

women who had severe preeclampsia. Along with providing traditional screenings, the researchers will use imaging of the blood vessels, heart, and brain to study what occurs after pregnancy complications. The researchers also hope to test diet, exercise, and pharmacological interventions in the group.

Meanwhile, an ongoing [study](#) funded by the National Institute of Child Health and Human Development aims to identify modifiable factors that mediate cardiovascular disease risk through the first few years postpartum among women who had adverse pregnancy outcomes.

Two recent observational studies from the NHS II cohort suggest that a healthful lifestyle—and particularly maintaining a healthful weight—can mediate the detrimental effects of pregnancy complications on [cardiovascular disease](#) and its [risk factors](#). Data on pregnancy complications is also being collected from the [Nurses' Health Study 3](#) (NHS3) cohort, which may prove even more informative. According to NHS3 principal investigator Jorge E. Chavarro, MD, of the Harvard T.H. Chan School of Public Health, this younger group receives brief questionnaires every 6 months and is surveyed about specific key exposures such

as diet and exercise before, during, and after pregnancy. Women who are pregnant or trying receive additional questionnaires. This wasn't possible with the previous cohort, which is being surveyed only every 2 years.

For now, physicians who study pregnancy complications want women who experience them—and their health care team—to understand the increased risks. "Here you are carrying this really significant history, and nobody pays attention to it," Rana said. ■

**Note:** Source references are available online through embedded hyperlinks in the article text.

## The JAMA Forum

# Public Health Emergency Preparedness: Globalizing Risk, Localizing Threats

Lawrence O. Gostin, JD

Infectious diseases are a constant reality, yet it takes a shock to jolt the public's attention and spur political action. The past weeks saw such as a shock at busy US airports, with the emergency quarantine of 3 flights. At the same time, seemingly a world away, [insecurity, weak health systems, and distrust](#) are fueling a second major Ebola outbreak in the Democratic Republic of Congo (DRC) this year. Yet reacting to periodic shocks won't safeguard our collective future. Emergency preparedness requires proactive planning and funding, with US leadership pivotal.

## Quarantines at the Border

In the first week of September, the Centers for Disease Control and Prevention (CDC) quarantined 3 flights, carrying sick passengers into New York City and Philadelphia. On 1 of the flights, Emirates Flight 203 from Dubai, 100 passengers fell ill. A [dozen passengers](#) were treated for suspected [influenza](#). The CDC, which maintains quarantine stations at all major points of entry, [quarantined](#) the flights, inspecting passengers and crew.

The CDC's response was [efficient](#), following the recently adopted [Final Rule for Control of Communicable Diseases](#) to the letter. The common link among many sick passengers was they were returning from

the hajj, the annual pilgrimage of Muslim worshippers in Mecca. The hajj is the world's largest annual gathering, congregating tens of thousands in a tight space—a major public health test every year. This is a region with an actively circulating novel coronavirus, the virus that causes Middle East Respiratory Syndrome (MERS). Imagine the catastrophic consequences if doz-

ens, or hundreds, of people who had contracted MERS or highly pathogenic influenza boarded flights to crowded cities.

The CDC quarantines were reminders that the United States is not isolated from the world. The Dallas County Health Department [did not diagnose and isolate a patient with Ebola virus disease returning from Liberia in 2014](#). When he was hospitalized,



2 nurses contracted the infection—and 1 later flew on a domestic flight. Amidst public panic, fear spread faster than any virus can replicate. Other high-income countries also have been vulnerable. The venerable Korean health care system, for example, failed to contain MERS after a passenger arrived from Saudi Arabia in 2015, and 186 total cases and 36 deaths ensued. The government struggled to maintain social order while quarantining 17 000 residents. Although seasonal flu on the recent quarantined flights turned out to be far more routine than Ebola or MERS, the incidents revealed the danger of high-velocity travel.

### Ebola in the Congo: Echoes of West Africa

Meanwhile, a very different outbreak in the DRC is ongoing, where Ebola has—for the 10th time—emerged to threaten the population. The DRC has a weak health system, a history of conflict, and public distrust of government. (As of September 24, there were 151 confirmed or probable cases, including 101 confirmed or probable deaths.) Failures of communication and community engagement have impeded the response.

Although vastly smaller in scope, the episode is reminiscent of the largest Ebola outbreak in history. The 2014-2015 West African epidemic recorded 28 616 Ebola cases and 11 310 deaths. The DRC's Ministry of Health, supported by the World Health Organization (WHO) and partners, has undertaken outbreak control measures, including contact tracing and "ring" vaccination (of health workers and contact cases).

### 36 Hours to Circumnavigate the Globe

In 36 hours, an infectious disease can travel from the most remote point on Earth to its most dense population center. Once there, infection can take hold rapidly. Virulent pathogens are circulating globally, whether it's avian influenza in China, Nipah virus in India, or even measles in the United States.

The dangers of diseases both novel and ancient are real and constant. Lack of preparedness, weak health systems, and poor international coordination exacerbate the threat. Failure to fully fund research and development will leave the world more vulner-

able. We have already seen the risks of understocked vaccines for infections such as yellow fever, and scientists have been calling for years to reduce the overzealous use of antibiotics as drug resistance rises. Disease and pathogens are persistent opportunists, and the world must be as well.

### A Call for Planning and Preparedness

The CDC's rapid response to influenza among air passengers—and the WHO's timely intervention in the DRC—demonstrate the potential for decisive action to contain pathogenic risks. Yet the threat of fast-moving pathogens continues unabated, driven by mass travel, urbanization, human and animal interchange, and climate change. As the world marks the 100th anniversary of the catastrophic 1918 influenza pandemic, we are reminded just how vulnerable humankind can be.

The United States has long assumed leadership in global health security on many fronts, ranging from being the WHO's largest funder to its world-class biomedical research. It was the first country to mobilize the response to Ebola in West Africa. Acting proactively, the United States can safeguard poorer nations, while protecting US residents at home. Here are 3 priorities to advance health security.

*Sustainably fund the WHO.* After its dysfunctional response in West Africa, the WHO undertook reforms, including a new health emergencies program, a contingency fund for emergencies, and the Joint External Evaluation under the International Health Regulations. The United States has yet to contribute to the agency's contingency fund or amply fund the health emergencies program. The Trump administration, moreover, questioned the WHO's scientific credibility, rejecting its antimicrobial resistance guidelines last year.

*Reauthorize the Global Health Security Agenda (GHSA).* In 2014, President Obama launched the GHSA, which has grown into an international collaboration of more than 60 countries. The GHSA builds capacity for shoring up health systems and addressing challenges such as antimicrobial resistance and bioterrorism. The Trump administration praised the GHSA but also proposed massive health security

cuts, which would force CDC to reduce preparedness support from 49 countries to only 10.

*Create a Public Health Emergency Fund.* Reacting after an outbreak has taken hold risks lives domestically and abroad. Congress took a year to authorize President Obama's emergency funding request for the Zika response. This year, the House appropriations committee proposed an infectious disease rapid response reserve fund, "an immediate source of funding to quickly respond to a future infectious disease crisis." The full Congress and President Trump need to act. Congress should also increase funding for the Public Health Emergency Preparedness Cooperative Agreements, which state and local health departments use to enhance preparedness, and the Public Health and Social Services Emergency Fund, which supports federal preparedness.

### Global Health Leadership

Hardening the border and restricting travel and immigration will not stop pathogenic threats. The best protection of US residents is to stop threats at their origin, while supporting the WHO.

The United States must reassert its global leadership. Now is a pivotal moment to strengthen health security, from providing robust support for the GHSA and the Rapid Response Fund, to funding new vaccines and antimicrobials. The path ahead is clear, but the political will is very much in question. ■

**Author Affiliation:** University Professor and Faculty Director, O'Neill Institute for National and Global Health Law, Georgetown University Law Center.

**Corresponding Author:** Lawrence O. Gostin, JD (gostin@law.georgetown.edu).

**Published Online:** September 26, 2018, at <https://newsatjama.jama.com/category/the-jama-forum/>.

**Disclaimer:** Each entry in The JAMA Forum expresses the opinions of the author but does not necessarily reflect the views or opinions of JAMA, the editorial staff, or the American Medical Association.

**Additional Information:** Information about The JAMA Forum, including disclosures of potential conflicts of interest, is available at <https://newsatjama.jama.com/about/>.

**Note:** Source references are available through embedded hyperlinks in the article text online.