

"PREPARE FOR TAKE-OFF: AMERICAN SAFE RETURN TO AIR TRAVEL"

**STATEMENT OF
LEONARD J. MARCUS, Ph.D.,
DIRECTOR OF THE AVIATION PUBLIC HEALTH INITIATIVE,
A PROJECT OF THE NATIONAL PREPAREDNESS LEADERSHIP INITIATIVE,
A JOINT PROGRAM OF THE
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THE HARVARD KENNEDY SCHOOL OF GOVERNMENT
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COMMERCE, SCIENCE, AND TRANSPORTATION
SUBCOMMITTEE ON AVIATION SAFETY, OPERATIONS, AND INNOVATION**

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Good afternoon, Chairwoman Sinema, Ranking Member Cruz and other distinguished Members of the Subcommittee. My name is Leonard Marcus, and I am the Director of the Aviation Public Health Initiative, a project of the National Preparedness Leadership Initiative (NPLI). My expertise is in crisis leadership, and the NPLI, which I direct, studies, works with, and teaches leaders in times of crisis.

On behalf of my many colleagues at Harvard University who contributed to the Aviation Public Health Initiative research and recommendations, I appreciate the opportunity to testify today to share with you our findings on measures to reduce risk and increase public health safety for those who work and travel on the nation's airways.

This project arose in response to a complex set of problems during an unprecedented crisis. Three months into the COVID-19 pandemic, the aviation industry faced a significant decline in passenger traffic and revenue. There was interest in finding an independent, science-based resource to answer difficult public health safety questions, critical to both protect the workforce and the public, and essential to restarting this important segment of the national economy. Out of that interest to reopen the sector safely, discussions began between Airlines for America (A4A) and faculty at the National Preparedness Leadership Initiative (NPLI), a joint program of the Harvard T.H. Chan School of Public Health and the Harvard Kennedy School of Government. Those conversations led to development of the Aviation Public Health Initiative (APHI). The APHI assembled a distinguished team of Harvard scientists who specialize in environmental health, infectious disease, engineering, epidemiology and crisis leadership to investigate risks and risk reduction for the aviation workforce and the public during the COVID-19 pandemic.

As lead sponsoring organization, A4A engaged their member organizations along with a group of manufacturers and airport operators. These companies generously provided financial support, shared data and information, facilitated conversations with airport COVID-19 working groups, and opened opportunities to speak with the airport operators. That breadth of conversation and data access, in the midst of the global COVID-19 crisis, was critical to collecting the vast body of knowledge required to reach the findings and recommendations in our reports. That interest also led to discussions and briefs with numerous government officials associated with the aviation industry. Through it all, this group of industry and government leaders respected the independence of the APHI scientists and their research.

The Aviation Public Health Initiative completed two major reports. The Phase One report, released on October 28, 2020, focused on the Gate-to-Gate portion of air travel on board aircraft. The Phase Two Report, released on February 11, 2021, focused on the Curb-to-Curb portion of a journey through airports. Both reports apprised the aviation industry and the flying public on the risks of SARS-CoV-2 transmission during air travel, with independent, science-based analysis along with

strategies and practices to reduce those risks. Since we released those reports, the country has seen vaccination rates rise significantly among eligible adults. On April 2, 2021, the CDC revised its advisory on travel for vaccinated individuals, “Given recent studies evaluating the real-world effects of vaccination, CDC recommends that fully vaccinated people can travel at low risk to themselves. A person is considered fully vaccinated two weeks after receiving the last recommended dose of vaccine.”

For vaccinated individuals, who still bear a very small risk of acquiring and transmitting the disease, following the guidelines in our reports allows them to fly with a high degree of confidence while the disease continues to circulate in the population. In order to inform the committee and the public on how to traverse the airports and aircraft safely while the virus continues to circulate, I include at the end of this testimony recommendations on how to conduct oneself during air travel.

The investigation established significant reduction of risk of SARS-CoV-2 transmission on aircraft and in airports through a combination of layered infection control measures. Implementing the layered risk mitigation strategies described in our research requires passenger and airline compliance. It helps to ensure that air travel, with respect to SARS-CoV-2 transmission, can be as safe or substantially safer than the routine activities people undertake during these times. These findings and recommendations offer the public the opportunity to reach informed decisions about air travel. Technical and scientific evidence form the foundation of the findings and recommendations. Though a formidable adversary, SARS-CoV-2 need not overwhelm society’s capacity to adapt and progress. It is possible to gain a measure of control and to develop strategies that mitigate spread of the disease while allowing a careful reopening of society. There is much to gain by simply following the science, which itself is an important lesson for the future.

The Phase One research aboard aircraft substantiated that the layered approach of Non-Pharmaceutical Interventions (NPI) instituted on commercial aircraft - effectively diluting and removing pathogens and in combination with face masks - results in a very low risk of SARS-COV-2 disease transmission in the air. These synergistic layers, working together, include: 1) The

onboard ventilation system that continuously circulates and refreshes the air supply, filtering out >99% of the particles that cause COVID-19, and rapidly dispersing exhaled air with displacement in the downward direction. This ventilation effectively counters the proximity travelers are subject to during flights. 2) Universal wearing of facemasks by passengers and crew throughout the journey; 3) Distancing protocols during boarding and deplaning; 4) Disinfection of high-touch aircraft surfaces to remove contamination; and, 5) Passenger attestations that they do not have COVID-19 related symptoms and commitment to adhere to airline mask policy. Any one of these measures alone, when not in combination with the others, will not provide the adequate protection required to reduce the risks of disease transmission.

In that first report, we found that when aircraft are on the ground and ventilation systems are not operating - which can happen when planes are parked at the terminal, when they are on hold on the tarmac, or when they are de-icing - the risks of disease transmission are raised because air is no longer circulating and refreshed. We recommended that airlines change their practices to ensure active ventilation during these periods on the ground. We were heartened to see all the major domestic airlines accept and adopt that recommendation shortly after release of our report.

The Phase Two, Curb-to-Curb research focused on airports and measures that mitigate the risk of SARS-CoV-2 transmission along with recommendations for evaluating and improving operations where appropriate. In contrast to an aircraft's standardized and enclosed conditions, airports vary in size and passenger volume, configurations, indoor environmental dynamics, management structures, traveler behaviors and on-location businesses. Nevertheless, the overall strategy to mitigate SARS-CoV-2 transmission is similar, namely: a multi-layered approach combining measures taken by airport operators, airlines, concessioners, workers and, significantly, by travelers. The layered approach consists of Non-Pharmaceutical Interventions (NPI) that address ventilation, disinfection, and cleaning along with behaviors, including face mask wearing, hand-hygiene, and physical distancing. The investigation found that airports have been layering risk mitigation strategies to reduce SARS-CoV-2 transmission for passengers, employees, concessionaires, contractors and visitors. Those practices target known routes of SARS-CoV-2

transmission. The investigation also found that airport mitigation strategies demonstrated a substantive grasp of SARS-CoV-2 transmission routes, with interventions designed to reduce spread by all known routes. The success of risk mitigation requires the comprehensive and coordinated implementation of proven strategies by airport and airline operators along with behavioral compliance by workers and travelers.

The transmission of SARS-CoV-2 intensifies or slows, in part, as a function of human behavior. Curtailing risky behaviors is key to mitigating the pandemic, its anxieties, and its economic implications. Those behaviors are straightforward: 1) limit contact with infectious droplets and aerosols through mask wearing; 2) reduce contact with potentially infectious individuals through physical distancing; and 3) maintain personal hygiene (hand washing). The federal government airport and aircraft face mask requirement will contribute substantially to aviation public health safety.

For a far more detailed examination of our investigation and its recommendations, I suggest a visit to the Aviation Public Health Initiative website, located on the Harvard National Preparedness Leadership Initiative page.

Ms. Chairwoman, Ranking Member Cruz and distinguished Committee members, the COVID-19 crisis is not yet behind us. In fact, the ambiguities of the next phases of recovery, and the return to normalcy, may prove more difficult than what we have already experienced. The complexities include pandemic fatigue, social unrest, emerging variants, vaccine hesitancy, the strained economy, political and social divides, and disparities in vaccine availability around the globe.

The two reports of the APHI point to the importance of long-term science-based research programs supported by government and the industry. Given that COVID-19 could be considered a global ‘trial run’, infectious disease risk mitigation remains a strategic priority for the aviation sector. As such, public health safety measures will be a high priority for the industry going forward as lessons learned from COVID-19 are clear—that is, public health is central to the aviation industry’s long-

term vitality. Harmonizing approaches across the aviation sector is important, with governments and airport operators following the science and sector-wide standards supporting public confidence and recovery of the industry.

I thank you again for the opportunity to share our research and I welcome your questions.

Your Health Safety COVID-19 Check List for Airport Travelers and Employees

YOUR BEHAVIORS ARE YOUR MOST IMPORTANT COVID DEFENSE

Ten recommendations for travel through the airport

- 1) Familiarize yourself with and adhere to potential testing and quarantine requirements prior to traveling. Be part of the solution.
- 2) Monitor COVID-19 symptoms. When sick, isolate. Don't fly. Be responsible.
- 3) If exposed to someone positive for COVID-19, follow CDC recommendations to self-quarantine and test.
- 4) Plan your trip through the airport - those steps from the curb to the gate - maintaining physical distance.
- 5) Wear your mask at all times and do not remove it except for very short periods to eat or drink.
- 6) Disinfect hands as a precaution after touching surfaces such as check-in kiosks, TSA security bins, or bathroom fixtures.
- 7) Minimize time in restrooms and avoid crowded restrooms, even though they have negative air pressure.
- 8) Avoid crowded areas, such as boarding gates, until time to do so. Find less crowded areas to wait.
- 9) Politely request face mask compliance from someone not doing so. If refused, alert an airport employee.
- 10) On arrival, maintain distance when retrieving checked baggage.

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Ten recommendations for travel on the plane

- 1) Follow flight crew instructions while on board the aircraft, as is always required.
- 2) Maintain six-foot distance before and after boarding the plane, such as on the jet bridge.
- 3) Keep reasonable distance onboard when stowing and removing overhead luggage.
- 4) Clean hands and your immediate area, including tray tables, armrests and other high touch areas.
- 5) Wear masks at all times during flight, except very short times to eat or drink.
- 6) Politely request face mask compliance from someone not doing so. If they refuse, call a flight attendant.
- 7) Avoid face touching - in particular eyes, nose and mouth - when seated and during bathroom use.
- 8) Avoid congestion in the aisles throughout the trip.
- 9) Alert a flight attendant if someone is symptomatic.
- 10) Do keep hydrated during long flights: Drink prudently by only briefly removing your face mask.

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For more information from the

Harvard T.H. Chan School of Public Health, Aviation Public Health Initiative:

<https://npli.sph.harvard.edu/crisis-research/aviation-public-health-initiative-aphi/>