive PCR tests following negative PCR tests during their MIQF stay:
   a. transmission during a guest's stay within the MIQF
   b. incubation period longer than 14 days
   c. samples being taken earlier than day 12 (i.e. the sample being taken on day 11, or in some cases on day 10)

d. differences in swabbing technique, whereby a more rigorous swab at a community swabbing site provides more viral RNA than swabs from the MIQF facilities

e. differences in laboratory processes, such as the use of pooling, or differences in the performance of laboratory assays

f. specific individual factors where allergic rhinitis (hay fever) or upper respiratory tract infection (such as a cold) post-release may have caused inflammation within the nasal cavity enabling release of fragments of SARS-CoV-2 RNA from previous COVID-19 infection to be detected on testing

g. possibility of a false positive test through repeated testing associated with low viral load in historical cases.

8. It is not possible to definitively state why positive cases might be occurring, however considerations relating to these hypotheses are outlined below:

a. There is no strong evidence to suggest that incubation periods are longer than 14 days.

b. Taking the sample at the latest possible time (day 12 not day 10/11) offers the best opportunity to pick up any positive cases while still in isolation.

c. It is unlikely that MIQF swabbing technique is universally poorer than swabbing conducted in other testing sites however it is possible that there is some variation in technique. This may also be true of people carrying out swabbing in other sites.

d. The view of the microbiologists is that the differences in laboratory assays is deemed to be small and unlikely to be a factor. The assay differences generally equate to a difference of only a couple of cycles before the virus is detected. High Ct values are treated with caution and the patient retested and rerun on an alternative assay.

e. Pooling of samples may reduce the sensitivity of the sample resulting in the virus not being detected. Notwithstanding that the labs have validated the pooling of samples to ensure that if the virus is present that it will be detected. In addition, outside of surge situations pooling is not used extensively so pooling is unlikely to be a significant factor.

Several potential actions and risk mitigations have been identified

9. Despite not having definitive reasons why these cases might be seen post MIQF stay there are several potential actions that could be taken to further reduce the instances where post MIQF positive cases are identified. The incremental benefit of these suggestions is unknown.

10. In considering the below suggestions the Ministry has noted that it is not possible to either identify any of the potential factors as being an actual issue, or to quantify their impact. Similarly, for potential mitigations, it is not possible to determine the incremental benefit of implementing some or all of these possible actions.

11. Consideration needs to be given to the benefit that will be achieved and whether the marginal additional benefit reduces risk sufficiently to justify additional measures in an already complex and burdened system.

12. The Ministry will continue to assess these suggestions as part of the overall risk management within MIQF and across the response system.

Actions that potentially reduce the risk of a COVID-19 positive person leaving an MIQF

Strengthening transmission risk management in MIQF

13. The Ministry of Health (the Ministry) and the Ministry of Business Innovation and Employment (MBIE) provided advice to the Minister for COVID-19 Response in late January on potential options to reduce transmission risk in MIQFs. This included advice on allocating cohorts to specific facilities or floors to reduce overlaps of arrivals (currently only in place in Wellington), the processes for transporting individuals to facilities, assessing the suitability of the current facilities, and reducing the capacity to allow for greater redundancy in the system and a better staff to returnee ratio.

14. Air filtration units are currently being installed in facilities, or practices are being adjusted to provide ventilation, which may have a significant impact on the viral load in the air, thus reducing the risk to individuals.

15. Appropriate work to strengthen transmission risk management in MIQFs is underway. Of all of the suggestions, this one is seen as the one that will have the biggest impact as it is addressing potential source issues and further mitigating the risk on in-facility transmission.

Refresher training for those carrying out swabbing for COVID-19 to ensure all swabbing is done to a high standard

16. The Ministry has discussed with DHBs whether there is a possible risk of systemic issues with swabbing practices, and if so, what support the Ministry could provide to address them. The DHBs have advised that there are several measures in place such as on-site observation of swabbing and refresher training.

17. DHBs in the Auckland region for example, have a robust approach to promoting consistency in swabbing for COVID-19 for all providers across the region. This includes both the initial training in the nasopharyngeal swabbing technique (for example using common trainers) and the regular refresher training (often conducted through visits to providers). This reduces the possibility of MIQF swabbing technique being a potential factor in the case of the Pullman Hotel.

18. The Ministry continues to monitor competency of the swabbing workforce, however we are satisfied with the training processes in place, and no additional actions are recommended as this time.

Strict adherence to timing of day 12 PCR tests in MIQF

19. The purpose of testing (and daily symptom checks) within MIQF is to identify cases as soon as possible, move them to a dedicated facility or area with the MIQF, and therefore reduce the risk to staff and other guests.

20. Day 0/1 testing was introduced in January 2021 for all those arriving from higher risk destinations. At this stage day 3 testing remains, however, the frequency and timing of testing within MIQF will be reviewed once there is at least four weeks' (late February) data from the full introduction of the day 0/1 testing introduction.

21. To further reduce any risk of transmission, guests are required to stay in their rooms until the result of the day 0/1 test is available. They are also asked to remain in their rooms following their day 12 test to reduce the risk that they may be infected by another guest before they leave the MIQF. This policy is currently under review as the Medical Officers of Health are of the view that if there is no mixing of cohorts then this is unnecessary and places increased stress on returnees.

22. The day 12 test is used to provide confidence that an individual can leave a facility COVID-19 free. However, if day 12 tests are performed earlier, such as day 10, it is possible that an individual's late onset of infection could be missed.

23. Requiring that day 12 tests are not completed earlier than day 12 could be considered to reduce any risk from missing late onset of the virus through an MIQF stay, however, this makes the test turnaround quite tight. This measure would need to be balanced with the potential for guests stays to be extended if results are not back by day 14.

24. At this stage, ensuring that tests are occurring no earlier than day 11 appears to balance these considerations. The Ministry is reinforcing this expectation with the MIQFs.

Actions that potentially support case investigation of post-MIQF positive cases

25. The following actions will not reduce the risk of positive cases occurring post MIQF stay, however, they would potentially support easier case investigation if future cases are identified.

Wider implementation of serology testing to identify historical infection

26. The implementation of serology testing on arrival for all returnees, as is done for visiting sports teams, could enhance the interpretation of weak positive PCR results in returnees, both while in MIQF, and to aid interpretation of any future weak positive result once that person is in the community.

27. Widespread MIQF implementation of serology testing would require careful consideration; serology testing requires a blood test so would add significant workload. The MIQF healthcare workforce is significantly stretched and if serology testing for all guests was to be considered, other activity would have to stop or be reduced to balance workloads. Laboratory capacity to handle this volume is understood to be less of a constraint.

28. Implementing serology testing for returnees would require the purpose and implications to be well understood by all returnees, and informed consent to be given.

29. Implementation of serology testing for all MIQF guests is not recommended for implementation due to the workforce, cost and time implications of taking serology tests for all MIQF guests to support rare instances of post MIQF infection.

Increase the storage for day 12 samples to allow samples to be rerun if people develop symptoms at a later date

30. Currently, day 12 samples are only kept for a week. Increasing storage capacity for day 12 samples only, allowing them to be kept for three weeks, would support individual

case investigation and allow these samples to be rerun on a different assay or at a different lab if needed.

31. The feasibility of this would need to be explored with labs and may be best considered for a trial period.

32. This is not recommended for implementation at this time. It is considered a lower order improvement and other work, such as validating saliva testing, is of higher priority.

Next steps

33. It is likely that the current work underway to strengthen transmission risk management within MIQF will provide the most benefit in ensuring we do not see positive test results following a stay in a facility, given the unknown benefit of the other potential actions outlined in this memo. The Ministry continues to explore any other potential actions to support investigation of positive cases identified following MIQF stays.

34. Significant further investigation and discussion with DHBs, Public Health Units and Laboratory leads would be required to implement other options that are currently not recommended.

35. Officials can provide further information about this topic at your request.

Sue Gordon
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Date: