

Transportation in the Face of Communicable Disease

Beth Ewoldsen¹

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Abstract

Support for transportation planning and systems during the Coronavirus outbreak.



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Content Strategist Transportation Research Board The National Academies of Sciences, Engineering, and Medicine 500 Fifth Street, NW Washington, DC 20001

bewoldsen@nas.edu

If you work in the transportation industry, you are probably working through stages of your plan for the 2019 Novel Coronavirus (COVID-19). After all, part of the service you provide depends on the ability to keep people safe and healthy regardless of their travel plans.

Bernalillo County Public Works Division in New Mexico prepares through active planning and exercises that are funded through their regular operating budget. Research published in the peer-review journal, *Transportation Research Record* (TRR) looks at their systems in place. Basing their plan on analysis from the 1918 influenza pandemic, they plan for difficult choices among determining essential staff and clearly redefining roles for all personnel including political appointees, janitorial staff, civil engineers, field technicians, and clerical staff. The county is committed to intergovernmental cooperation and planning exercises showed essential functions could be relocated and operational more quickly than federal and local targets. A growing list of airlines and governments have banned international flights. Fortunately airports, airlines, first responders, and local health officials have been working in tandem to establish *response strategies, effective practices, and clear communication* to successfully combat the challenges of travel and disease. Their collaborations have *improved prevention, preparedness, and response* efforts.

Researchers have explored a bilevel decision making framework to determine the best set of outbreak control policies, while taking local and global outbreak dynamics into account. A case study explored a hypothetical epidemic outbreak using the worldwide air travel network to perfect optimization algorithms.

In regards to preventive measures, Trudy Henson, Public Health Program Director at University of Maryland Center for Health and Homeland Security says, "...it's important to take measured, science-based actions that build the public's confidence, not undermine it or create panic."

Henson co-authored a 2017 TRB Legal Research Digest after the Ebola outbreak in the mid-2010s. In some cases *workers returning from saving lives* were quarantined in the U.S., raising legal concerns about civil liberties. In addition to violating rights, "Closing or suspending transportation can make it difficult for people to get proper medical attention—which can actually increase the spread of a virus," she notes. Modeling done in the aftermath of the Ebola outbreak showed that air travel will facilitate the spread of disease in the cases of H1N1 and SARS. Research like this shows the importance of *collaboration between aviation and public health authorities* to establish preventive measures. The CDC has held health screenings at airports in response to the current outbreak since January. "These screenings are very effective at raising awareness of the outbreak, and are a great opportunity to educate travelers about what to look for, but the efficacy is unknown, particularly given that we are still learning about this new coronavirus," says Henson. Airport and public health officials addressed key challenges facing aviation's *role in reducing* communicable disease transmissions. In efforts to keep terminals and vehicles safe, many airports, bus, and train stations, can maintain *rigorous procedures for medical interventions* to prevent the spread of disease to passengers and staff. The aviation industry is not the only line of transportation defense against health emergencies. A country's *ports of entry* have a special role in protecting the public's health regardless of the mode of transportation. Even in non-emergencies, *transit ensures improved health care*.

As telework options are increasingly available, employee mobility needs are shifting. Coordination of regional transportation decision-making plays an important part in promoting regional business continuity after an emergency. Public-private partnerships, resource-sharing protocols, and technology application all support the capability of transportation to meet ongoing employee mobility needs so that business can continue as usual in outstanding situations. Partnerships between airports, airlines, and additional organizations known as *emergency working groups allow staff to aid victims and their loved ones* in the face of aviation incidents resulting in injury or death. A March 23 webinar that is free and open to all will explore *practices learned from other disease outbreaks*. A 2020 webinar gave aviation professionals the tools to *establish these partnerships* at their own airports. A 2018 webinar examined the *legal issues that transit agencies* may face in case of an infectious disease epidemic. COVID-19 poses evolving risks to economic activity. A TRB committee proposed changes in *transportation funding programs in light of economic downturns* that would sustain spending during economic downturns and methods for evaluating that spending.

TRB will continue to study the topic with workshops already planned around *Effective Collaboration to Plan and Respond to Communicable Disease Threats* in 2020. Registration is open for the workshops in Houston, Minneapolis, Irvine, and Washington, D.C. To take the next step in your career, get involved with *TRB committees* dedicated to transportation and safety. Stay up-to-date on COVID-19 with the *latest news and resources* from the National Academies of Sciences, Engineering, and Medicine. Agencies and organizations can use *TRB publications* and *online resources* for useful and timely information to help address virtually any issue related to transportation. Through its convening activities, TRB can also help agencies by *bringing together the brightest minds* to discuss and develop solutions to problems and issues facing the transportation industry. Through its advising role, TRB can *develop policy studies* for agencies to use when tackling complex and often controversial issues of national significance. TRB resources in this article:

- *Preparing Airports for Communicable Diseases on Arriving Flights*
- *Airport Roles in Reducing Transmission of Communicable Diseases*
- *Respecting, Enabling, and Involving All Personnel in a Sustainable Continuity of Operations Plan (TRR)*

- *Intergovernmental Cooperation in Benchmarking a Local Government Continuity-of-Operations Exercise (TRR)*
- *Public Transit Emergency Preparedness Against Ebola and Other Infectious Diseases: Legal Issues*
- *Germs on a Plane: The Transmission and Risks of Airplane-Borne Diseases (TRR)*
- *ACRP Insight Events*
- *A Guide for Public Transportation Pandemic Planning and Response*
- *Cost-Benefit Analysis of Providing Non-Emergency Medical Transportation*
- *Effective Collaboration to Plan and Respond to Communicable Disease Threats*
- *Multiscale Network Model for Evaluating Global Outbreak Control Strategies, TRR*
- *Integrating Measures for Business Continuity and Transportation Demand Management to Ensure Regional Emergency Preparedness and Mobility, TRR*
- *Emergency Working Groups at Airports*
- *TRB Webinar: Let's work together: Airport emergency working groups*
- *TRB Webinar: Emergency Preparedness Against Infectious Diseases on Public Transit*
- *Transportation Investments in Response to Economic Downturns*

Additional TRB activities regarding transportation and disease:

- *Airport Response During Communicable Disease Outbreaks*
- *Airport Public Health Preparedness and Response: Legal Rights, Powers, and Duties*
- *Infectious Disease Mitigation in Airports and on Aircraft*
- *Quarantine Facilities for Arriving Air Travelers: Identification of Planning Needs and Costs*
- *Legal Issues in Public Transit Emergency Planning and Operation*
- *Emergency Preparedness, Response, and Recovery in the Transit Industry*
- *TRID Transportation Research Database indexed with communicable disease*
- *The Vector-Borne Disease Airport Importation Risk Tool*

By Beth Ewoldsen/Transportation Research Board