

Is flying safe during COVID-19? Here's the scant bit of scientific evidence Transport Canada is relying on

Kenyon Wallace

Canada's medical officers of health have repeatedly stressed the importance of physical distancing to reduce the possibility of [COVID-19](#) transmission.

But step on an airplane in Canada and suddenly social-distancing rules, not to mention limits on how many people you should be around at a given time, no longer apply.

So what's the basis for Transport Canada's decision-making? The Star has found that Canada's air travel regulator is relying on scant peer-reviewed scientific evidence regarding the spread of COVID-19 on airplanes in its decision not to mandate social distancing on commercial flights.

When asked for the scientific evidence guiding its recommendations to airlines, Transport Canada initially provided none, saying only that safety measures are "based on the best available science and evidence."

When pressed by the Star for that evidence, the agency provided just one peer-reviewed study looking at an outbreak of COVID-19 that affected 16 passengers on a flight from Singapore to Hangzhou, China, in late January. The [study concluded](#) that one passenger may have become infected on the flight.

Transport Canada also provided a link to a [letter to the editor](#) published in the Canadian Medical Association Journal describing a flight from China to Toronto on Jan. 22 in which no cases of in-flight COVID-19 transmission were found despite the presence of a passenger who was symptomatic on the airplane and later tested positive for the virus.

The agency cited just one other report in a [document](#) published by the International Air Transport Association, a trade organization representing some 290 airlines around the world, describing a March flight from the United States to Taiwan with 12 symptomatic passengers on board. The report said no secondary cases in the 328 other passengers and crew were detected.

Transport Canada's guidelines to the Canadian aviation industry, created with input from the Public Health Agency of Canada, recommend but do not require airline operators to "optimize social distancing."

"However, in cases where distancing is not possible or practical, other protective measures against COVID-19 are in place as part of the multi-layered approach to support in reducing the risk of COVID-19," said Transport Canada spokesperson Sau Sau Liu in an email. The measures include mandatory masks, hand-washing, limiting food services and increased use of air filtration systems on aircraft, Liu said.

“There are very few things ventilated as well as commercial airplanes,” said Jim Haas, director of product marketing at Boeing. “That is by design.”

He says airflow in commercial aircraft is designed to travel vertically from above passengers’ seats down to where walls meet the floor, thereby keeping air in one area from travelling throughout the cabin. The entire volume of cabin air is exchanged every two to three minutes with fresh air — a 50-50 mix of outside air sucked in through the engines and cabin air that has gone through high-efficiency particulate air (HEPA) filters.

“They’re the same type of stuff used in hospitals, isolation wards, operating rooms,” Haas said. “When the air comes in over your head, it’s clean.”

Haas also pointed to other design features in aircraft that he says make virus transmission in aircraft difficult.

“When you think about air travel, people are sitting in seats, they’re all facing forward, they’re high-back seats, the air flows, there’s not a lot of singing and dancing,” he said, adding that for these reasons Boeing does not see a need to block the middle seat.

Canada’s largest airlines, Air Canada and WestJet, both began selling adjacent or middle seats on aircraft July 1 after blocking them shortly after the pandemic began.

The airlines say they are taking layered approaches to passenger safety aimed at limiting the chances of any virus transmission. These include “touchless” check-ins, temperature checks and questionnaires before boarding, enhanced cleaning of high-touch areas, electrostatic spraying or fogging of aircraft interiors, mandatory mask wearing for passengers and crew, and changes to on-board service.

Canada’s chief public health officer, Dr. Theresa Tam, has said temperature-taking is “not effective at all.”

“Even if you are infected, we know that the likelihood of picking up someone who is symptomatic is sort of, relatively, inefficient,” she said on May 4.

Air Canada and WestJet say they are relying on data and evidence from a variety of sources, including researchers, medical experts and the International Air Transport Association.

Air Canada spokesperson Peter Fitzpatrick acknowledged there are few comprehensive COVID-19 studies, but said the aviation community is drawing on a range of preliminary reports on the virus and earlier studies of other contagious diseases.

“While studies vary in their focus and methodology, there is general agreement that the risk of contracting COVID-19 and other communicable diseases on board an aircraft is exceedingly small,” Fitzpatrick said.

He added that the airline has undertaken several medical collaborations to advance biosafety across its business, including with Cleveland Clinic Canada in Toronto; Ottawa-based Spartan Bioscience to explore rapid COVID-19 testing in an aviation environment; and Toronto-based BlueDot, a company that monitors infectious diseases globally.

WestJet spokesperson Morgan Bell told the Star in an email the decisions the airline makes are “data-driven or evidence-based” and pointed to several publications, including the same Canadian Medical Association Journal report cited by Transport Canada, and a statement by the European Centre for Disease Prevention and Control that said the risk of getting infected with COVID-19 on an aircraft “cannot be excluded but is currently considered to be low for an individual traveller.”

She also pointed to a [study](#) published after the 2002 SARS outbreak looking at the transmission of infectious diseases during commercial air travel that concluded the environmental system used on planes “seems to restrict the spread of airborne pathogens, and the perceived risk is greater than the actual risk.” That same study also concluded, however, that “commercial airlines are a suitable environment for the spread of pathogens carried by passengers or crew.”

Bell said the airline is a “highly safety sensitive organization in one of the most carefully regulated industries in the world.”

Since July 21, there have been 14 domestic flights and 23 international flights arriving or leaving Canada carrying passengers with confirmed cases of COVID-19, according to the federal government.

New Democrat MP Don Davies (Vancouver Kingsway) has been a vocal critic of the Justin Trudeau Liberals for not ordering airlines to follow physical distancing rules. He is calling for a federal relief package to ensure carriers are not filling middle seats for economic reasons.

“Is it possible to practise physical distancing on aircraft? ... The answer is yes. So the airlines are violating direct concrete, consistent advice being given by public health officials,” Davies told the Star. “They’re effectively subordinating public safety to the economics.”

Air Canada and WestJet dispute such assertions, saying passenger safety is of the utmost importance.

“Safety and profitability are not opposed but instead mutually reinforcing, as safety is always the customer’s first consideration in choosing an airline and a strong safety record is essential to long-term success,” said Air Canada’s Fitzpatrick.

Bell said WestJet has “safely flown more than 415,000 guests on 13,700 flights with no reported cases of transmissions on board our aircraft since March 24, when the pandemic began to ramp up in Canada,” noting that because of a downturn in demand, the company is still facilitating spacing on all aircraft when capacity allows.

While the limited amount of peer-reviewed research on the spread of COVID-19 in aircraft seems to suggest a low risk of transmission, epidemiologists and infectious disease experts say the dearth of such research is part of the problem.

Craig Jenne, an infectious disease specialist at the University of Calgary, points out that most of the studies and reports being relied upon by airlines were done early on in the pandemic.

“What’s happened since?” he said, noting that studies published today would likely have been conducted in March or April “where if we looked in Canada or even the U.S., the prevalence of the virus in the community was still extremely low ... The

situation changes based on the amount of virus in the community.”

Dr. Mark Gendreau, an expert on infectious disease transmission on commercial aircraft and an assistant professor of emergency medicine at the Tufts School of Medicine in Boston, pointed to a recent German study he peer-reviewed. The study suggests that while airflow patterns in the cabin make the probability of in-flight transmission low, getting on and off the plane and bringing luggage on board could increase the risk of transmission.

Gendreau says he believes the risk of catching COVID-19 on a commercial flight is “probably moderate.”

“The reason I say that is because I do think that when people are travelling in this pandemic, that their guard is up, they’re practising good social distancing as much as they possibly can,” he said. “Most sane people are wearing a facemask. Most air carriers mandate it.”

Colin Furness, an infection control epidemiologist and assistant professor at U of T’s faculty of information, said not only is there a lack of research into the spread of COVID-19 on flights, there are difficulties with measuring how many people, if any, picked the virus up on an airplane.

“It’s really hard to pin down where people get sick,” said Furness. “So it’s awfully difficult from a contact-tracing standpoint to say it must have been the airplane.

“Same thing with public transit. You can conclude that public transit must be perfectly safe because we don’t have case reports of that. There’s an absence of evidence. I think that’s the situation we have with airplanes.”

Furness’s take on the safety of flying in the age of COVID-19? “We can’t say that it’s unsafe but I think it’s really unsafe.

Asked if he would fly next to someone in the current age: “You couldn’t pay me enough to do that.”

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