

Nieuwe studie: ventilatiesystemen verspreiden geen virussen

ATLANTA - Volgens een nieuwe studie van het Amerikaanse ministerie van Defensie is de kans dat het coronavirus in vliegtuigen wordt verspreid klein. Het onderzoek werd afgelopen donderdag gepubliceerd. De uitkomsten ondersteunen eerder onderzoek, dat aantoonde dat de ventilatiesystemen in vliegtuigen de lucht efficiënt filteren en deeltjes verwijderen die virussen kunnen overbrengen.

Het onderzoek werd niet getoetst door een collegiale toetsing, meldt [CNN](#). Er werd ook geen rekening gehouden met andere manieren waarop mensen het virus in vliegtuigen kunnen oplopen, bijvoorbeeld via hoesten, besmetting via oppervlakten of gesloten ruimtes zoals toiletten.

Sensoren

Om de effecten van een volledig beladen passagiersvlucht na te bootsen, werden voor het onderzoek de Boeing 777-200 en 767-300 vliegtuigen vol sensoren getest. Een pop met een chirurgisch masker simuleerde een hoestende passagier, die was geïnfecteerd met een respiratoir virus.

De onderzoekers gebruikten fluorescerende aerosol-tracers om te zien waar de deeltjes, die werden uitgestoten door de hoestende 'passagier', zich verspreiden. Deze deeltjes werden snel in het ventilatiesysteem gezogen, zo werd geconcludeerd.

Oppervlakken

Het onderzoeksteam schreef als kanttekening: "Tijdens het testen wordt ervan uitgegaan dat gezichtsmaskers continu worden gedragen en dat het mogelijke aantal geïnfecteerd personen laag is. Verontreiniging van oppervlakken via niet-aerosolroutes (grote druppeltjes of gezichtsbesmetting) is waarschijnlijker in toiletten en andere gemeenschappelijke ruimtes en wordt in dit onderzoek niet getest."

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Modern aircraft ventilation systems aren't spreading viruses, DoD study suggests

Maggie Fox, CNN • Updated 16th October 2020



(CNN) — A new study released Thursday suggests that people don't need to worry about circulating air spreading coronavirus on airplanes.

The US Department of Defense study supports earlier research showing the ventilation systems on aircraft filter the air efficiently and take out particles that could transmit viruses.

The study, which was released without peer review, did not take into account other ways that people could catch the virus on aircraft -- including from others coughing or breathing directly on them, from surfaces or from confined spaces such as restrooms.

The US Transportation Command, The Defense Advanced Research Project Agency (DARPA) and the Air Mobility Command used Boeing 777-200 and 767-300 aircraft loaded up with sensors meant to duplicate the effect of a fully loaded passenger flight.

A dummy wearing a surgical mask simulated a coughing passenger infected with a respiratory virus.

The team used fluorescent aerosol tracers to see where particles emitted from the coughing "passenger" went. They were sucked quickly into the ventilation system, the team concluded, and were unlikely to contaminate nearby surfaces or blow into the breathing zones of people seated nearby.

"Testing assumes that mask wearing is continuous, and that the number of infected personnel is low," the research team wrote. "Contamination of surfaces via non-aerosol routes (large droplets or fecal contamination) is more likely in lavatories and other common areas and is not tested here," they added.

"These alternative routes of exposure are more challenging to predict because of uncertainty in human behavior."

Other reports have found people became infected with coronavirus on flights, perhaps when they took off masks to use restrooms.

"Testing did not include substantial movement throughout the plane or in the airport, lounge or jetway, where air change rates and human interactions will vary," the researchers added.

"Similarly, the mannequin remained facing forward, uncertainty in human behavior with conversations and behavior may change the risk and directionality in the closest seats to an index patient, especially for large droplets."

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A lot left to learn

Much is still unknown about Covid-19 transmission aboard planes. [Two previous studies](#) documented real-life cases of suspected transmission aboard flights.

Both studies involved cases connected to long flights early in the pandemic, before airlines began requiring face masks.

[Another study documenting a case](#) of suspected coronavirus transmission aboard a flight involved a woman who wore an N95 mask throughout her flight except when she used the lavatory.

A passenger seated three rows away who developed coronavirus but who never had symptoms also used the lavatory.

The [US Centers for Disease Control and Prevention notes](#) that "most viruses and other germs do not spread easily on flights because of how air circulates and is filtered on airplanes," adding that the lack of social distancing on crowded flights that may require passengers to sit within six feet of others for long periods "may increase your risk of getting Covid-19."

The odds of catching Covid-19 on an airplane are slimmer than you think, scientists say

Tamara Hardingham-Gill, CNN • Updated 20th August 2020

(CNN) — Sitting squeezed between a number of strangers on board an aircraft might feel like a risky position during these uncertain times.

But according to some experts who point to the very few documented cases of in-flight transmission, the chances of catching Covid-19 while on board a flight are actually relatively slim. Fear of flying during the pandemic has drastically reduced global air traffic, which has also been restricted due to border closures. If new scientific claims are borne out, the perceived heightened risk of boarding an airplane could be unfounded.

In one case, about 328 passengers and crew members were tested for coronavirus after it was learned that a [March 31 flight from the US to Taiwan](#) had been carrying 12 passengers who were symptomatic at the time. However, all the other passengers tested negative, as did the crew members.

And while there have certainly been cases of infected passengers passing the virus on to an airplane's crew or fellow travelers in recent months, the transmission rates are low.

A study recently published in medical journal [JAMA Network Open](#) found evidence of the possible spread of coronavirus during a four-hour flight from Tel Aviv to Frankfurt in March.

Two passengers developed infections after flying with a group of tourists who had come into contact with an infected hotel manager and also became infected, according to researchers from the Institute for Medical Virology at Goethe University in Frankfurt.

The two who may have been infected were seated at the back of the aircraft, directly across the aisle from seven passengers who had unknowingly picked up the virus.

An earlier flight from the [UK to Vietnam on March 2](#), in which one passenger seemingly spread the virus to around 14 other passengers, as well as a crew member, is so far believed to be the only known on-board transmission to multiple people.

One explanation for the apparently low risk level is that [the air in modern aircraft cabins is replaced](#) with new fresh air every two to three minutes, and most planes are fitted with air filters designed to trap 99.99% of particles.

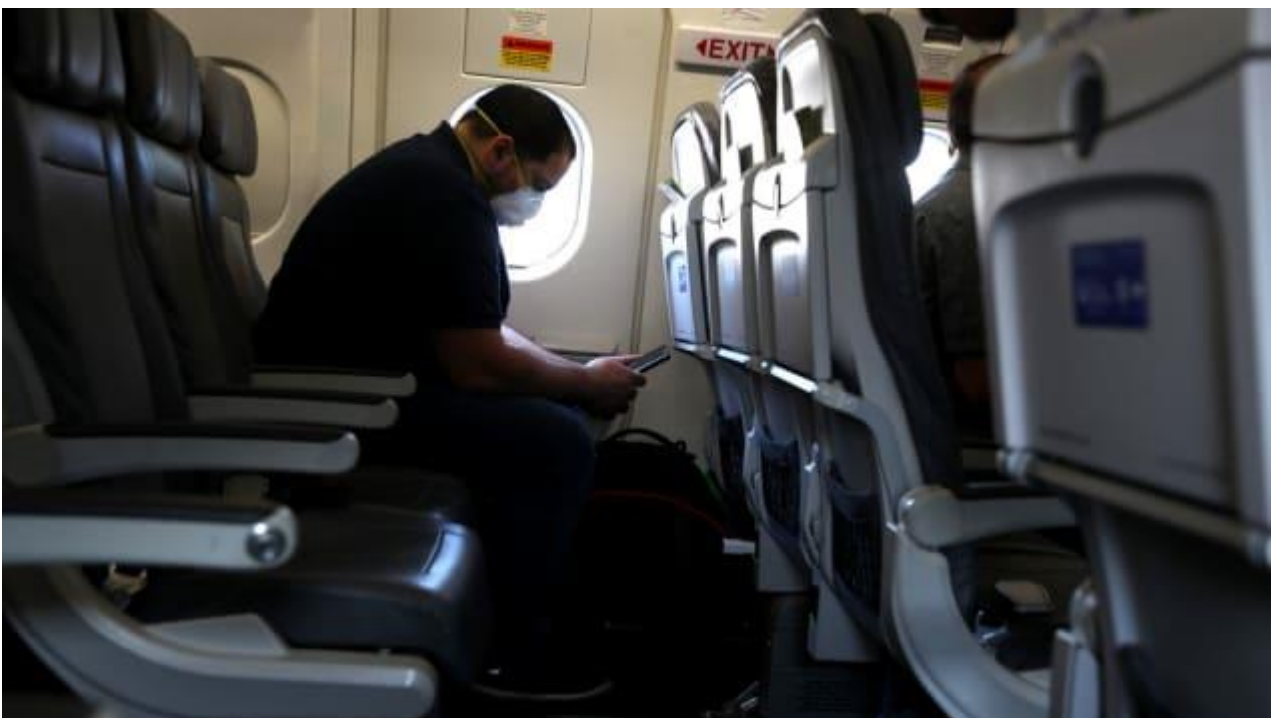
Meanwhile, various new protocols have been implemented, such as face-coverings for both passengers and crew, which is mandatory on most airlines, temperature screenings, as well as more intensive cabin cleaning and limited movement in the cabin during flight.

Arnold Barnett, a professor of statistics at the Massachusetts Institute of Technology's Sloan School of Management, tried to quantify the odds of becoming infected with the virus while on board a short flight in a recent study that looked at the benefits of the empty middle seat policy.

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Low transmission risk



The odds of a passenger catching Covid-19 on a flight and dying from the virus are less than one in half a million. Justin Sullivan/Getty Images

According to his findings, based on short haul flights in the US on aircraft configured with three seats on either side of the aisle, such as the Airbus 320 and the Boeing 737 -- and assuming everyone is wearing a mask -- the risk of catching the virus on a full flight is just 1 in 4,300. Those odds fall to 1 in 7,700 if the middle seat is vacant.

"Most things are more dangerous now than they were before Covid, and aviation is no exception to that," he tells CNN Travel.

"But three things have to go wrong for you to get infected (on a flight). There has to be a Covid-19 patient on board and they have to be contagious," he says. "If there is such a person on your flight, assuming they are wearing a mask, it has to fail to prevent the transmission.

"They also have to be close enough that there's a danger you could suffer from the transmission." Barnett says he took all of these probabilities into account before determining an overall transmission risk.

These figures are specifically for two-hour flights within the United States, the country currently with [the highest number of Covid-19 cases](#) in the world.

The odds will be lower for flights taken in parts of the globe with few cases and higher for long haul flights as "the ratio of proximity is a factor along with the existence of proximity," he says. Barnett goes on to state that there isn't much of a difference in terms of risk between passengers sitting in an aisle seat on a full flight and those in the window seat.

However, the chances of becoming infected are ever so slightly higher for those in aisle seats, because they simply have more people around them.

"You're endangered by the people sitting next to you in the same row," he says. "And to a lesser extent, the people in the row behind and the row ahead.

"Statistically, the window seat is a little safer than the middle seat or the aisle seat on a plane that's full. But it's not a big difference."

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Fewer fliers

Barnett's research is based on the assumption that flights are operating at full volume, but it's worth noting that many are still running at reduced capacity.

Although the [US Transportation Security Administration](#) reported that traffic through airport security checkpoints had passed 800,000 for the first time since the pandemic earlier in August, this was still a 31% decrease on the numbers for the same day in 2019.

The professor is a strong supporter of the [middle seats empty policy](#), which has been adopted by the likes of Delta Air Lines, Southwest Airlines and JetBlue Airways.

However, the International Air Transport Association (IATA,) describes this approach as ["economically unfeasible"](#) for airlines.

"Screening, face coverings and masks are among the many layers of measures that we are recommending," Alexandre de Juniac, IATA's Director General and CEO said in an official statement released last month. "Leaving the middle seat empty, however, is not."

De Juniac goes on to suggest that an effective Covid-19 test that can be administered at scale, and immunity passports could also be included as temporary biosecurity measures if they become available.

"We must arrive at a solution that gives passengers the confidence to fly and keeps the cost of flying affordable," he adds. "One without the other will have no lasting benefit."

Although different airlines have slightly different measures in place, the overall guidance for passengers is to wear a mask, wash their hands regularly and check in online to minimize the risks of in flight transmission.

Enhanced protection



Some experts have suggested that passengers should wear a shield as well as a mask for greater protection. Raul Sifuentes/Getty Images

However, Barnett recommends that travelers take things one step further by wearing a shield. "There are various things that can be done to take the risk, which is small, and make it even smaller," he says.

"Because it (a shield) covers your eyes, nose and mouth, it lessens the risk of others infecting you. "The science is changing every day, but my understanding is, if you wear a mask, it greatly reduces the chance of you infecting others. But it doesn't protect you all that much, whereas a shield will protect you.

"If I were flying now, I would certainly wear a shield."

This view is somewhat supported by a new research report from the UK's University of Edinburgh and Heriot-Watt University, which concludes that using plastic barriers called personal protection seat shields will reduce the risk of Covid-19 contamination significantly, provided they are worn with face masks.

According to the ["Face Coverings, Aerosol Dispersion and Mitigation of Virus Transmission Risk"](#) report, jets of air can leak from the sides and back as well as the front of face masks.

It recommends that aircraft seats be fitted with personal protection windows (PPW,) clear plastic barriers designed by UK-based aircraft interior and exterior specialist RAS Completions, which can be secured to the back and sides of any seat on an airplane.

"Our recommendation is that airlines should make face masks mandatory, and if used in conjunction with PPW and regular cleaning of PPW, Covid-19 contamination risk is kept to a minimum," say the report's co-author Dr. Cathal Cummins, an assistant professor at Heriot-Watt University, also in Edinburgh.

"If all three measures are mandatory, together with good personal hygiene, airlines can increase passenger protection."

High-risk groups

In July, Qatar Airways became the first airline to make it compulsory for passengers to wear a face shield in addition to a face mask or face covering.

The shields, which are supplied by the carrier, are obligatory for economy class passengers, unless they're eating or drinking, while those traveling in business class can wear them "at their own discretion, as they enjoy more space and privacy."

However, all passengers must wear them during boarding and deplaning.

[Philippine Airlines](#) followed suit earlier this month, so it seems likely other carriers may choose to implement this rule in the future.

Before boarding their flight, customers traveling with the Middle East carrier will be issued with protection kits -- including face shields, hand sanitizer, a surgical face mask and disposable gloves. Although it's clear that such precautions can greatly limit the danger of infection, which is already relatively slim, for some travelers, any level of risk is simply too much of a gamble, particularly those in [high-risk groups](#).

Barnett stresses that it will take the development of a vaccine or a change in the care available to Covid-19 patients for those anxious travelers to feel comfortable flying again, regardless of how many safety measures are put in place.

He is choosing not to fly himself at present due to various risk factors -- at 72, Barnett has a higher risk of contracting the virus, while [men are more likely to die from the virus](#) than women.

"I miss it quite a bit," he admits. "I think flying is beautiful and under normal circumstances inordinately safe.

"But these are not normal circumstances."