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<https://www.traveller.com.au/plane-travel-risks-can-you-catch-covid19-during-a-flight-h1sngc>

## **Plane Travel Risks - Can you catch COVID-19 during a flight?**

Sitting with strangers for several hours in a sealed aircraft cabin seems like an ideal breeding ground for the coronavirus.

As the world's airline industry begins a long, slow recovery, millions of passengers are now flying every day. Does that pose a risk of catching COVID-19? While sitting with strangers possibly for several hours in a sealed aircraft cabin might seem like an ideal breeding ground for the coronavirus, airlines are telling us the risk of contracting the disease while flying is low to non-existent, but that's not what happened on a flight that arrived in New Zealand.

On September 29 this year, flight EK448 arrived in Auckland from Dubai. All 86 passengers were quarantined under New Zealand's managed isolation and quarantine (MIQ) regulations. During their isolation, seven of those passengers tested positive for COVID-19. Genome sequencing established that two passengers originating from Switzerland were the index cases, the source of the infection, and that during the flight the infection had spread to at least four other passengers. Both index cases tested negative for COVID-19 in the 72-hour period before boarding their flight from Zurich to Dubai, where they transferred to the Auckland flight. Neither of these passengers were showing any symptoms of COVID-19 until several days after arrival in New Zealand.

That's alarming because the airline industry has been reassuring passengers that the filtration systems used on aircraft eliminate the risk of COVID-19. Does this add a new complication to air travel, and should we be worried?

**To understand what happened on the Dubai-Auckland flight, a study funded by the New Zealand government and conducted by academics and health professionals in New Zealand, Australia, the UK and USA put the Dubai-Auckland flight under the microscope.**

The flight was only about one-quarter full, and apart from those passengers flying together they were widely spaced. The two index cases were seated in opposite aisle seats in the central row of the twin-aisle cabin. The other passengers who were infected during the flight were seated two rows in front and either one or two rows behind. A family of four was seated in adjacent seats two rows in front of the index case passengers yet only two of those family members tested positive.

The passenger seated furthest from the index cases and who subsequently tested positive was across the aisle and three seats ahead. This passenger reported not wearing a mask, nor was the other infected passenger seated two seats behind. That's despite a strict requirement for passengers to wear masks on all services aboard Emirates, the airline operating the flight. However others who were seated closer to the index cases tested negative for COVID-19 for the duration of their stay in MIQ. None of those seated in a window seat within a two-row radius of those index-case passengers returned a positive test.

Longer flights, which are more likely to involve greater passenger movement within the cabin, as well as toilet visits, meals and longer exposure to other travellers who might be infectious for COVID-19, might present a greater health risk but there's no evidence to support that. Many millions have travelled on much shorter flights during the pandemic and it's possible that other instances of in-flight transmission have occurred, but this could only be established if all

passengers were tested at regular intervals post-flight and genome sequencing applied to establish the origin of those infected, and that hasn't been happening.

In the US, for example, the Centers for Disease Control and Prevention investigated 1600 cases of travellers who flew while infectious, identifying nearly 11,000 people who might have been exposed to the virus on flights. Although some of those travellers later contracted the virus, the lack of contact tracing made it impossible to determine whether transmission happened during a flight.

**Another known instance of inflight COVID-19 transmission occurred aboard a flight that arrived in Dublin after a 7½ hour flight from the Middle East.** Thirteen passengers from that flight showed symptoms and tested positive for COVID-19 after their arrival in Ireland. Since there was no mandatory quarantine requirement, those passengers had spread the infection to 46 other people throughout Ireland. Whole genome sequencing and analysis strongly suggested a single point source of infection.

Of particular concern, those who were infected were widely distributed throughout the aircraft's economy-class section. The passengers spanned a total of 21 rows and two separate cabins. That implies the practice of social distancing inflight might not be an effective defence.

### **Are aircraft filtration systems up to the job?**

Cabin air is scrubbed when it passes through the high-efficiency particulate air filters (HEPA) used on aircraft with pressurised cabins. HEPA filters are a densely woven mat of fibres designed to trap particles as small as a virus. In a typical cabin the air is completely refreshed at two to five minute intervals, depending on the size of the aircraft. That's what airlines have been relying on to reassure passengers that an aircraft cabin is safe, but that bears closer investigation.

Fresh air enters the cabin through overhead vents, circulates and is sucked out through another vent, usually located where the wall meets the cabin floor. A passenger who coughs or sneezes without capturing the air expelled can release an aerosol cloud of droplets that mixes with the cabin air. Talking and breathing do the same, to a lesser extent. Before they are drawn into the floor vent those tiny droplets might be inhaled by other passengers and if the passenger behind the sneeze or cough is infected with COVID-19, or any other virus spread by airborne transmission, those passengers are at risk.

The Dubai-Auckland flight was long, over 18 hours, with a refuelling stop at Kuala Lumpur. Passengers were not allowed to leave the aircraft during the two-hour stopover. Since the cabin air during stopovers might come from some other source that does not involve the aircraft's HEPA filtration system, flights with intermediate stops may present an opportunity for the coronavirus to spread more effectively than on a non-stop flight.

Even if an aircraft's filtrations system is not bulletproof, experts agree that the air you breathe in an aircraft cabin is likely to be a lot safer than what you will inhale in a pub, a theatre, on public transport or at an indoor party.

### **Should we be worried?**

**Long flights might put passengers at greater risk of developing COVID-19, and that means Australians looking to travel overseas are in the firing line. But given the number of cases known to have resulted from inflight transmission, the risk is small. Wearing a mask, choosing a window seat away from toilets, which are high traffic areas where people are likely to queue, taking your own food on board and eating it outside of cabin-service mealtimes might be useful strategies for those who are worried.** But give up flying for fear of catching COVID-19 inflight? No thanks.