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Web Exclusive

Coronavirus: The new fear of flying could change face of global aviation

People occupying seats within a metre of the infected person on an plane have the highest chance of getting infected but airlines would prefer airports, and not aircraft, to change

Sai Manish | New Delhi
Last Updated at March 25, 2020 15:02 IST

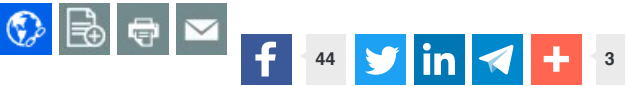


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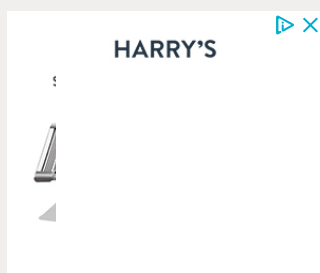
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Coronavirus outbreak: Airports start stringent screening to check spread



As the US started witnessing a spike in [Coronavirus](#) cases in the beginning of March, the executive vice president of the nation's third-largest airline, South West, put out a blog post detailing how every inch of its aircrafts' interiors was being disinfected after every flight. The blog had pictures of staff using disinfectant-soaked wipes and rubbing everything from toilets, luggage bins, overhead lights and pilot control panels. A lady responded to the post saying "My daughter is on a late flight from Baltimore to Denver. She is sitting next to a woman reading a magazine in Mandarin and is coughing and blowing her nose. Would South West Airlines have screened the woman before boarding the plane? The woman is sitting in the middle seat. My daughter is freaking out, as is her mother."

This in many ways exemplifies the new fear of flying. And this fear could well change the face of global aviation in the times to come. "The current situation will have a long tail of consequences on the future of the aviation sector and global travel, but many of those impacts will be on traveller behaviour, airport screening, regulation, insurance, passenger safety and well-being, and then the ongoing viability of airlines and operators in the sector. While people ordinarily have short memories, the scale of this global pandemic means that it will be on people's minds for the next decade, especially adults and the elderly," said Mathew Griffin, CEO of London-based 311 Institute, a futurist think-tank.

Traveller behaviour and attitude towards flying could change radically because an average flyer realises that despite boarding a sanitised aircraft, the risk of being infected with a deadly virus in a pressurised cabin 35,000 feet in the sky is undeniable. When the H1N1 epidemic was spreading fast in 2009, the World Health Organisation (WHO) issued guidelines under which people seated up to two rows ahead and two rows behind, in addition to the same row as the infected traveller, were at risk of contracting the virus. After landing, the location details of these passengers were to be taken and their health and social contacts monitored over the next few days. In a narrow-body aircraft with six seats in a row, that would mean an infected person would have potentially infected 29 other people during the flight.

In 2018, a group of researchers from Atlanta based Georgia Institute of Technology and Emory University published a study which stated that infections were restricted to within one metre of the infected passenger but could be more, depending on the seating position and movement of passengers in the aircraft during the flight. The researchers had undertaken five round-trip flights during the influenza season in 2012-13 from Atlanta to various destinations in the US, taking air samples, potential fomite samples and swabs from toilets doors and seats before running them through a software-enabled simulation. The researchers found that an infected person sitting on a window seat was likely to infect the least number of people. The one occupying the aisle seat was the biggest risk to others. Passengers seated in the middle of the plane had contacts with more people. The duration of contact with other passengers was probably higher for those seated in front of the plane. If the infected passenger was seated on the aisle seat, 11 passengers around her had the highest chance of being infected. This included the infected passenger's own row, one row in front of and behind her in addition to three aisle passengers sitting laterally to her. In case a member of the cabin crew, especially a flight attendant was infected, the potential of infections was limitless.

The [Coronavirus](#) outbreak could well change the way aircraft interiors, especially seat pitches are determined to incorporate the 'one-metre' principle to restore confidence in people to fly. "Cabin configurations aren't generic. Every airline has its own requirements and manufacturers design interiors around that. There can be cabin configurations or flatbeds in business class, sleeping pods or thinner seats or thicker back sides in economy class" said an official of a global aircraft manufacturer. In many ways, re-designing aircraft interiors to give passengers a perception of not being packed like a tin of sardines with an infected person in their midst could be financially challenging if not suicidal for many airlines.

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Take the case of India's domestic airlines. Two of them, Indigo and Vistara operate similar Airbus A320Neo aircraft which can seat around 180 passengers. While Indigo is a low-cost airline, Vistara offers multiple classes of travel including business class. In the economy class, both airlines have a seat pitch of 30 inches (or 0.76 metres) between two rows. Indigo squeezes 186 passengers on the same aircraft on which Vistara seats 164 passengers. If distance of one metre were to be maintained between two rows, the seat pitch would have to be enhanced to 40 inches. Vistara currently maintains a distance of 40 inches (or one metre) for its business class passengers. There are eight business class seats in the airline. If airlines were to do so, the existing business class configuration could be the new economy class. By increasing the distance between seats to Vistara's business class configuration of 40 inches, the number of persons with the highest probability of being infected would be reduced from 11 to three passengers. In effect, this would put only the passengers sitting in the same row as the infected person and the one sitting on the aisle seat lateral to him in the firing line.

While this could reduce infections and possibly save lives, airlines would have to significantly reduce the number of seats in existing narrow bodied aircraft operated. The seating area of the aircraft is typically around 32 metres in length. Low cost airlines would have to reduce number of rows and thereby seats by almost a third. Indigo's A 320Neo that seats 186 passengers with a seat pitch of Vistara's business class would effectively seat a little over 60 passengers to reduce the possibility of infection from 11 to three passengers. To substantially reduce the risk of onboard contamination, airlines would have to also have to maintain a distance between passengers on the same row. A typical narrow bodied jet aircraft width is 3.7 metres. That would mean eliminating the six seats a row concept to three separate seats, a metre apart, in a row. Airlines would have to increase ticket prices manifold to compensate for the reduction in seats despite significant savings on fuel consumption due to lower aircraft weight.

While re-designing aircraft interiors to re-instil confidence in flyers in the face of the deadly pandemic might cost airlines billions of dollars, some have used this opportunity to reassure passengers that their cabins are equipped to battle contagious diseases. Vistara has sent a correspondence to its customers stating that it is taking various measures to fight the spread of [Coronavirus](#) aboard its planes.

Vistara stated, "Our fleet is equipped with High Efficiency Particulate Arrestors (HEPA) air re-circulation filters that capture and remove viruses with high efficiency. The air in our aircraft cabin refreshes itself every few minutes. All aircraft undergo extensive cleaning at our base stations during non-operational hours." There seems to be a general consensus that the possibility of getting infected inside an aircraft are much less than getting infected inside a metro train.

While radical re-designing of aircraft interiors to make them safer in the face of contagious pandemics may not be financially prudent for airlines and aircraft manufacturers, the biggest changes due to the Coronavirus outbreak could be witnessed at airports. The Georgia Tech and Emory University researchers had acknowledged the fact that 40 per cent of infections of an aircraft passenger were taking place outside the WHO's 'two row' zone. They noted that some of these transmissions could have occurred while waiting at the airport, while boarding and de-boarding or from sources and events before or after the flight. Airport security staff who currently test passengers for explosives, arms and narcotics could well deploy more intrusive technologies to exclude a medically suspect passenger.

Griffin said, "Airports will rely more heavily on technology to identify people who are ill. By using combinations of machine vision, biometrics, and artificial intelligence with standard hi definition CCTV systems, microphones, and other hyperspectral sensors, we can already determine people's characters, personalities and wellness even if they are covered up. We can also evaluate their gait, body temperatures, disease characteristics, mental states (and even diagnose depression, post-traumatic stress disorder, dementia etc), moods, emotions and more. As these sensing systems get even more sensitive, airports will also be able to use laser based systems to identify people, detect their heart health, and even see and analyse the inside of their bodies (in a similar way that we use ultrasound today) using an emerging type of technology called photoacoustics. If they wanted to, they could include sweat sensors into any or all fingerprinting systems which would detect your overall health, what you ate for breakfast, and analyse all your biomarkers for disease information." In effect future airports would have given a passenger a full health check-up even before they checked in.

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