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CONFERENCE PROCEEDINGS 55

Airport Roles in Reducing Transmission of Communicable Diseases

*Summary of a Workshop of the Airport Cooperative Research Program's
2018 Insight Event*

John Wilhelmi
Rapporteur

March 6–7, 2018
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Washington, D.C.

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Contents

Acronyms.....	ix
Preface	xi
CHAPTER 1: CHALLENGE: AIRPORTS AND COMMUNICABLE DISEASE TRANSMISSION.....	1
CHAPTER 2: DISCUSSIONS: WHAT WE LEARNED.....	3
Risk Management	3
Stakeholders.....	7
Communications.....	9
Infrastructure	11
Resources	12
CHAPTER 3: LOOKING FORWARD	13
APPENDICES	
A. PROGRAM.....	14
B. INVITED SPEAKERS AND ATTENDEES	15
C. RESOURCES IDENTIFIED DURING PRESENTATIONS.....	19

Acronyms

ACRP	Airport Cooperative Research Program
AOC	ACRP Oversight Committee
CDC	Centers for Disease Control and Prevention
CDRP	Communicable Disease Response Plan
DFW	Dallas–Fort Worth International Airport
DGMQ	Division of Global Migration and Quarantine
EMS	emergency medical services
ERG	Eastern Research Group, Inc.
FEMA	Federal Emergency Management Agency
ICAO	International Civil Aviation Organization
MERS	Middle East respiratory syndrome
OSHA	Occupational Safety and Health Administration
PDX	Portland (Oregon) International Airport
PHX	Phoenix Sky Harbor International Airport
PIO	public information officer
PPE	personal protective equipment
SARS	severe acute respiratory syndrome
TSA	Transportation Security Administration
WHO	World Health Organization

Preface

The Airport Cooperative Research Program (ACRP) within the Transportation Research Board (TRB) of the National Academies of Sciences, Engineering, and Medicine carries out applied research on problems and issues that are of interest to airports and that are not being addressed by other federal research programs. As the primary governing body of the program, the ACRP Oversight Committee (AOC) sets the agenda for the program’s annual research activities.

In 2015, AOC decided to hold a series of Insight Events on topics of significance to airports. Insight Events are forums that foster dialogue among professionals across sectors, institutions, and industries. Insight Events convene airport industry leaders and subject matter experts in various fields to encourage discussion and promote broader and deeper insight on topics of significance to airport operators. These in-depth, face-to-face gatherings are designed to promote communication and collaboration, foster innovation, and help identify areas of future interest and research, especially for topics of emerging importance. The decision to hold this event occurred toward the end of the 2014–2016 Ebola virus disease outbreak in West Africa. Concern about this outbreak’s implications for air travel, among other possible outbreaks, led AOC to have its first Insight Event focus on airport roles in reducing transmission of communicable diseases.

Building on AOC’s idea, ACRP convened a planning committee of nine airport and public health officials to design and plan the Insight Event. This committee met in June 2017 to advise ACRP on how to proceed. The principal challenge before the planning committee was the breadth of the topic. “Airport roles in reducing

transmission of communicable diseases” is a highly complex topic that spans a wide range of issues, including different diseases and transmission modes, many preparedness and response actions, legal issues, and public relations approaches to addressing public perception of risk. Faced with this challenge, the planning committee planned the Insight Event to address the primary topic broadly rather than focus on a few specific matters, experiences, or issues. The planning committee identified four general subtopics for the Insight Event to address. They were risk management, stakeholders, communications, and infrastructure. Chapter 2 presents definitions of these subtopics and discussions of the subtopics during the 2-day Insight Event.

ACRP and its Insight Event contractor, Eastern Research Group, Inc. (ERG), then developed a program based on the concepts outlined by the planning committee. Specifically, ACRP and ERG identified candidate speakers, developed the Insight Event program and agenda, and promoted the Insight Event to airports, public health agencies, and other stakeholders. The 2-day Insight Event occurred on March 6 and 7, 2018, in Washington, D.C. Close to 100 individuals attended. The 2-day Insight Event included

- Presentations from 13 invited speakers (listed in Appendix A), including a keynote address from Capt. Martin Cetron, M.D., Director of the Centers for Disease Control and Prevention’s (CDC’s) Division of Global Migration and Quarantine. The other speakers represented domestic and foreign airports, local public health agencies, an international aviation organization, and academia. Appendix B lists invited speakers and attendees.

- Dr. Julie Morita, Commissioner of the Chicago Department of Public Health, facilitated audience question-and-answer sessions and panel discussions.
- Emergency management officials from two airports facilitated an interactive exercise, during which audience members evaluated a hypothetical disease outbreak scenario—passengers on an arriving flight with an unknown illness.
- Multiple activities outside the official program included a screening of the documentary *Unseen Enemy*, a fire-side chat with the film’s creative director Janet Tobias, and a reception to facilitate networking between participants.

The program for the event is available online at <http://www.trb.org/ACRP/ACRP-Insight-Event-Diseases.aspx>.

This conference proceedings highlights key discussion points at the Insight Event. The proceedings capture common themes from the presentations and discussions, but this summary is not a transcript and does not elaborate on points beyond those made by invited speakers and attendees. While public health agencies, law enforcement, and various other stakeholders may respond to communicable disease outbreaks involving airports, these proceedings focus largely on strategies, best practices, and suggestions that pertain specifically to airports, as identified by the invited speakers.

Readers who are interested in more information about this Insight Event and other Insight Events and in the broader array of ACRP research activities are encouraged to

- Visit the ACRP Insight Event website at <http://www.trb.org/ACRP/ACRP-Insight-Events.aspx>.
- E-mail Marci Greenberger, the ACRP project manager for this event, at mgreenberger@nas.edu.
- Sign up to receive ACRP publications at <http://www.trb.org/ACRP/PubNotify.aspx>.

John Wilhelmi, Eastern Research Group, Inc., the rapporteur, prepared this proceedings, which is a compilation of the presentations and a factual summary

of the ensuing discussions at the event. The planning committee was responsible solely for organizing the Insight Event, identifying speakers, and overseeing activities during the event. The views contained in the proceedings are those of individual Insight Event participants and do not necessarily represent the views of all participants, the planning committee, TRB, or the National Academies of Science, Engineering, and Medicine.

This conference proceedings was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise in accordance with procedures approved by a Report Review Committee consisting of members of the National Academies of Sciences, Engineering, and Medicine. The purposes of this independent review are to provide candid and critical comments that will assist the institution in making the published proceedings as sound as possible and to ensure that the publication meets institutional standards for objectivity, evidence, and responsiveness to the project charge. The review comments and draft manuscript remain confidential to protect the integrity of the process.

TRB thanks the following individuals for their review: Leila Barraza, University of Arizona, Tucson; Heidi Benaman, Faith Group, LLC, Portland, Oregon; Nicole Cohen, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta, Georgia; Elizabeth Hall-Lipsey, University of Arizona, Tucson; Julie Morita, Chicago Department of Public Health; and Tim Riecker, Emergency Preparedness Solutions, Utica, New York.

Although the reviewers listed above provided many constructive comments and suggestions, these reviewers did not see the final draft of the proceedings before its release. Robert Sproull of the University of Massachusetts at Amherst and Susan Hanson of Clark University (emerita) oversaw the review of the final draft. They were responsible for making certain that an independent examination of this proceedings was performed in accordance with standards of the National Academies of Sciences, Engineering, and Medicine and that all review comments were carefully considered. Responsibility for the final content rests entirely with the rapporteur and the National Academies of Sciences, Engineering, and Medicine.

CHAPTER 1

Challenge

Airports and Communicable Disease Transmission

Air travel is vital in today's world, as underscored by statistics and anecdotes shared by Dr. Cetron of CDC and Dr. Kamran Khan of the University of Toronto. In 2016, the total distance traveled worldwide by commercial flights was 6.7 trillion kilometers, with half of that travel accounted for by flights originating in just 10 countries. This statistic is part of a continuing trend: in a recent 10-year period, the total distance traveled in domestic and international travel increased by more than 50%. Air travel has indeed made the world an increasingly interconnected place, as recent statistics suggest that more than 100 million passengers arrive on international flights at U.S. airports every year.

Sustained operations at airports are critical for many reasons. Not only do airports help move travelers and goods but they also deliver direct and indirect economic benefits to local communities. For instance, large airports support thousands of jobs, and arriving travelers spend money at hotels, restaurants, rental car companies, entertainment venues, tourist attractions, and numerous other local businesses. By some estimates, large domestic airports can deliver billions of dollars of economic benefits each year to their host metropolitan areas. Moreover, as underscored by Dr. Petra Illig of Aviation Medical Services, during disease outbreaks, sustained air travel to affected regions is essential for delivering humanitarian assistance. Even short-term interruptions at major hubs can have substantial ripple effects throughout the commercial aviation sector: Dr. Walter Gaber of the Frankfurt International Airport indicated that a 3-hour shutdown at his airport would cause more than 25,000 passengers to miss flights and more than 4,000 tons of freight to be delivered late. These observations underscore the fact that continuity of operations at airports is essential.

Communicable disease outbreaks have the potential to affect air travel and public health interests. Concerns about travel and spread of communicable disease are not new, as documented outbreaks of cholera, yellow fever, and other diseases associated with marine travel date back hundreds of years. What has changed in recent decades is how transportation modes—especially air travel—make

today's world tremendously interconnected: Dr. Cetron noted that travelers can now move from isolated rural villages to virtually any major city worldwide in less than 36 hours. Thus, a contagious traveler from an area with a disease outbreak can quickly spread disease to other regions and countries, as demonstrated by localized transmission of Ebola virus disease in Nigeria, Middle East respiratory syndrome (MERS) in South Korea and Hong Kong, and severe acute respiratory syndrome (SARS) in Toronto. In each of these cases, localized disease transmission was traced to a single passenger infected with the disease arriving on an international flight from an affected country. Complicating matters, the incubation period for some diseases is longer than the time that it takes to travel worldwide; and, in some cases, infected passengers can travel on airplanes and pass through airports before they show symptoms or even know they are sick. Moreover, confirmation of illness is not immediate because many diseases do not have rapid diagnostic tests. For these and other reasons, Dr. Cetron, the Insight Event's keynote speaker, stated that "A health threat anywhere is a health threat everywhere."

However, as the threats for communicable disease transmission have grown, so have prevention, preparedness, and response efforts among air travel interests and the public health community. At the national level, CDC works to prevent the introduction, transmission, and spread of communicable diseases, whether through regulation, research, preparedness, and response. The agency's Division of Global Migration and Quarantine (DGMQ) focuses on preventing importation and spread of communicable diseases, in part by building systems and programs to prevent, detect, and respond to disease transmission between immigrants, refugees, travelers, expatriates, and other globally mobile populations. Dr. Cetron discussed DGMQ's previous and ongoing work with air travel interests and public health partners, with examples ranging from responding to communicable disease inquiries to disease investigations with contact tracing. As is noted in this proceedings, a much broader network of local, regional, national,

and international stakeholders works to prevent, prepare for, and respond to communicable diseases as they relate to air travel.

Reducing transmission of communicable diseases presents an important challenge for airports, airlines, and other air travel interests. At the same time, a large community of stakeholders actively works to prevent, prepare for,

and promptly respond to disease outbreaks. Dr. Cetron summed up this apparent dichotomy by saying that “The world is safer than ever from global health threats; *and* the world is at greater risk than ever from global health threats.” The rest of this conference proceedings expands on the risks of communicable disease outbreaks and air travel and reviews efforts to manage those risks.

CHAPTER 2

Discussions

What We Learned

According to Ms. Deb Helton of Dallas–Fort Worth International Airport (DFW), airports throughout the United States and worldwide differ in many regards: their size, the number and variety of domestic and international flight routes they serve, their relationship with local and county governments, their public health partners for international and domestic flights, and whether they have dedicated professional emergency managers. Nonetheless, a common theme that individual participants discussed is that airports can help reduce transmission of communicable diseases by preparing for and responding to outbreaks, thus helping to ensure the health of communities in a globally mobile world. This chapter summarizes the Insight Event discussions on the four key subtopics identified by the planning committee and lists some resources available to airports for their communicable disease planning efforts.

RISK MANAGEMENT

The planning committee suggested that the Insight Event address the importance of risk management. Airports, public health agencies, and various other stakeholders are encouraged to assess and manage communicable disease risks before outbreaks occur, particularly for diseases of greater public health significance (e.g., diseases with airborne person-to-person transmission that cause serious illness). Dr. Cetron emphasized that a collaborative approach to preparedness and response is consistent with goals outlined in the National Incident Management System. The System was developed to help “provide a consistent framework for Federal, State, and local governments to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity” (FEMA 2017).

Dr. Illig noted that an adequately prepared airport can help reduce disease transmission while ensuring continuity of operations throughout outbreak scenarios. This is a much-preferred and realistic option to more severe reactions, like attempting to isolate individual airports

or regions experiencing disease outbreaks. Multiple speakers encouraged airport officials to appreciate both the value of being prepared for communicable disease outbreaks and the risk of not being prepared.

Airport Risk Management Activities

Invited speakers from U.S. airports—Deb Helton and Dustin Jaynes of DFW; Christopher Rausch of Phoenix Sky Harbor International Airport (PHX); and Kori Nobel of the Port of Portland, which is the authority that oversees the Portland (Oregon) International Airport (PDX)—emphasized the importance of developing, testing, and continuously improving communicable disease response plans (CDRPs). The plans should be designed to prevent the introduction and spread of communicable diseases via air travel throughout the event. These airport officials presented many examples of communicable disease concerns associated with air travel, ranging from localized disease transmission occurrences (e.g., tuberculosis transmission on flights or measles transmission in gate areas) to regional and international transmission facilitated by air travel (e.g., SARS or pandemic influenza). Discussions about airport risk management centered on three aspects of CDRPs:

- Developing a communicable disease response plan.
- Testing the communicable disease response plan.
- Reevaluating and revising the communicable disease response plan.

Developing a Communicable Disease Response Plan

The intent of the Insight Event was not to provide comprehensive guidance on developing CDRPs. However, the four invited speakers from airports discussed their planning efforts, and this section reviews key points from the presentations. Although it is expected that details in airports’ plans differ due to site-specific considerations,

they will likely share some common features. These features include establishing an incident command post or emergency operations center, identifying a unified command team, coordinating stakeholders, training stakeholders, selecting and providing appropriate personal protective equipment (PPE) to involved parties, establishing processes and protocols for responding to threats of varying scale and complexity, and describing the facility infrastructure (e.g., isolation areas or designated aircraft parking areas) related to disease outbreaks (GAO 2015).

When developing plans, Ms. Helton and Mr. Jaynes encouraged airport officials to prepare for a broad range of communicable disease threat scenarios, not just those of greatest risk or consequence. As one example, during the 2014–2016 Ebola virus disease scare, some airports largely prepared for infected passengers arriving on international flights. However, one of the known cases of an Ebola-infected passenger on a flight in the United States occurred on a domestic flight. Further, airports should be prepared for the fact that communicable disease events do not always originate with traveling passengers, as demonstrated by an incident in which an airport responded to a Transportation Security Administration (TSA) agent with travel history to West Africa who became suddenly ill while on the job during a time of heightened concern about Ebola virus disease. In this case, a response was necessary even though it was later confirmed that the TSA employee did not have Ebola virus disease. Airports therefore were encouraged to prepare for local transmission of disease even when illness had been documented elsewhere. Finally, speakers from public health agencies, including Dr. Marcelle Layton of the New York City Department of Health and Mental Hygiene and Russell Jones of Tarrant County Public Health (Fort Worth, Texas), noted that some response actions will be pathogen specific. Alternatively, they will be at least specific to the mode of transmission (e.g., airborne versus droplet versus contact with bodily fluids) and duration of pre-infectious and infectious stages.

The planning would ideally also consider the different means by which airports learn of specific communicable disease threats. In some cases, airports learn of sick travelers on arriving flights, and this notification typically comes through air traffic control, airport operations, or airline medical teams. However, Dr. Rebecca Sunenshine of Maricopa County Public Health (Phoenix, Arizona) said airports should also be prepared for notification coming from unexpected channels. Planning for in-flight notifications should consider the possibility of airports receiving notification of ill travelers with limited advance warning before the estimated time of arrival and the possibility that notifications may come with few medical details on the ill passenger. Alternatively, and more commonly, airports may learn from public health authorities that a traveler who previously

passed through the airport had onset of communicable disease symptoms after arrival, and the traveler might have been infectious while at the airport. Dr. Sunenshine continued that airport plans should be prepared for both scenarios and described appropriate response actions regardless of the notification source.

Communicable disease response efforts typically require contributions from multiple individuals, from initial threat assessment to full execution of the response plan. Invited speakers, as described below, shared strategies for collaborating among the many different parties involved in response activities. For instance, Mr. Rausch and Dr. Sunenshine explained why critical response actions should never rely on a single individual, because outbreaks may occur when primary contacts are on vacation or otherwise unavailable. From airport first responders to local public health departments, plans should establish clear lines of authority and notification protocols based on the nature of the events. Every person mentioned by name in CDRP contact lists should be aware of their specific roles and responsibilities referenced in the plans. According to Mr. Rausch and Dr. Sunenshine, for all key stakeholders, CDRP contact lists should include multiple contact options (e.g., office phone number, cell phone number, and e-mail address), including preferred method of contact to use outside business hours and on weekends and holidays. Backup contacts, alternate contacts, or “call-down lists” were encouraged in case primary contacts are unavailable. Contacts for interpreters and translators are important for communicating with passengers who do not speak English. Ideally, all contact lists should be annually reviewed to ensure they remain up-to-date.

Many strategies are available for sharing information among key stakeholders. Mr. Rausch described how all stakeholders post the airport’s CDRP in electronic format to a secure web-based portal that is accessible. He stressed the importance of information sharing between stakeholders during all stages of response: as soon as possible after notification of a communicable disease concern, after completing the initial threat assessment, and so on. Conference calls and in-person meetings between all parties are an effective means for ensuring that stakeholders are fully informed and can quickly implement actions assigned to them. Use of commercially available emergency mass notification systems can facilitate these notifications and interactions. In some cases, airports might be asked to share video camera footage of passenger activity at gates, within terminals, at baggage claim carousels, and in other locations to assess the extent to which potentially contagious passengers interacted with other travelers and to identify areas requiring disinfection.

Dr. Layton emphasized the need to know in advance which ambulance services are willing to transport patients

suspected of having high-risk communicable diseases and which local medical facilities are equipped and willing to accept, evaluate, and treat those patients. In many cases, the hospital best suited to accept, evaluate, and treat is not the nearest medical facility to the airport. (*Note:* Knowing the closest hospital is still important when traveling passengers are clinically unstable and in need of immediate care, even if the individual is suspected of having a communicable disease of public health concern.) Experience during the 2014–2016 Ebola virus disease outbreak indicated that some medical facilities—including certain hospitals—were not willing to accept patients suspected of having the disease. CDC has information on hospitals that have agreed to accept patients suspected of having communicable diseases of public health concern and have appropriate infection control protocols and other protective measures for doing so. Dr. Layton also encouraged emergency planners to memorialize agreements with ambulance carriers and hospitals in memoranda of understanding or some other mechanism.

Airports were also encouraged to consider employee preparedness in their CDRPs. Ms. Nobel recommended establishing contingencies for a high percentage of employee absences, even among essential employees. This scenario may occur during certain disease outbreaks (e.g., pandemic influenza) due to illnesses among employees and their family members. Employees may also miss work for fear of exposure to communicable diseases—an issue that education and training on infection control measures can help address (*see* the Resources section at the end of this chapter). Coordination with human resources may be needed to implement new vaccination programs, clarify sick leave policies, or develop guidelines and protocols for issues of concern (e.g., whether and under what circumstances employees may wear masks to work). Ms. Nobel described a strategy adopted by the Port of Portland to foster employee preparedness: participation in the “Push Partner Registry.” This program provides for rapid distribution of medication and other health-related services to employees and their families in the event of a communicable disease outbreak, bioterrorism attack, or similar event. Reduced absences among employees are anticipated when the workers are assured that their entire families are cared for.

Speakers shared many additional considerations for communicable disease response planning. An issue discussed throughout the Insight Event was the jurisdictional authority to detain passengers who are confirmed to have, or who are suspected of having, a communicable disease. Chapter 2 summarizes this discussion. Some simple infection control strategies, mentioned by Dr. Amy Sullivan (now with the Washington State Department of Health) and others, include implementing various measures during periods of heightened concern about communicable disease transmission such

as increased cleaning of “high-touch” areas and placement of hand sanitizer dispensers throughout terminals. Dr. Ansa Jordaan from the International Civil Aviation Organization (ICAO) encouraged airports to consider whether their geographic region’s climate might sustain seasonal or year-round mosquito populations presenting risks for certain diseases (e.g., Zika virus). This is a topic the ICAO is in the process of addressing through the Airport Vector Control Register and a risk assessment and decision-making tool regarding aircraft disinsection. Finally, Dr. Gaber discussed approaches for triaging passengers on arriving flights when a passenger is suspected of having a highly contagious communicable disease. One approach Dr. Gaber adopted was the use of color-coded cards to categorize passengers based on risk. Red-colored cards were used to denote the index passenger, who is immediately isolated and, if necessary, transported to a local hospital. Yellow-colored cards were used for close contacts and flight attendants who served the index passenger, and those individuals were directed to health screening. Green-colored cards were used for all other passengers and flight crew, and those individuals were given informational leaflets and allowed to proceed with their travels.

Invited speakers identified several resources for further information on emergency management needs in the context of communicable diseases. The American Association of Airport Executives, Airports Council International–North America, the International Association for Emergency Managers, and other professional organizations can provide technical information and guidance. Additionally, smaller airports seeking to enhance their emergency management capability can learn from experiences at larger airports. Ms. Helton noted that DFW, for example, is establishing an Emergency Management Academy of Aviation at its Fire Training Research Center that will offer various emergency management courses, including a course specific to public health issues. See Appendix C for more information on the resources available to airports.

Testing the Communicable Disease Response Plan

Dr. Cetron emphasized the value of CDRPs and urged colleagues against accessing these plans only during outbreak scenarios. Rather, because CDRPs establish critical processes with roles and responsibilities assigned to numerous stakeholders, airports must ensure that the plans undergo routine testing. Emergency or crisis scenarios are not appropriate times to implement plans or to meet stakeholders for the first time.

Nearly every airport has tests, drills, and exercises to prepare for responding to mass causality incidents,

natural disasters, and manmade events (e.g., bomb threats). However, fewer airports have similar activities for communicable disease responses. Ms. Helton, Mr. Rausch, Ms. Nobel, and Dr. Gaber all emphasized that tabletop exercises, drills, and functional and full-scale exercises are invaluable in identifying vulnerabilities, improving overall preparedness, and fostering collaboration among stakeholders. The stakeholders involved in responding to communicable disease concerns differ from the stakeholders with typical responses to accidents or mass casualty incidents. These speakers said airports should consider different scenarios when conducting exercises, such as responding to an incoming aircraft with passengers suspected of having communicable diseases and learning from a public health authority that a traveler with a communicable disease recently passed through the airport. The exercises should be conducted routinely and test all activities from initial threat assessment to the broader public health response. Walking through every step of the response will help ensure that seemingly minor details do not become major impediments during an actual event. Such details can include ensuring public health department officials know exactly where to access the airport, whether they know to access airside or landside, and ensuring that all key players have access to PPE and have been trained on how to use. Designated observers can evaluate performance during the exercises and recommend improvements.

Even “false alarms” or “no-case” scenarios can be viewed as opportunities to evaluate and improve plans. During times of heightened alert for communicable diseases, false alarms become increasingly common. Dr. Sullivan cited several examples of hypersensitivity among the traveling public during the Ebola and SARS outbreaks, in which even the slightest health concern of an airline passenger would trigger activation of an airport’s CDRP. These responses, which were essentially unplanned and unscripted drills, had many benefits, including assuring the public of the airport’s preparedness and allowing the airport to conduct post hoc evaluations of their response.

Reevaluating and Revising the Communicable Disease Response Plan

Ms. Helton and Mr. Rausch encouraged airports to view their CDRPs as living documents to be frequently evaluated and continuously improved. Every training program, exercise, drill, disease outbreak, and even “false alarm” of outbreaks can be viewed as an opportunity to reflect on and reevaluate plans and improve them. Plans may need to be revised to address challenges associated with new emerging infectious diseases.

Invited speakers listed many events that led them to reevaluate their CDRPs. For example, Mr. Jaynes explained how DFW updated its plan to integrate lessons learned from a recent tabletop exercise to assess preparedness for MERS outbreaks, and Mr. Rausch noted how Phoenix revisited its plan after identifying vulnerabilities when responding to an incoming flight with a passenger who was suspected of having infectious tuberculosis. In both cases, debriefings and after-action meetings among the key stakeholders were used to identify improvements. Another airport reported conducting quarterly case reviews to assess activities during the previous 3 months (e.g., what worked, what did not work, or what can be improved). Finally, airports were encouraged to check elements of their CDRPs against standard operating procedures and plans adopted by other airports to the extent they are available. Through these and other activities, airports can ensure that their CDRPs incorporate best practices from throughout the industry.

Other Perspectives on Risk Management Activities

At the federal level, many agencies have responsibilities for reducing transmission of communicable disease via air travel and in airports. Discussions at the Insight Event largely addressed CDC’s role, though agency officials acknowledged their coordination with other government agency partners (*see* the Stakeholders section that follows). While CDC has a much broader role than addressing airport-specific issues, this summary focuses on topics specific to airports and air travel that were mentioned during the Insight Event.

Drs. Cetron, Layton, Sullivan, and Sunenshine shared many examples of preparedness activities for reducing communicable disease transmission associated with air travel. They explained that CDC and other agencies monitor emerging infectious diseases worldwide to assess those that pose the greatest risk for spread into and within the United States, thus allowing the public health community to be prepared for imported cases from affected regions. They further noted that CDC maintains 20 quarantine stations at ports of entry nationwide, where medical and public health officers work to limit introduction of communicable diseases into the United States, prevent spread of disease through travel, and coordinate with airport and public health partners to enhance their preparedness. Finally, these speakers indicated that, in 2017, CDC led six communicable disease exercises with various domestic and international partners, reviewed and updated more than 20 CDRPs, and held workshops to educate partners on developing effective CDRPs.

In terms of communicable disease response, much of the Insight Event discussions addressed the Ebola virus disease outbreak in West Africa, where the response from CDC and other agencies was multifaceted. Dr. Illig explained that the general response activities included supporting the local public health system to ensure cases were promptly identified, isolated, monitored, and cared for. General response activities also included identification and tracking of close contacts and education and support for the health care delivery system (i.e., clinicians, hospitals, urgent care facilities, and other medical care providers).

The priority issues for domestic airports and air travel interests during the Ebola virus disease outbreak were to prevent spread of disease from affected areas to other locations, whether through diagnosed patients seeking treatment abroad or through undiagnosed travelers. Dr. Cetron listed specific measures to be considered for implementation. These measures included the following: limiting all incoming air travel passengers from Ebola-affected regions to the United States to a few selected airports with CDC quarantine stations and building further public health response capacity at those airports; implementing primary exit screening in the affected regions with visual inspections, temperature readings, and questionnaires about exposure history; conducting additional assessment by trained public health professionals (secondary screening) for those identified with signs or symptoms compatible with Ebola virus disease or those who reported potential exposure to Ebola; and implementing targeted entry risk assessment with different actions taken for all travelers from outbreak areas and for those travelers who have reported symptoms or other risk factors for Ebola virus disease exposure. The overall response did not stop at the airport, as CDC further ensured that state and local health departments implemented ongoing monitoring of passengers arriving from Ebola-affected regions to ensure cases did not develop in the United States.

The recent Ebola virus disease experience from 2014 to 2016 provided valuable lessons learned on how to implement these strategies. Dr. Illig shared examples of lessons learned about passenger-screening strategies such as careful planning so that exit screening does not interfere with commerce and travel itineraries, balancing protection of public health against respect for personal liberties, ensuring screening is conducted in a manner that does not raise fear among passengers, and applying screening to all passengers and crew members (i.e., no exclusions). Another lesson learned was that even highly effective exit screening measures will not identify all infected or “at risk” travelers, especially when people are motivated to hide their exposure history—and this lesson underscores the importance of preparedness at airports that receive these passengers.

Invited speakers also discussed how contributions from the academic and research community are informing

communicable disease preparedness. Dr. Khan described one such contribution: a modeling analysis used data on air travel, climate, ecological habitats, and other factors to predict which regions worldwide might eventually see local transmission of Zika virus, whether on a seasonal or ongoing basis. The grander vision of these data-driven models is to inform airports and health care workers when they appear to be “in the path of” certain disease outbreaks. While the available models account for an impressive array of factors that affect communicable disease transmission, they do not yet fully capture the underlying complexities regarding emergence, transmission, and broader spread of communicable diseases. Drs. Khan and Cetron supported further development and refinement of these models, but they emphasized that airports and other stakeholders must continue to prepare for communicable disease outbreaks, regardless of the threat level suggested by predictive or anticipatory models.

The aviation sector is another component of the broader communicable disease preparedness efforts. An attendee noted that most major airlines have pandemic response teams that work in parallel with airports to prevent transmission of communicable diseases. The airlines routinely address related issues of concern, such as use of appropriate PPE for aircraft cleaning crews, strategies for disinfecting aircraft, and whether to provide fee waivers to passengers who are scheduled to travel to areas affected by disease outbreaks and wish to change or cancel their itineraries. Dr. Sullivan relayed an experience of coordinating with airlines to learn about the specific technologies and strategies that they implement to prevent disease transmission.

STAKEHOLDERS

Many different stakeholders contribute to airports’ role in reducing the spread of communicable disease transmission. These include individuals and organizations who prepare and help execute preparedness and response plans and those whose jobs and activities are affected by these plans. Addressing communicable disease risks involves coordination among experts from numerous disciplines and therefore requires multisector and multipartner collaboration, sharing of information and best practices, and regularly scheduled meetings and joint exercises. The Insight Event presentations identified different stakeholders for communicable disease issues and discussed their roles, jurisdictional responsibilities, and opportunities for collaboration.

Airport Perspectives

Ms. Helton, Mr. Jaynes, Mr. Rausch, and Ms. Nobel listed the various stakeholders involved with their

communicable disease response planning efforts. The primary airport department identified as a key stakeholder is emergency management, given the existing relationships with many other stakeholders of interest. Other airport departments or organizations involved with communicable disease response issues include emergency medical services (EMS), operations, public information officers (PIOs), executive management, law enforcement, and customer care teams. Airlines, other onsite employers, contractors, and unions also were identified as stakeholders. These speakers listed numerous external stakeholders, both at the local level (e.g., public health departments, health care delivery system establishments, or emergency management officials from surrounding jurisdictions) and at the national level (e.g., CDC, U.S. Customs and Border Protection, or TSA).

Airport officials described how they interacted and engaged with various stakeholders, emphasizing the need to delineate roles, responsibilities, and jurisdictional authorities clearly. For example, Mr. Jaynes and Mr. Rausch emphasized the importance of knowing who has the responsibility and authority for deciding when to isolate, quarantine, or conditionally release travelers on flights with concerns about communicable diseases, and how those responsibilities and authorities vary for international and domestic flights. Understanding this authority, as well as whether anyone has authority to hold an entire departing flight due to communicable disease concerns, will lead to a more coordinated response. No single approach was discussed, because stakeholder roles are ultimately expected to vary from one airport to the next airport based on site-specific issues (e.g., whether airports are run independently by port authorities or a similar organization or have oversight by cities, counties, states, or even multiple states or whether the airport has a CDC quarantine station).

The appropriate stakeholders from state and local public health departments vary by jurisdiction. Dr. Julie Morita, Planning Committee Chair for the Insight Event, explained that public health agencies typically have multiple specialties within their organizations that could be involved with communicable disease threats and air travel. These specialties include emergency preparedness, infectious diseases, immunizations, public relations, and others. Airport officials would benefit by ensuring that their stakeholder engagement efforts target the appropriate specialties within their public health agency partners.

Merely identifying stakeholders is not enough to ensure effective communicable disease response. Several invited speakers emphasized the need for emergency management officials to engage regularly with key stakeholders, as the first contact with a key stakeholder should never occur during a crisis scenario. Dr. Layton noted the value of holding periodic in-person meetings with key stakeholders, at frequencies ranging from quarterly to annually, in addition to interactions that occur during planned

exercises and drills. There may be a need for more frequent meetings following revisions of CDRPs, staff turnover, and other circumstances.

A common issue addressed in multiple presentations, particularly the presentations pertaining to New York, Phoenix, and Portland, is jurisdictional authority for detaining and isolating passengers due to concerns of communicable disease transmission, which is an issue that underscores the balance that airport and government officials must strike between the need to simultaneously protect public health and also individual civil liberties. In several incidents reviewed during the Insight Event, airport officials, public health agencies, and law enforcement officials voiced uncertainty about the specific circumstances under which they can temporarily detain passengers out of concern of communicable disease transmission and how this authority varies based on traveler location (e.g., while still at the airport or after having left the airport). Dr. Sunenshine recalled a specific experience, in which public health officials had concerns about a potentially contagious passenger, but documentation had not yet arrived to confirm this concern and local law enforcement was not comfortable detaining the passenger under those circumstances.

While federal regulation authorizes isolation, quarantine, and conditional release for travelers confirmed or reasonably believed to have or to have been exposed to a quarantinable communicable disease (as defined by executive order) and recent updates to federal regulation have added clarity to this issue, such as specific provisions for due process, questions remained about these authorities among participants. Mr. Jones and other speakers encouraged parties involved with emergency management efforts to be aware of federal agency authority and state and local authority, if any, to isolate cases and quarantine contacts. Dr. Sunenshine encouraged emergency planners to consider nuances in these respective authorities. These nuances include how the authority situation changes if the case is confirmed as opposed to the case only being suspected; the recognition that laboratory confirmation of actual disease among suspected cases can take several hours or days; and whether local public health departments must visually inspect a passenger before issuing an isolation order in cases in which they have that authority or whether they can issue an isolation order by phone based on details provided by EMS. CDC's website on legal authorities for isolation provides more information on this topic (*see* <https://www.cdc.gov/quarantine/aboutlawsregulations/quarantineisolation.html>).

National Perspectives

Dr. Cetron described the various CDC communicable disease planning, preventive measures, and response efforts

that occur at the national level and noted the many partnerships the agency has developed pertaining to airport roles in reducing transmission of communicable diseases. While CDC has a leadership position on this topic, CDC frequently engages with a number of other organizations:

- International organizations, such as the World Health Organization (WHO), ICAO, the International Flight Services Association, and ministries of health in numerous countries.
- Numerous federal agency partners, such as the U.S. Department of Homeland Security and agencies within that department (e.g., TSA, U.S. Customs and Border Protection), the Federal Aviation Administration, the Occupational Safety and Health Administration (OSHA), the Food and Drug Administration, and the Department of Agriculture.
- State and local partners, including airport authorities, public health agencies, fire departments, law enforcement, and EMS.
- Various other groups, including airlines, trade associations, and nongovernmental organizations.

COMMUNICATIONS

The planning committee advised that effective communications between various airport stakeholders is critical for ensuring that concerns about communicable diseases and air travel do not become pandemics of fear and misinformation. Effective communication strategies have many components. They address both internal airport communications and interactions with external parties (e.g., airlines, inflight medical consultation services, the media, or government officials), health education messages that airports need from medical authorities, and information and data sharing with public health agencies. The invited speakers addressed many communications challenges, such as the need to dispel myths, address public perceptions of risk, and issue clear and consistent messaging, especially during disease outbreaks. Insight Event discussions addressed three types of communications: with travelers and the public, with various airport personnel, and with the media and through social media.

Communicating with Travelers and the Public

Ms. Helton and Dr. Sullivan emphasized the need to ease fears about travel during times of disease outbreaks among traveling passengers and the broader public. Failure to do so can lead to concerned passengers canceling flights with subsequent impacts on tourist revenue, which was demonstrated by the considerable economic impacts that some areas experienced during the SARS

outbreak (as reported by Dr. Khan). However, in today's highly interconnected digital world, with many aircraft now equipped with wireless connections, it is possible that misinformation, rumors, and sensational accounts of risks can travel faster than the aircraft themselves. The Insight Event's invited speakers discussed many strategies for ensuring effective communications about communicable disease concern to travelers and the public:

- Ms. Nobel and Dr. Sullivan shared experiences from the Portland International Airport. Specifically, an ill airline passenger requiring emergency medical attention for suspected communicable disease can be frightening to other passengers on the same aircraft. Whenever possible, potentially exposed passengers should receive health information before leaving the airport or at least receive an informational leaflet and contact information for designated public health officials in case passengers have additional questions in the ensuing days. Failure to provide this information may result in hundreds of passengers seeking medical advice from their individual physicians, who may not be aware of the specific communicable disease concerns from the flight. One example shared by Dr. Sullivan was a "contact information card" that the Portland International Airport provided to all passengers on an aircraft with concern for communicable disease transmission. This particular card is designed to be torn into two pieces, and these pieces serve different purposes. First, on one part of the card, passengers enter their contact information and relative position on the aircraft and return the completed information to the public health authority, allowing for prompt follow up should subsequent testing of the ill passenger reveal a communicable disease of concern. Second, the other part of the card includes contact information for the local and state public health departments, which passengers retain and are encouraged to use should they develop illness shortly after arrival.
- When communicating with a general audience of passengers regarding communicable disease threats, Ms. Helton noted that airport officials typically rely on public health agencies to develop talking points and messaging. Information must be disseminated effectively and quickly such that airports "own" the narrative before other parties (e.g., the media or bloggers) define messages and circulate them through social media or other channels. These communications can achieve multiple goals, like raising awareness among airport customers of a communicable disease threat, informing traveling passengers of signs and symptoms to look for, and reminding them of basic personal hygiene practices. Many different methods are available to disseminate messages from conventional handouts of health

advisories and travel health notices to broadcasting public health messages on airport monitors.

- Ms. Nobel, Mr. Rausch, and Ms. Helton emphasized that airport PIOs play an essential role when communicating health messages to the public, because PIOs are trained in the nuances and sensitivities associated with communicating effectively to the public. Airport PIOs understand the need to deliver consistent messaging that is calming and clear and reassures that an entire airport is not contaminated.
- Outreach and communications during a communicable disease outbreak scenario, especially one involving international travel into large metropolitan areas, must be culturally sensitive and in languages appropriate for the travelers and affected areas of interest. Dr. Layton noted that messaging should be conducted in a manner that does not place a stigma on people known or suspected to have a disease or on entire communities that might be associated with a disease. Compliance with federal accessibility requirements will ensure that outreach messages are accessible to people who are blind or visually impaired, deaf or hard of hearing, or have other disabilities.
- Invited speakers shared two specific examples of health communications messaging for airport customers during a period of heightened concern about the Ebola virus disease. First, Dr. Cetron noted that CDC has developed Check and Report Ebola Kits (CARE Kits) that offered detailed information specific to Ebola virus disease and included information and tools to help travelers participate in the required postarrival monitoring. CDC ensured that all incoming travelers who were in a country with an Ebola virus disease outbreak received these kits. Second, Ms. Helton and Mr. Jaynes explained how DFW received health education messages from Mr. Jones and other local public health officials and shared them with the airline operations center, 911 operators, and other airport stakeholders that serve as the first line of communication with the traveling public. This preparation helped the airport to respond to an increasing amount of inquiries from the public (e.g., “Is it safe to fly?” “Should I come to the airport?” “Are there any travel restrictions?” “How do you disinfect the terminal?”) but also know which questions should be deferred to public health officials (e.g., “What should I do if I think I might have a communicable disease?”).

Communicating with Various Airport Personnel

Larger airports in the United States sustain thousands of jobs, including airline and airport employees, security personnel, fuel services workers, concessionaires,

caterers, mobility providers, and others. During communicable disease outbreak scenarios, continuity of airport operations can be jeopardized if employees do not report for work. Dr. Illig noted that increased worker absences among airlines serving airports in Ebola-affected countries led some airlines operating in West Africa to recruit volunteers for certain airport positions during the outbreak. Communications strategies, therefore, should also aim to provide information and awareness to all workers at airports, regardless of employer. Example strategies for effective communications to workers included the following:

- During the Ebola virus disease scare, Mr. Jaynes explained how DFW used health education materials developed by CDC to inform first responders about Ebola virus disease transmission modes and how to recognize the earliest symptoms of disease. The airport also consulted with expert medical professionals, Doctors Without Borders, public health agencies, and other organizations to provide informational materials to first responders. The airport ensured that all workers who might have direct contact with affected passengers received these precautions, as even workers who specialized in emergency medical services needed assurances and education about handling potentially infected travelers.
- Although first responders come into closest contact with potentially contagious passengers, airports typically have hundreds or thousands of other workers who also are at risk for communicable disease transmission. Ms. Nobel described several instances where an infected passenger passed through the airport but was not symptomatic or did not report to public health officials until several days later. In those cases, the airport worked with the affected airline and local public health department to research thoroughly the ill passenger’s activities in the terminal. Closed-circuit television footage often helped provide detailed information on the ill passenger’s movements and contacts with other travelers and airport workers. This research allowed the public health department to issue highly detailed health education messages to workers that specified the precise locations where, and the times when, the ill passenger was in the terminal. Such detailed information was well received by workers because they could then better understand their risk. In this case, workers in different concourses or on different shifts were assured that their risk was minimal, and the remaining workers were provided educational information about the disease of interest.
- Ms. Nobel also emphasized that all workers directly involved with communicable disease response activi-

ties, both at airports and with key stakeholders, would benefit from being trained and educated on the CDRP and how it relates to their positions. Emergency planners would then benefit from considering what training to give, to whom, and how often, as well as the optimal means of training delivery. The remaining airport workers (e.g., concessionaires, restaurant workers, or shuttle bus drivers) can benefit from educational messaging about communicable disease transmission, particularly during periods of heightened concern about outbreaks. Airport newsletters, flyers, and educational signs in worker lounges can remind workers of basic personal hygiene practices and other infection control measures that will help protect them from pathogens. Airports were also encouraged to adopt messages issued by public health agencies regarding when sick workers should stay at home, such as during periods of widespread influenza activity in an airport's metropolitan area.

Communicating with the Media and Through Social Media

As illustrated by a newsreel shown at the 2-day Insight Event, the traditional news media have reported on previous communicable disease outbreaks within the context of air travel and sometimes in an overly sensational fashion. Some discussions addressed the extent to which airport PIOs and other stakeholders can coordinate with traditional news media in advance of outbreaks to ensure that future reporting is done responsibly, thus making the media more of an asset than an adversary during crisis situations. Dr. Cetron indicated that CDC has previously engaged health reporters across different news media outlets to educate them on emergency preparedness and response efforts in the hopes that reporting during future outbreak situations will be based on facts and not hyperbole. Regardless of the extent of advanced coordination with the traditional news media, invited speakers acknowledged that effective messaging to media outlets is critical, especially considering how quickly media can become involved. Dr. Sunenshine, for example, relayed an example of a local public health department receiving its first media inquiry about an arriving passenger suspected of having infectious tuberculosis approximately 2 hours after the aircraft landed. Dr. Sullivan shared a similar example in which media outlets deployed reporters to cover Ebola concerns for an incoming passenger at approximately the same time that public health officials began responding.

Communications with the media should not be limited to traditional news outlets. Mr. Jones emphasized that a large segment of the population, particularly younger people, obtain news and information largely, if not

entirely, through social media. Mr. Jones, Ms. Helton, Dr. Cetron, and other speakers encouraged PIOs to leverage social media to educate the public about communicable disease threats associated with air travel. This education can occur both by issuing messages through social media outlets and by monitoring social media for misinformation and rumors, recognizing that accounts of potentially ill air travelers can spread rapidly on social media even before an arriving aircraft lands. In short, social media allows rapid distribution of messages to large audiences and can be monitored for inaccurate information and alternate story lines that airports and public health officials might need to address.

INFRASTRUCTURE

The built environment at airports—and the practices used to operate and maintain the built environment—can affect potential communicable disease transmission. Examples include allowing for adequate, designated space for passenger evaluation and isolation and implementing effective housekeeping, custodial, and infection control practices. Insight Event discussions pertaining to infrastructure addressed the following topics:

- The extent to which airports have infrastructure to triage and isolate sick passengers greatly varies. Airports with CDC quarantine stations, for example, have infrastructure to temporarily isolate and evaluate ill passengers. Dr. Cetron showed a photograph of a typical setup, which includes a negative pressure isolation room with enough space to accommodate an ill passenger, the passenger's family members, and public health officers and an anteroom stocked with PPE and medical supplies. The stations are sited near the U.S. Customs and Border Protection federal inspection service facilities and are accessible to the airport apron to facilitate EMS transport from aircraft but are not large enough to isolate numerous passengers and do not have the equipment for performing advanced diagnostics and medical treatment. However, many ports of entry nationwide have inadequate designated isolation and quarantine facilities, and some ports of entry lack this infrastructure altogether. Airports were encouraged to consider this infrastructure issue when developing their CDRPs.
- Disinfection of surfaces in airport terminals and aircraft can help reduce communicable disease transmission. Ms. Nobel encouraged airport officials to research their current disinfection protocols and practices and update them as necessary, both for routine disinfection and for targeted decontamination (e.g., cleaning areas where passengers recently vomited). Janitorial,

custodial, and other staff with responsibility for disinfecting surfaces should be trained and equipped with sufficient supplies and, where necessary, PPE. Moreover, airports were also encouraged to be prepared to adjust their disinfection practices during disease outbreak scenarios or at the request of public health authorities and to consult with hazardous materials units when concerned about the presence of high-consequence pathogens. Aircraft disinfection faces these same issues, and the additional challenge for airlines in selecting disinfectants is ensuring they do not compromise aircraft structure or the performance of critical components. Dr. Jordaan noted that further information on this topic can be found in the World Health Organization's 2009 *Guide to Hygiene and Sanitation in Aviation*. (Note: the concepts in this paragraph also apply to the selection and use of insecticides as part of strategies for aircraft and airport vector control. This is an issue that has received increased attention in recent years as concerns grow about Zika virus and other vector-borne diseases and as some countries outside the United States implement mandatory aircraft disinsection requirements for in-bound flights.)

- Many workers from multiple employers respond to communicable disease threats at airports, and Ms. Nobel addressed the need for protecting workers from contracting diseases through performing their job responsibilities. These workers—first responders, public health officials, aircraft cleaning crews, and others—are provided PPE to ensure that they are not

exposed to pathogens and to ensure that their response activities do not lead to further disease transmission. Per OSHA regulation, employers are required to assess their workers' PPE needs, provide the PPE, and train the workers on use. PPE selection should balance the needs of protecting workers against ensuring workers are comfortable, able to communicate effectively with colleagues, and perform tasks that require manual dexterity. All employers involved with planning for and responding to communicable disease incidents involving air travel were encouraged by Ms. Nobel to routinely monitor their inventories of PPE, medical supplies, and other related equipment.

RESOURCES

Throughout the 2-day Insight Event, invited speakers referred to resources available to airports and other stakeholders to enhance their communicable disease response efforts. Appendix C presents bibliographic information for the specific documents referenced and shown during the invited speakers' presentations. This list is not a comprehensive bibliography of all information resources related to airport roles in reducing transmission of communicable diseases, because the list only includes documents and other information resources mentioned by invited speakers. Websites for government agencies and other organizations (e.g., CDC or ICAO) and the published literature include numerous additional documents that are topically relevant.

CHAPTER 3

Looking Forward

Air travel has the potential to rapidly spread communicable diseases both domestically and worldwide but airports—in coordination with many other stakeholders—can help reduce transmission through effective preparedness and response. The Insight Event identified opportunities for enhancing risk management, engaging with a broad stakeholder community, developing and implementing effective communication strategies, and ensuring airport infrastructure accommodates unique needs during disease outbreak scenarios.

Although the Insight Event was not designed to identify and prioritize future research topics on airport roles in reducing transmission of communicable disease, several participants offered suggestions to ACRP. The suggestions follow in order of presentation:

- While the Insight Event focused on airport roles, many other stakeholders beyond the airport boundary are involved with minimizing the broader impacts of disease outbreaks linked to air travel. Many individual attendees thought that ACRP's future activities on this topic would be valuable as they would facilitate greater involvement from the broader public health community, the aviation sector, selected trade associations (e.g., the Aerospace Medical Association or Airline Medical Directors Association), and other stakeholders.
- By design, the Insight Event addressed airport roles in reducing transmission of communicable disease at a broad conceptual level. Within this broad topic are numerous specific issues that could be the focus of future ACRP Insight Events or research activity. Some participants suggested the following events. They were to convene a future event between PIOs from airports and public health agencies to discuss communications and messaging during disease outbreak scenarios; to hold a session to review jurisdictional authorities for detaining passengers known to have, or suspected of having, communicable diseases; to hold an event to assess the utility and feasibility of entry and exit screening at airports; and to conduct regional workshops to allow for greater participation from airports and other stakeholders nationwide.
- Throughout the 2-day Insight Event, invited speakers and attendees identified numerous resources from government agencies, airports and the aviation sector, and other parties that present best practices on airport roles in reducing transmission of communicable diseases. Having a consolidated, searchable inventory of best practices would be highly beneficial to those who are developing and updating CDRPs.
- All attendees received a post-event evaluation survey. Of the 29 attendees who completed the survey, 93% indicated that attending the Insight Event was a valuable use of their time and 86% said they met and networked with attendees from industries other than their own. Individual attendees offered several suggestions for future Insight Events. These included using a webinar or other means for allowing remote participation; incorporating a broader array of stakeholders in future Insight Events on this topic (e.g., airlines or public health emergency response personnel); having more opportunities for audience engagement; conducting a full table-top exercise as an optional session; and bringing more international perspectives into the agenda.
- ACRP also encouraged attendees to use IdeaHub (accessed at <https://crp.trb.org/ideahub/>) to submit additional feedback and propose research topics. This web-based portal allows the airport community and other stakeholders to present ideas, view ideas and suggestions from other like-minded practitioners, and see which initial ideas transform into quality problem statements for further research.

APPENDIX A

Program

AIRPORT ROLES IN REDUCING TRANSMISSION OF COMMUNICABLE DISEASES

Organized by the
Airport Cooperative Research Program
Transportation Research Board

March 6–7, 2018
National Academy of Sciences Building
Washington, D.C.

SUMMARY

Airport and public health professionals addressed key challenges and issues facing the aviation sector to reduce the transmission of communicable diseases. The program for the event is available online at <http://www.trb.org/ACRP/ACRP-Insight-Event-Diseases.aspx>.

PRESENTATIONS

Delaying the Inevitable: Lessons Learned from Ebola Airport Screening
Petra Illig, M.D., Aviation Medical Services

Public Health Perspectives: Coordinating the Response to Imported Infectious Disease Threats in New York City
Marcelle Layton, M.D., New York City Department of Health and Mental Hygiene

Interconnected and Independent: Anticipating Infectious Disease Risks in an Increasingly Mobile World
Kamran Khan, M.D., University of Toronto

Collaboration and Communication: Airport Roles in Reducing Transmission of Communicable Diseases
Russ Jones, MPH, Tarrant County Public Health, Fort Worth, Texas

Dallas–Fort Worth International Airport 2014 Ebola Response
Deb Helton, Dallas–Fort Worth International Airport
Dustin Jaynes, Dallas–Fort Worth International Airport

High Infectious Diseases at an International Airport 2003–2018
Walter Gaber, M.D., Frankfurt International Airport

Partnerships and Other Practical Measures to Manage the Risk of Disease Transmission Through Air Travel
Ansa Jordaan, M.D., Aviation Medicine Section, International Civil Aviation Organization

PHX and Maricopa County Public Health—Partners in Preparedness
Rebecca Sunenshine, M.D., FIDSA, Maricopa County Public Health, Phoenix, Arizona
Christopher Rausch, ACE, Sky Harbor International Airport, Phoenix, Arizona

Airport & Public Health Partnerships: Success in Communicable Disease Response Planning
Amy Sullivan, Washington State Department of Health
Kori Nobel, Port of Portland, Oregon

APPENDIX B

Invited Speakers and Attendees

INVITED SPEAKERS

Capt. Martin Cetron, M.D., *Centers for Disease Control and Prevention*

Dr. Petra Illig, *Aviation Medical Services of Alaska*

Dr. Marcelle Layton, *NYC Department of Health and Mental Hygiene*

Dr. Kamran Khan, *University of Toronto*

Russ Jones, MPH, *Tarrant County Public Health*

Deb Helton, *Dallas–Fort Worth International Airport*

Dustin Jaynes, *Dallas–Fort Worth International Airport*

Dr. Walter Gaber, *Frankfurt International Airport*

Dr. Ansa Jordaán, *Aviation Medicine Section, International Civil Aviation Organization*

Dr. Rebecca Sunenshine, FIDSA, *Maricopa County Public Health*

Christopher Rausch, ACE, *Sky Harbor International Airport*

Dr. Amy Sullivan, *Washington State Department of Health*

Kori Nobel, *Port of Portland*

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Emory University
Leesburg, Virginia

Leila Barraza
Mel and Enid Zuckerman College of Public Health
Tucson, Arizona

Pat Baylis
United Airlines
Chicago, Illinois

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Fire and Rescue Department
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Clive Brown
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Edward Bushman
Los Angeles World Airports

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Christina Chommanard
Alexandria Health Department
Alexandria, Virginia

ATTENDEES

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Kathryn Como-Sabetti
Minnesota Department of Health
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Matt Cornelius
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Terrence Daley
Transportation Public Health Preparedness
Consultants LLC
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Gary Davis
Reagan National Airport
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Kristin DeBord
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Breanna Detwiler
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Daniel Early
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Kristen Rosdahl Ehresmann
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Congressional Research Service
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Food and Drug Administration, Center for Biologics
Evaluation and Research, Office of Biostatistics
and Epidemiology
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Barent Fake
Executive Advisors/IDEA
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Todd Felix
Harrisburg, Pennsylvania

Christopher Gay
Dallas–Fort Worth International Airport

Emma Fine
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Adriana Glenn
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Jonathan Hill
Centers for Disease Control and Prevention
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APPENDIX C

Resources Identified During Presentations

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