

Guidance on Advancing COVID-19 Risk Mitigation in Air Travel

In 2020, Flight Safety Foundation published analysis of and guidance on the effects of the coronavirus pandemic on aviation safety, "[Multi-Layered Approach to Reducing COVID-19 Risk in Air Travel](#)." This white paper outlined the aviation industry's comprehensive approach to reducing COVID-19 risk in air travel, including implementation of a range of commonsense practices advised by medical and public health officials internationally. The paper recognized that there was not a "silver bullet" that could cure the problem but called for international cooperation throughout the aviation system to mitigate and reduce risk.

Since that time, new information has emerged as scientific data and analysis have progressed. Notably, vaccine development has proceeded rapidly and the process of immunizing populations around the world has begun. Moreover, doctors and epidemiologists now better understand how the disease transmits and which measures are effective in mitigation. Although the entire aviation sector was nearly shut down, passenger traffic, particularly in domestic markets, has begun to return, but there still is a frustrating lack of coordination on the international level, even among the world's strongest economies.

COVID-19 continues to present a risk to travelers and workers — albeit an uneven level of risk due to a variety of factors as described below — but the multilayered approach continues to be a sound strategy for managing the pandemic. Moreover, as a result of the development and distribution of safe and effective vaccines and the advancement of COVID-19 testing capabilities, the risk of COVID-19 can be further reduced.

Recommendations

As the situation evolves and more data are gathered on vaccine efficacy and duration, and the aviation industry learns more about the effective COVID-19 risk mitigation measures, the Foundation makes the following recommendations:

1. **Vaccinate** — All passengers and aviation industry personnel who are eligible and medically able should get vaccinated as soon as vaccines are available.
2. **Wear a face mask** — It is critical that all travelers, even those who have been fully vaccinated, continue to adhere to face mask requirements, physical distancing and other commonsense rules for traveling during the pandemic as well as to the many mitigation measures put in place since the outset of the pandemic. Also, we call for a unified, international face mask standard to maximize effectiveness and avoid confusion.
3. **Continue multilayered approach** — The aviation industry's multilayered approach to mitigating the risk of COVID-19 during air travel, as outlined in the Foundation paper in 2020

and illustrated below in **Figure 1**, has been largely successful and should be continued until the pandemic has ended.

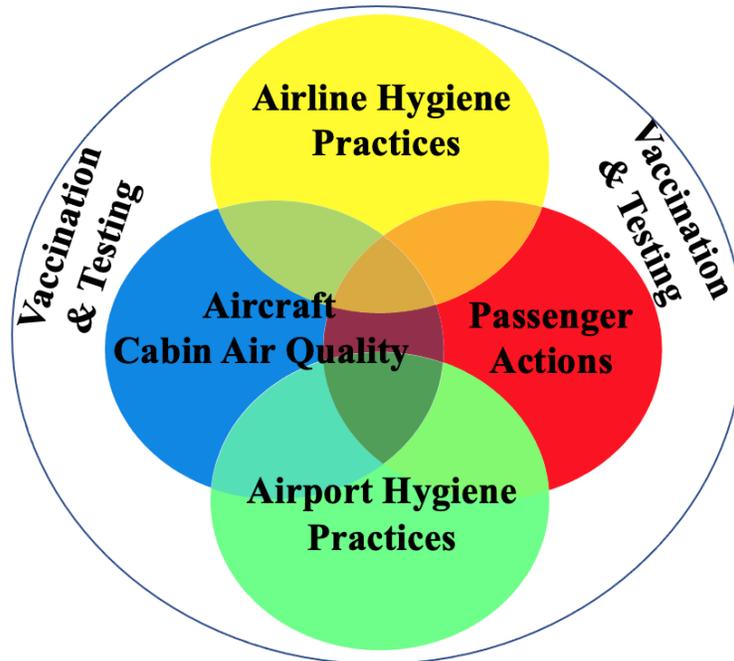


Figure 1

4. **Implement a risk-based approach** — Industry and government stakeholders and public health authorities should develop and implement a risk-based approach for opening travel markets that includes consensus-based criteria for determining when regions or countries are to be considered low/medium/high risk and when travel restrictions can be eased or lifted.
5. **Accelerate and scale affordable testing** — Reliable, widely accepted testing will instill passenger and regulator confidence in the low risk of COVID-19 transmission during air travel and accommodate travel demand.
6. **Implement alternatives to quarantines** — As scientific evidence is developed, accept full vaccination status and a standardized regimen of pre- and post-travel testing as an alternative to quarantine for international travelers.
7. **Deploy digital health certificates** — Accelerate development and implementation of digital health certificates that securely integrate an individual's COVID-19 test results, vaccine information and/or proof of recovery from COVID-19, while protecting personal data and working across a variety of platforms. To be effective, the digital health certificates must be standardized and internationally recognized and accepted.
8. **Resolve multi-modal travel risks across the entire journey** — Air travel does not occur in a vacuum. Passengers use other modes of transportation to get to and from their origins and destinations, and aviation industry personnel use a variety of modes to get to and from work. Ideally, transportation industry stakeholders and government and public health

officials at all levels should collaborate and take a multi-modal approach to ensuring safe travel that minimizes the risk of contracting and/or spreading COVID-19.

9. **Apply lessons learned** — Study lessons learned from the COVID-19 pandemic and develop more effective emergency and contingency plans for future pandemics.
10. **Plan for an endemic future** — Prepare for the possibility that COVID-19 will be endemic and will need to be mitigated.

Background

Much has been learned and much has changed since the outbreak of SARS-CoV-2, as the causative agent of COVID-19 is known in scientific terms, in late 2019. As referenced above, the medical and scientific communities now have a greater understanding of how the disease transmits and which measures are effective in mitigation. Observations and key developments affecting the aviation sector include:

Immunization: The Benefit of Vaccines

Vaccines are the most critical tool in combating COVID-19. The development, approval and increasing availability of reliable and tested vaccines produced by multiple manufacturers, including Pfizer-BioNTech, Moderna, Johnson & Johnson and AstraZeneca, begins a new phase in the global struggle against COVID-19. Immunization likely will accelerate the world's recovery from the pandemic. Likewise, the rollout of the vaccines is an important step in the international aviation industry's safe recovery from the unprecedented impact of the pandemic.

Early results have shown the vaccines to be effective in reducing SARS-CoV-2 transmission and preventing COVID-19 and have been shown to greatly reduce the risk of progression to severe disease and hospitalization. However, the World Health Organization (WHO) strongly recommends that vaccinated individuals continue observing standard precautions, such as wearing a facemask, maintaining social distancing and cleaning their hands frequently.

Progress against coronavirus infection rates and the availability and distribution of vaccines around the world has been uneven. While a handful of countries are clearly recovering, others are still beset by high infection rates and are in lockdown mode. Also, the spread of highly contagious COVID-19 variants is worrisome and unpredictable. There is no 100 percent protection against any of the virus types, but preliminary data suggest that the vaccines are effective against the 1,600-plus known variants of the virus, although the level of protection differs.

Some of the ways the progress on COVID-19 vaccine distribution can affect the aviation sector include:

Immunization Records

In order to manage disease spread, it is important to be able to identify outbreaks and hot spots as they develop. Timely and accurate data on infections in the aviation system are crucial. These data are necessary for health authorities to be able to, per the purpose and scope of the International Health Regulations, "prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade."

Immunization records are an established way for the international aviation system to protect against the spread of communicable diseases. Since before COVID-19 emerged, travelers were required to present authenticated paper records as proof of immunization at border crossings when traveling through areas where certain infectious diseases — including yellow fever and polio — were present. The WHO’s International Health Regulations are the primary documents that govern international preparation and response to public health emergencies that can cross borders. Failure to present proof of vaccination could result in passengers being quarantined, refused entry, or required to receive on-site vaccination. In the current environment, many health authorities are advocating a transition to digital health certificates enabled by modern and secure technology and built on common standards that would be used widely by international travelers, providers, health authorities and governments.

Quarantines and Travel Restrictions

Travel restrictions, including quarantine requirements in many cases, have been implemented by most countries and likely will remain in effect in many regions for the foreseeable future as states work to control disease spread and reduce or control infection rates. Over the course of the pandemic, restrictions have evolved as infection rates have increased and/or decreased and are likely to continue to change. Some countries, where the disease is considered under control or where large percentages of the population have been vaccinated, have begun opening their borders to travelers from countries that meet COVID-19 risk criteria as long as travelers meet specified requirements, such as proof of vaccination and/or a negative COVID-19 test. While the increasing availability of reliable and tested vaccines is beneficial to the air travel industry, the lack of a harmonized international approach to travel restrictions and quarantine continues to have a negative impact and create confusion among potential travelers.

The WHO recommends that national authorities continue to apply a risk-based approach when implementing measures related to COVID-19 and international travel “while respecting the dignity, human rights and fundamental freedoms of travelers. This approach should consider the risk posed by travel for the importation and exportation of cases in the context of the evolving epidemiology, including the emergence and circulation of virus variants of concern; the expansion of the COVID-19 vaccination rollout; and lessons learned while responding to the pandemic, including on the early detection and management of cases and the application of public health and social measures.”

Virus Transmission

In recent months, leading health experts have updated their understanding of how the COVID-19 virus is transmitted and now note that the virus is primarily spread through the air. This is a key difference that significantly affects mitigation efforts in the aviation environment. At the outset of the pandemic, the prevailing belief was that the virus was transmitted via droplets emitted during coughing and sneezing. The heavier droplets would fall to the ground, land on surfaces and be less likely to travel greater distances. In aerosol form, the virus moves throughout poorly ventilated rooms, staying suspended in the air for longer. Data show the disease is not primarily contracted through contact with doorknobs, countertops, or other physical touchpoints as initially suspected. It is generally accepted that the risk of aerosols is minimal outdoors.

The changing understanding of transmission has affected the layered approach in several significant ways, including:

Social Distance

Even considering the evidence on aerosol transmission, “social distancing” is still considered by medical experts to be a valuable mitigation effort. While there is no magic spacing that will protect people, spacing is still helpful as one part of a layered approach. In the aviation environment, social distance in terminals and in other places where people congregate is still widely advised.

Mask Usage

Face masks are still considered one of the most effective and practical methods to reduce the likelihood of transmission from infected patients. Studies show that face masks trap aerosol particles that would otherwise be emitted from the nose and mouth and potentially spread the disease to others. An effective, well-fitted mask could reduce the risk of transmission as much as 80 to 95 percent or more. Mask use by uninfected individuals also serves to protect them from infection if the masks fulfill the criteria of FFP2/KN95.

Cleaning Procedures

Airports and airlines stepped up their cleaning, sanitation and disinfection efforts when the pandemic struck. While these measures were helpful to improve public hygiene in general, these strategies are not considered a focal point of the current prevention and mitigation of COVID-19 in the aviation environment. Nevertheless, public health officials still widely advocate a continued high level of cleanliness throughout the travel system to prevent a broad array of respiratory and gastrointestinal illnesses.

Temperature Checks

Early in the COVID-19 pandemic, body temperature became a common and highly visible screening tool used to detect individuals who may have been infected with the virus. As the body of scientific knowledge about the virus has grown, substantial peer-reviewed research has been conducted on the efficacy of temperature as a screening tool and health recommendations from both the U.S. Centers for Disease Control and Prevention (CDC) and the WHO have evolved, based on research from around the world. For example, in a November 2020 CDC report reviewing the screening programs used at U.S. airports, the agency concluded that temperature and symptom-based screening is ineffective at helping to identify coronavirus cases.

Passenger Traffic Trends

Passenger traffic data show domestic airline traffic is still down from pre-pandemic levels but has shown increases in some areas of the world. This includes increases in the United States, where vaccine availability is relatively widespread, as well as Australia and New Zealand, where infection rates and community spread are under control.

While some analysts believe that pent up demand and increasing vaccination rates, coupled with an easing of travel restrictions in some regions, could result in increased traffic in the latter part of 2021, such a scenario is not guaranteed.

Moreover, international air travel is likely to be slower to recover due to travel restrictions and quarantine requirements imposed by governments in attempt to slow the spread of the coronavirus.

Further, many countries are struggling to bring the virus under control due to lack of vaccines and resources, poor implementation of rules to limit spread, or other factors.

While having more passengers in the system generally increases the possibility of transmissions, mitigation efforts by airlines, airports, civil aviation authorities and governments have been shown to work together to reduce risk and increase passenger safety.

Testing

The availability and use of on-site testing for COVID-19 at the airport have grown, and many passengers are being tested prior to departure. Testing methods have advanced and become more available. Doctors consider this an effective way to identify who might be at risk for transmitting the infection. Spread happens exponentially, so identifying cases early can dramatically reduce the risk of acquisition of infection on board an aircraft. In some locations, proof of negative COVID-19 test results is required. Negative results can also be used for travelers hoping to ensure a safer onward journey. At the same time, the WHO has said that international travelers are not considered suspected COVID-19 cases by default; “[t]herefore, healthy travelers should not be considered as a priority group for SARS-CoV-2 testing, in particular when resources are limited, to avoid diverting resources from settings and patients where testing can have a higher public health impact and drive action.”

Contact Tracing

Contact tracing is a process being used in many countries and communities around the world to identify and alert those who have come into close contact with the COVID-19 virus to help reduce exposure and increase awareness. In aviation, passengers are generally asked to provide the address where they will be staying while at their destination and a phone number. This information, in addition to contact information provided during ticket purchase or at check-in, is shared with health authorities. If there is a suspected case identified on board, passengers are provided follow-up instructions for testing and/or potential quarantine. Follow-up of travelers is at the discretion of health departments and may be considered by jurisdictions implementing safety measures. Contact tracing is generally voluntary unless specified by a specific flight, country, city or region.

Conclusion

As the world continues to grapple with COVID-19, international air travel could be an important element of economic recovery. However, pent up demand for both business and personal travel is not resulting in a matching level of traffic growth, at least in part because of a frustrating patchwork of regional and international travel restrictions. It is essential that government entities and health authorities around the world collaborate with aviation stakeholders to chart a harmonized, data-based path forward.