

Flying with the flu: Expert panel revisits the danger of air travel during a pandemic

October 29 2009, By Jason Socrates Bardi, ISNS



Credit: Courtesy Andrew Davidhazy/RIT

Attempting to ground planes during pandemics may not be worth the trouble, a panel of experts from the government, academia and the airlines industry heard at a recent meeting in Washington.

One of the major conclusions from the two-day meeting was that restricting [air travel](#) during a pandemic, such as the current swine [flu strain](#) of influenza that is circulating globally, is not likely to have much of an effect.

This falls in line with recommendations that the [World Health Organization](#) made earlier this year when it declared the new swine flu strain of influenza -- H1N1-- to be a bona fide pandemic. The WHO advised in June that it was safe to travel -- including on airplanes.

This advice followed weeks of diminished travel to and from Mexico, where the new strain of H1N1 first emerged. During April, some 2,000 flights a day to Mexico were cancelled -- partly because certain countries restricted travel and partly because so many people cancelled their travel plans.

Despite the lower-than-normal travel, pandemic influenza continued to spread around the world, and that is not surprising to scientists like Ben Cooper of the Health Protection Agency in the U.K, one of several panelists at the Washington meeting who said travel restrictions are not likely to work.

Even a little bit of air travel goes a long way in spreading diseases like influenza, Cooper said, so any achievable reductions in flying are not likely to make much of a difference.

At the symposium, organized by the National Research Council's Transportation Research Board, Cooper showed data that modeled the effect of travel restrictions on the spread of a pandemic. Even in the best-case scenario, in which major cities managed to reduce air travel by 99.9 percent after the very first case emerged, Cooper's models showed that a pandemic would merely be postponed by several weeks -- arriving later to those cities but establishing outbreaks eventually.

"It delays things a bit, but even such an extreme intervention is not effective," Cooper said.

In reality, there would likely be thousands of cases before any stringent travel restrictions could be put in place, and under a more realistic scenario, restricting travel makes very little difference at all.

Part of the problem is that when people are sick, they fly anyway, despite a consensus among the experts on the panel that people with

suspected cases of influenza should not fly. When they do, they risk exposing other passengers -- especially those people sitting immediately next to them.

As an example of this, panel member Itmar Grotto, the director of public health services for the Israeli Ministry of Health, described a case that occurred in May, shortly after [swine flu](#) first emerged.

A 22-year-old woman returning from a trip to Mexico flew to Israel through Madrid, Spain. She was sick on the flight and later diagnosed with H1N1. Two days after landing, another woman, who had been sitting directly in front of her on the plane from Madrid, fell ill with the same virus.

According to Grotto, even though health officials in Israel could not rule out the possibility that the second passenger was infected elsewhere, she probably caught the flu from the first passenger.

The danger of contracting an infection after sitting next to someone who is sick is not absolute. It depends on how sick that person is, how healthy the other passengers are, and many other factors. In fact, the 22-year-old woman's boyfriend, who sat next to her on the Madrid flight and on the longer flight from Mexico, never contracted her virus. Nor did anyone else on the flight, as far as the Israeli authorities are aware.

Perhaps one of things that helps contain infections on airplanes is the design of air circulation systems on the aircraft. Commercial airlines pack a lot of people into highly confined spaces, often for hours at a time, but have ventilation systems that keep the air relatively fresh. The air is constantly filtering to remove germs and other dangerous particles and mixed with germ-free air from the outside.

"In reality," said Jeanne Yu, director of Environmental Performance for

Boeing Commercial Airlines, "you are continually changing the air in the airplane." Overall, the air in a cabin is exchanged 10-15 times per hour, she said, and studies have shown that overall contaminant levels are relatively low on planes.

Contaminated air is not the only issue, however. Viruses like influenza can survive for hours on surfaces, and one of the easiest ways that someone can catch the flu is to touch a contaminated surface and then touch their eyes, nose, or mouth.

Contaminated surfaces, said University of Arizona in Tucson professor Charles Gerba, "are more important in the spread of a disease than a sneeze." And people today, he added, share more common surfaces with other people than at any time in history.

The bottom line, the panel concluded, is to do those things that have proven to work: wash hands; avoid touching eyes; get vaccinated against the [flu](#), and don't fly if you're sick.

GERMS ON A PLANE

A timeline of documented cases of infectious spread on airplanes.

2009 KATRINA SURVIVOR CAUGHT BY SWINE FLU

In June, 2009, New Orleans Mayor Ray Nagin and his wife are detained at the airport in Shanghai China after sitting on an overseas flight near to a passenger who was infected with H1N1 influenza. They are later released from quarantine after showing no signs of infection

2008 NOROVIRUS

In October, 2008, a flight from Boston to Los Angeles was diverted to Chicago because several members from a group of 35 tourists were suffering from a gastrointestinal illness. The CDC followed up with the

106 passengers and flight crew who were not part of the tour and found that 8.2 percent of the other passengers also contracted the disease, a norovirus infection that was presumably transmitted on the airplane.

2007 DO NOT BOARD LIST

In June 2007, federal agencies develop a "Do Not Board" list that allows federal officials at the CDC and the Department of Homeland Security to identify and exclude from flying to or from the United States on commercial aircraft certain people with infectious diseases who pose a serious threat to the public.

2006 TUBERCULOSIS

A 31-year old man infected with tuberculosis flies to Europe for his wedding on a commercial airline. Several days later, he flies to Montreal and crosses the border into the United States. Upon his return, he is placed under quarantine by the U.S. government.

2006 MUMPS

The Iowa Department of Public Health identifies two people who had mumps and were potentially infectious during travel on nine different commercial flights from March 26 to April 2, 2006. The CDC initiates a multistate investigation to identify exposed passengers who may have fallen ill.

2005 FEDERAL QUARANTINE AUTHORITY (INFLUENZA)

April 1 -- White house issues executive order # 13375, which adds [pandemic influenza](#) to a list of communicable diseases for which the federal government can apprehend, detain, or quarantine individuals to prevent the spread of these diseases.

2004 LASSA FEVER

A businessman from Liberia flies from Freetown, Sierra Leone to London, England and then to Newark, NJ with a case of Lassa fever -- a

deadly viral hemorrhagic fever he had contracted in West Africa. Though he was sick on the plane and later died from the disease, no other cases are identified among the other passengers.

2003 FEDERAL QUARANTINE AUTHORITY (SARS)

April 1 -- White house issues executive order # 13295, which adds SARS to a list of communicable diseases for which the federal government can apprehend, detain, or quarantine individuals to prevent the spread of these diseases.

2003 SARS

One person on a flight from Hong Kong to Toronto infected 20 other passengers, several of whom later died from the disease. Passengers as far as seven rows away were infected. In Taiwan, all travelers arriving on airplane flights from WHO-designated SARS-affected areas or passengers from any country who within three rows of a SARS patient on a flight are quarantined for 10 days.

2001 AVIATION AND TRANSPORTATION SECURITY ACT

Soon after the September 11th attacks, Congress passes the Aviation and Transportation Security Act of 2001. This act is the later used as the authority allowing the department of Homeland Security and the CDC to maintain a do-not-board list for people with communicable diseases.

1994 MULTIDRUG-RESISTANT TUBERCULOSIS

In April, 1994, a passenger with infectious multidrug- resistant tuberculosis flew from Honolulu to Chicago and then to Baltimore and returned via Chicago one month later. The CDC tracked down 802 of the 925 people on the four flights and found compelling evidence of TB transmission from the passenger to other passengers and the flight crew on one of the flights.

1983 FEDERAL QUARANTINE AUTHORITY (EBOLA)

On December 22nd, the White House issues executive order # 13295, which adds Ebola, Lassa fever, and other hemorrhagic fevers to a list of communicable diseases for which the federal government can apprehend, detain, or quarantine individuals to prevent the spread of these diseases.

1979 INFLUENZA

An airplane at a U.S. airport with 54 people aboard is delayed on the ground for three hours because of engine failure. The passengers stayed on the airplane during the delay with the ventilation system off. One passenger was sick with influenza. Within three days, 72 percent of the other passengers became ill.

Source: Inside Science News Service



Citation: Flying with the flu: Expert panel revisits the danger of air travel during a pandemic (2009, October 29) retrieved 2 May 2024 from <https://medicalxpress.com/news/2009-10-flu-expert-panel-revisits-danger.html>

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