

How can you plan for events that are unlikely, hard to predict and highly disruptive

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The Ebola epidemic and resulting international public health emergency is referred to as a "Black Swan" event in medical circles because of its unpredictable and impactful nature. However, a paper in the June 30 issue of *Clinical Infectious Diseases*, a leading journal in the field of infectious diseases, suggests that the response of the Chicago Ebola Response Network (CERN) in 2014-2015 has laid a foundation and a roadmap for how a regional public health network can anticipate, manage and prevent the next Black Swan public health event.

By sharing the expertise, risk and resources among four major Chicago academic medical centers, Chicago created a sustainable network to respond to complicated [public health](#) emergencies like Ebola but also bioterrorism, natural disasters, pandemics and emerging infections, according to the paper's lead author, Dr. Omar Lateef, chief medical officer and associate professor at Rush University Medical Center.

The Chicago Ebola Resource Network (Rush, University of Chicago Medicine, Lurie Children's Hospital and Northwestern Memorial Hospital) was formed in October 2014 and coordinated by the Chicago Department of Public Health (CDPH) to receive and manage suspected cases during the Ebola virus epidemic.

"Managing events in a geographic region like Chicago, or Los Angeles, is largely impractical for any one organization," says Lateef. "Resource

sharing between public and private partners can complement individual resources, yielding more efficient programs with municipal, state and federal public health leaders playing an instrumental role in the control and response of Black Swan events."

Knowing that Chicago has the busiest international airport in the world with up to 30 passengers from West African countries previously affected by the Ebola epidemic arriving on a daily basis helped to spur this cooperative work as concern grew about when and where the next carrier of Ebola would arrive in the U.S.

CDPH conducted screenings for Ebola symptoms at O'Hare International Airport, emergency departments of hospitals, urgent care centers and clinics. Persons identified by CDPH as under investigation for Ebola exposure or infection were referred to one the four CERN resource hospitals within one hour for additional evaluation. If one of the four CERN hospitals accepted a person under investigation, the facility was placed at the end of the rotation for the next patient allowing the hospital time to replenish resources including special personal protective equipment used in evaluation and care.

"When we started, the initial individuals suspected of Ebola exposure required six hours of preparation and isolation at the hospitals," says Lateef. "With experience, we evaluated the last three people in less than 1 hour."

CERN staff were able to make informed decisions quickly and easily as a result of collaborative sharing about the infection among Chicago's regional expertise that included biosafety experts from Argonne National Laboratory; nationally recognized critical care, [infectious diseases](#) and infection control experts, public health laboratory experts and leaders in bioterror preparedness. Hospital standards were swiftly established regarding the personal protection equipment (PPE) required to keep

hospital staff safe, standard operating procedures for handling biohazard samples, detailed training requirements for hospital staff caring for patients.

"Our network emphasized the benefits of cooperation while reducing financial and public perception challenges associated with a single hospital being unfortunately stigmatized as the 'Ebola hospital'," says Lateef. As a result, there were few cancellations of routine scheduled patient visits to the hospitals.

"In addition, through our network approach we had a larger workforce and broader base of centers caring for potential cases allowing for rest and recovery between cases. The CERN approach enabled the hospitals us to competently handle potential Ebola cases without disrupting the ongoing, critical care of existing inpatients and outpatients at each hospital.

At Rush University Medical Center, a unique three-bed isolation unit was constructed within the existing medical intensive care unit to care for Ebola suspected patients. At Rush and the other CERN hospitals, a core care team was assembled to take care of any suspected Ebola patients. Core care teams are small groups of physicians and nurses with expertise in intensive care and infection control supplemented by other clinicians from key support areas. All were rigorously trained in the special precautions to protect against becoming infected with the virus and how to provide any needed care for a patient infected with Ebola. To further minimize the chance that the virus is spread, the team members did not provide care for any other patients as long as the Ebola patient they are treating remains at the hospital.

"We deployed the smallest number of people with the highest level of training possible to provide these patients with the best care while minimizing the chance of transmission," Lateef says.

Establishing a network effort like CERN required a substantial commitment of time from all participating centers as well as a broad footprint of resources, Lateef noted.

"The Ebola virus epidemic was a rare and unexpected event, but it is almost certainly true that another rare and unexpected event awaits, whether a new pandemic such as influenza, or a highly infectious respiratory virus such as measles," says Lateef. "Creating networks that can enable a rapid response will be critical to protecting the public health in these situations."

Provided by Rush University Medical Center

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