

Multi-Layered Approach to Reducing COVID-19 Risk in Air Travel

The international aviation industry is implementing a multi-layered mitigation strategy intended to reduce the risk of air travel–related COVID-19 transmission as much as reasonably possible and to instill confidence in travelers, health authorities, regulators and government as passengers again take to the air for business and personal travel.

With passenger and employee health screening measures, enhanced aircraft and facility cleaning and disinfection methods, common sense practices and international guidelines on such things as physical distancing and wearing face coverings at all times, a passenger’s exposure is reduced as much as possible. In addition, airlines and aircraft and systems manufacturers are actively engaged in research and development on processes and technologies to further reduce the already small COVID-19 risk.

At the global level, it is important that regulators and governments take a coordinated, science-based approach to enabling international travel and commerce. Doing otherwise could have a negative impact on safety, on the wellbeing of passengers and industry employees, and on long-term public health.

The Layered Approach

The first layer of defense involves passengers. As Flight Safety Foundation pointed out in its *New Norms in Air Travel Hygiene Etiquette*, air passengers have a crucial role to play in reducing the risk of infection for themselves, other travelers and airline, airport, security and other personnel they will come in contact with during their journeys. Passengers should not travel if they are unwell or may have been exposed to someone with COVID-19 within 14 days before traveling. They also should expect temperature checks and possibly health screening questionnaires before and during their journeys, and even follow-up contact from local health authorities after the conclusion of their journeys.

Before starting a journey, passengers should consider downloading their airline’s mobile app and use it to check in online, when possible, to reduce the need for contact with staff at check-in counters. Most apps also are good a source of information and some even have checked bag tracking functionality, which can obviate the need for personal contact with airline staff in some instances. Reviewing an airline’s COVID safety measures also is suggested because such a review can give passengers an idea of what to expect — and how to prepare — before they arrive at the airport. Limiting carry-on bags is another important consideration.

The Foundation’s “golden rules” for air travel during the COVID-19 pandemic recommend that passengers maintain appropriate physical distancing (at least three feet/one meter) as much as possible; fully comply with all face covering and other personal protective equipment (PPE) requirements; minimize touching surfaces; use proper etiquette when sneezing or coughing, and clean their hands regularly and thoroughly. In addition, passengers should carry with them their own supply of hand sanitizer and sanitizing wipes adequate for the length of their journey.

One of a passenger's goals should be to minimize time spent in close proximity to others, such as in lines at security, in airport retail shops or when boarding the airplane. When going through security or passport control, passengers should have their documents and carry-on bags ready.

Passengers should pay particular attention to aircraft boarding and deplaning instructions, which may have changed from pre-pandemic travel and may continue to change as procedures are adjusted to increase efficiency and effectiveness. Instructions should be followed closely, and passengers should sit down as soon as they can after boarding and keep their masks on unless eating or drinking.

Airlines and Airports

COVID-19-related safety measures vary by airline and airport, as does the specific guidance that carriers and other aviation stakeholders get from their national regulators and public health organizations. Nevertheless, broadly speaking, stakeholders in the air travel journey (airlines, airports, security, immigration) are following guidelines from the World Health Organization (WHO), the International Civil Aviation Organization (ICAO), regulators such as the U.S. Federal Aviation Administration and the European Union Aviation Safety Agency, and trade organizations, such as the International Air Transport Association and the Airports Council International (ACI).

Airport facilities are being cleaned more often and more thoroughly than before the pandemic; disinfecting surfaces is the new norm and is no longer reserved for just the restrooms. In addition to requiring masks, airports and their airline tenants are installing hand sanitizer stations, adding plexiglass shields at check-in desks and in terminal retail establishments, and, where possible, changing configurations to allow for greater space between people in lines.

Airlines are adjusting boarding and deplaning processes to reduce the time spent in line and increase physical distancing. In-flight services are being adjusted to reduce contact between staff and passengers and to maintain physical distancing as much as possible. Flight attendants are wearing masks and gloves, and passengers are required to wear masks unless they are eating or have a medical condition that prevents them from wearing a mask.

While practices may vary, airlines have introduced enhanced aircraft cleaning and disinfection procedures. High-touch surfaces, galleys and lavatories often are cleaned and disinfected before and after each flight, and most aircraft cabins get a deep cleaning each night. Ground staff are being trained in proper cleaning and disinfection procedures and are wearing PPE when on board aircraft.

Most modern airliners have built in defenses against the spread of viruses and bacteria. When a typical, pressurized airliner is in flight, the volume of cabin air is replaced every two to three minutes with outside air and filtered air.

Air being returned to the cabin first passes through high efficiency particulate air (HEPA) filters, similar to those used in hospital operating rooms, that trap more than 99.9 percent of airborne particles, including dust, allergens, bacteria and viruses. HEPA filters are common on most newer generation aircraft. In addition, air flow within the cabin is generally vertical (ceiling to floor) and is localized, thereby reducing the transmission of air particles across the cabin.

Continued Innovation

Beyond the enhanced cleaning and disinfection regimes, airlines, airports and other stakeholders are researching and adopting new technologies and working with experts from other industries to drive improvements that will further reduce risk. For example, a number of airlines, including Luxair, are using electrostatic sprayers to more effectively disinfect surfaces in aircraft.

JetBlue recently announced plans to implement a Honeywell-developed ultraviolet (UV) light cleaning system that reduces certain viruses and bacteria on airplane cabin surfaces when properly applied, the manufacturer says. Honeywell also has pointed out, however, that no testing has been done regarding the system's protection against COVID-19.

Airbus and Boeing, in addition to engaging with their customers on appropriate cleaning procedures and products, are both evaluating UV light cleaning methods. Boeing is studying the use of anti-microbial surface coatings on aircraft and Airbus is looking at the effectiveness of heating the cabin to a much higher than usual ambient temperature between flights and using active ion generation for disinfection.

Lufthansa, Fraport and an outside company plan to offer rapid coronavirus testing at Frankfurt Airport, and Emirates is offering its passengers coverage of their health and quarantine costs if they are diagnosed with COVID-19 during their travels.

Individual airlines and airports are working with non-aviation companies, such as the manufacturers of popular cleaning and disinfecting products and companies that specialize in cleaning and disinfecting facilities, to develop new processes to be followed and standards to be achieved. For example, Delta is working with the makers of Lysol brand products to, among other things, develop new disinfection protocols and best practices. United Airlines has a similar arrangement with Clorox.

Airlines are increasingly insisting on compliance with mask requirements and some are expanding those requirements; a number of carriers say customers must wear face coverings from the time they enter their departure airport until they leave their final destination airport. In addition, some carriers are asking for proof of medical conditions that prevent wearing masks. In some cases, airlines are requiring employees to be tested for COVID-19, and Airlines for America member carriers are requiring passengers to complete a health acknowledgement during the check-in process that, among other things, encourages passengers to evaluate their health prior to traveling. Some nations require arriving passengers to be in possession of a certificate showing they have been tested within the previous seven days for presence of the virus.

ACI, which represents airports around the world, has launched the ACI Airport Health Accreditation program to provide airports with an assessment of how their health measures are aligned with guidance from ICAO and ACI. One of the goals of the program is to enable airports to demonstrate to passengers, staff, regulators and governments that facilities are prioritizing health and safety in a measurable, established manner.

Looking Ahead

It is important for airlines and other stakeholders to gather and analyze data on the effectiveness of their COVID-19 mitigation measures. This information can then be fed into the risk assessment process of safety management systems, and continual improvements can be made. Working with and learning

from non-aviation entities that routinely handle large groups of people, such as universities and sports teams, could also be beneficial.

To date, gaps still exist in our scientific knowledge of how the COVID-19 virus is transmitted. As more is discovered about the disease, it will be important for new knowledge to quickly be shared with aviation stakeholders so that mitigation measures can be adjusted, if necessary, to most effectively prevent the spread of the disease.

Conclusion

Whether to travel in the current environment is a personal decision that should be considered carefully. Potential passengers should take into account pre-existing medical conditions that might put them at heightened risk. Passengers should be aware that it is not possible to remove all COVID-19–related risk from air travel, or from any type of large group activity. However, the multi-layered approach that is being cooperatively implemented by aviation stakeholders during each segment of the air journey – from arrival at the departure airport to departure from the airport at the final destination – should significantly reduce the already small risk of exposure. To date, the incidences of virus transmission on board commercial aircraft remain extremely low, which is a testament to the combined efforts of all stakeholders.

Stopping the virus from moving from one region to another is a matter for states to manage through public health measures, sensible quarantine and testing regimes, and tactical control of travel routes. The WHO has repeatedly said that border closures are not a sustainable strategy for containing the spread of virus. Blanket bans on travel are not the answer and could have long-term negative consequences on public health where supply chains are impacted.

As it has previously, the Foundation is calling for greater international cooperation to mitigate the risks of COVID-19. Standardized guidance, processes and procedures would ensure a uniformly high level of COVID-19 transmission risk mitigation and would give passengers and regulators greater confidence in the effectiveness of the mitigations.

Note: *New Norms in Air Travel Hygiene Etiquette* and other Flight Safety Foundation [COVID-19 Crisis Resources](#) are available on the Foundation website.