

Briefing

EK448 inflight transmission publication

Date due to MO:	N/A	Action required by:	N/A
Security level:	IN CONFIDENCE	Health Report number:	20201985
To:	Hon Chris Hipkins, Minister for Covid-19 Response		

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 Withdrawn | |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:

EK448 inflight transmission publication

Security level: IN CONFIDENCE **Date:** 12 November 2020

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

Purpose of report

The purpose of this report is to inform you of an upcoming academic publication from the Ministry of Health on recent in-flight transmission on Flight EK448. Very few studies of this type have been published in the literature at this point. This level of evidence will likely result in media queries and potentially academic discussion.

Summary

- "A case study of extended in-flight transmission of SARS-CoV-2 en route to Aotearoa New Zealand", attached as **Appendix 1**, was co-authored between the Ministry of Health, the Institute of Environmental Science and Research (ESR), and the University of Otago.
- The case study demonstrates the potential for COVID-19 to be spread between passengers on long-haul flights and concludes that at least four in-flight transmission events took place on Flight EK448 from Dubai to New Zealand in late September. These conclusions are supported by genome sequencing, an in-flight seating plan and dates of disease onset.
- The insights from this case study should not be treated as conclusive: these findings are yet to be peer-reviewed, are one part of the puzzle, and for now should be regarded as emerging evidence of a likely example of recent in-flight transmission.
- The Ministry and ESR are submitting the publication to the pre-print journal medRxiv on 11 November 2020. We expect the pre-print to become available in the week beginning 16 November 2020.
- The Director General will speak to the publication at a stand up, and the Ministry will issue a media release. The communications plan as attached as **Appendix 2**.
- We intend to submit the manuscript to publication in a peer reviewed scientific journal but have published a pre-print due to the high interest we are expecting from media and the academic community. This pre-print will add to the emerging evidence that can help develop our understanding of how this disease behaves. Air New Zealand have been made aware of this upcoming publication. The Ministry confirms there is no immediate implications for domestic short-haul flights.

Note that the attached paper has been submitted for prepublication.



Sue Gordon
Deputy Chief Executive

COVID-19 Health System Response

Date:

ENDS.

The document referred to as Appendix 1 is publicly available here:
[https://research.esr.cri.nz/articles/preprint/
A_case_study_of_extended_in-flight_transmission_of_SARS-
CoV-2_en_route_to_Aotearoa_New_Zealand/13257914](https://research.esr.cri.nz/articles/preprint/A_case_study_of_extended_in-flight_transmission_of_SARS-CoV-2_en_route_to_Aotearoa_New_Zealand/13257914)

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Ministry of Health's Communication approach

- Today we are publishing a case study co-authored between the Ministry of Health and ESR, which demonstrates the potential for COVID-19 to be spread between passengers on long-haul flights
- There has been very little published literature on in-flight transmission to date, with previous [international studies](#) presenting conflicting findings of COVID-19 transmission risks associated with long-haul inflight transmission. At present, published literature acknowledges there is likely a risk, but the evidence to date has been slim.
- This case study details the potential for transmission between passengers, using data from a recent flight between Dubai and Auckland where seven passengers from five different countries tested positive for COVID-19 once they entered MIQ in Auckland.
- The case study concludes that at least four in-flight transmission events likely took place.
- These conclusions are supported by genome sequencing, an in-flight seating plan and dates of disease onset.
- The case study is due to be peer-reviewed and has been submitted to a journal for pre-print publication.
- The Ministry of Health endorses the sharing of these indicative findings, as an example of emerging evidence that can help develop our understanding of how this disease behaves.
- Publications and findings like these can assist scientists in New Zealand and around the world as we seek to better understand COVID-19, so we can fight the virus.
- The insights from this case study should not be treated as conclusive: these findings are yet to be peer-reviewed, are one part of the puzzle, and for now should be regarded as emerging evidence of a likely example of recent in-flight transmission.
- The Ministry of Health confirms there are no immediate implications for domestic short-haul flights
- As always, the best way to protect yourself and others against COVID-19 is to continue with basic public hygiene measures: wash your hands with soap and dry, use the NZ COVID Tracer App to record your movements, stay home if you're unwell and ring Healthline if you think you need a test.

Further details on the case study

- The research described in the case study was funded by MOH, MBIE COVID-19 Innovation Acceleration Fund and ESR's Strategic Innovation Fund. The case study describes a comprehensive investigation to determine the potential source of infection for seven positive cases after a long-haul flight which originated in Dubai and landed in Auckland on 29 September 2020 approximately 18 hours later.
- 86 passengers from this flight entered into the required 14-day MIQ period in NZ, and seven of these passengers later tested positive for COVID-19. These passengers were seated within four rows of each other during the flight
- These seven passengers who tested positive for COVID-19 (SARS-CoV-2) after arriving in New Zealand had each begun their journeys from five different countries before a short layover in Dubai, and were in two separate managed isolation facilities. It is highly likely in-flight transmission occurred.

- All seven SARS-CoV-2 genomes were genetically identical, with the exception of a single mutation in one case, and all genomes had five signature mutations seen in only six other genomes from the 155,000 genomes sequenced globally. Four of these six related international genome sequences were from Switzerland, the country of origin of the suspected index case.
- Main research methods to reach this conclusion included genome sequencing, clinical data, biological samples.

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