

The effectiveness of aircraft contact detection with COVID-19 and the risk of transmission in the aircraft.

(10)(2a)

Preface

In the context of contact investigation at COVID-19, aircraft contact tracing¹ took place in the Netherlands from February 2020.

Suspected transmission of COVID-19 in the aircraft has been described several times. However, little is known from the literature about the benefits of aircraft contact research and the risk of transmission in an aircraft.

There are 4 studies of aircraft contact tracing with the purpose to look if transmission is possible in an aircraft. The conclusion that can be drawn in the 4 different studies of Eldin², Chen³, Schwartz⁴ and Vogt⁵ is that the transmission probability of Covid-19 in the aircraft is small. In the studies of Chen³, Vogt⁴ and Schwartz⁴, the aircraft contacts were precisely followed. The question of these studies was whether transmission was possible during flight with a known contagious passenger on board, whether via aerosols or via droplet infection. The fellow passengers were identified, followed and, if necessary, tested if they developed complaints. In the 4 studies hardly any secondary infections occurred, with a contagious fellow passenger as the source. To investigate this in the Netherlands, we analyzed aircraft contact tracing data and investigated how many close aircraft contacts in the Netherlands have tested positive for SARS-CoV-2 within 2 weeks after the flight, the maximum incubation period.

Source and contact investigation

282 passengers were monitored. These persons have been followed after they had travelled by plane and have been sitting in two rows before, after or beside an person with COVID-19. If they developed complaints of COVID-19 they were asked to get tested for SARS-CoV-2.

From the 282 people, 5 Aircraft contacts were registered as COVID-19 case. Eleven contacts indicated that they had complaints during the monitoring period. When inquiring about the test results of these 11, 6 were tested negative, of 2 it is impossible to determine whether they had been tested, and 3 were positive. So in total there were 8 positive contacts.

The local Public Health Departments have contacted by telephone the 8 positively tested persons to investigate the likelihood that they received COVID-19 through transmission in the aircraft. Of 3 contacts the incubation period was too short: 2 contacts had the first day of illness on the same day as the day of the flight, and in 1 was the first day of illness before the flight.

One person probably was not infected during his flight. He had a travel partner as the most likely source. He was in close contact with the travel partner several days before the flight, as well as during and after the flight. This travel partner developed complaints 1 day after the flight and tested positive for COVID-19.

4 People may have been infected during the flight, 3 symptomatic cases and 1 asymptomatic case. The time between the first day of illness and the flight was 2, 6 and 7 days. The asymptomatic contact was tested positive 7 days after the flight and developed no complaints in the 72 hours after the test. This is a percentage of 1.4%. The 4 positive cases could not identify other possible sources of infection. Out of all contacts (n=282) who have been monitored because of being seated close to an index patient during a flight, 4 contacts may have been infected during the flight.

Conclusion:

Of the 282 fully monitored aircraft contacts residing in the Netherlands, 4 contacts tested positive that may have been infected in the aircraft. These people could also have been infected outside the plane, on the airport for example. As aircraft contact tracing requires a lot of resources time, questions rise about the benefits of this exercise for public health and the cost/benefit rate in general.

We have been informed that other countries have been investigating the possibility of transmission during a flight as well. We received information from our (10)(2a) recently who conclude that the probability of transmission on an aircraft is low.

More research and case studies are needed to further substantiate the policy and to develop a more proportional policy on contact tracing with regard to flights.

Sources

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