

Zika Virus Preparedness and Response Efforts Through the Collaboration Between a Health Care Delivery System and a Local Public Health Department

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ABSTRACT

The Zika virus was largely unknown to many health care systems before the outbreak of 2015. The unique public health threat posed by the Zika virus and the evolving understanding of its pathology required continuous communication between a health care delivery system and a local public health department. By leveraging an existing relationship, NYC Health + Hospitals worked closely with New York City Department of Health and Mental Hygiene to ensure that Zika-related processes and procedures within NYC Health + Hospitals facilities aligned with the most current Zika virus guidance. Support given by the public health department included prenatal clinical and laboratory support and the sharing of data on NYC Health + Hospitals Zika virus screening and testing rates, thus enabling this health care delivery system to make informed decisions and practices. The close coordination, collaboration, and communication between the health care delivery system and the local public health department examined in this article demonstrate the importance of working together to combat a complex public health emergency and how this relationship can serve as a guide for other jurisdictions to optimize collaboration between external partners during major outbreaks, emerging threats, and disasters that affect public health. (*Disaster Med Public Health Preparedness*. 2018;12:689-691)

Key Words: Zika, healthcare delivery, local public health department, public health emergency

The emergence of the Zika virus presented a significant challenge to jurisdictions such as New York City (NYC) that received a large volume of travelers arriving from areas with active Zika virus transmission. As of January 23, 2017, over 20% of all travel-associated Zika virus cases in the continental United States were reported from New York State,¹ most of which were reported from NYC. In response to the outbreak, both the NYC Department of Health and Mental Hygiene (DOHMH), one of the largest local health departments in the United States, and NYC Health + Hospitals, the largest municipal health care delivery system in the United States, recognized the need to quickly stand up their emergency response and management systems. To maximize preparedness and response efforts, NYC Health + Hospitals collaborated with the DOHMH to implement the NYC Health + Hospitals Zika Action Plan by leveraging existing frameworks used for prior infectious disease outbreaks. This report describes the collaboration between a health care delivery system and a local health department to prepare for and respond to the Zika virus.

COORDINATION, COLLABORATION, AND COMMUNICATION AS THE KEY TO SUCCESS A History of Working Together

Critical to any public health emergency response is ongoing communication, coordination, and collaboration between key entities, as have been demonstrated between NYC Health + Hospitals and the DOHMH for previous public health emergencies in NYC. For instance, just within the last 2 years, the DOHMH collaborated with NYC Health + Hospitals on 3 notable public health events, including (1) the 2014 Ebola outbreak, during which NYC Health + Hospitals received 19 persons under investigation for the Ebola virus disease (EVD), as well as NYC's single confirmed case of EVD; (2) the 2015 NYC Legionella outbreak; and (3) the current Zika outbreak.²⁻⁴ Beginning in early 2016, due to the threat of the Zika virus disease to NYC residents, NYC Health + Hospitals initiated preparedness and response activities to ensure readiness across the health system. The DOHMH activated its Incident Command System and began implementing Zika response plan objectives,⁵ including communication to the public and to providers about the risks of Zika virus exposure, and educating health care

providers about Zika virus prevention, testing, and epidemiology. During each public health response, the bilateral support provided by leadership from both the DOHMH and NYC Health + Hospitals facilitated a successful collaboration in which preparedness and response matters related to public health emergencies were effectively and efficiently addressed.

Communication Between NYC Health + Hospitals and DOHMH

Paramount to the success of these efforts during the Zika response was consistent communication between both entities. Modes of communication included weekly calls between leadership at NYC Health + Hospitals and the DOHMH during the height of the Zika outbreak, as well as participation of the health care staff in Zika webinars conducted by the DOHMH. This regular communication ensured that NYC Health + Hospitals was readily informed of all major policy changes implemented by the DOHMH, including updates to testing criteria based on new epidemiological information and updated changes made to DOHMH processes. As the science of the Zika virus evolved, NYC Health + Hospitals worked closely with the DOHMH to ensure that Zika-related processes and procedures within the NYC Health + Hospitals Zika Action Plan aligned with the most current Zika virus guidance³ available at the local, state, federal, and international levels. For example, Zika virus testing services offered at NYC Health + Hospitals were routinely updated based on newfound epidemiological and clinical information, such as suspected cases of sexual transmission; suspected cases of mosquito-borne transmission; and Zika virus testing in pregnant women with relevant travel history, regardless of symptoms. Through this collaboration with the DOHMH, NYC Health + Hospitals ensured consistent readiness across its system.

Using Data to Inform Decisions and Practice

As a result of the robust communication between NYC Health + Hospitals and the DOHMH, and as a result of the recognition by leadership of the success of previous collaborative efforts between the two entities, NYC Health + Hospitals used DOHMH data for decision support and to identify needs and priorities. For instance, the DOHMH provided weekly analyses of Zika virus test requests received from NYC Health + Hospitals' prenatal clinics known to serve large, diverse communities,⁶ where patients were more likely to frequently travel to areas with active Zika virus transmission. These analyses served as a catalyst for the DOHMH to provide personnel in select NYC Health + Hospitals prenatal clinics to offer real-time feedback, training, and support related to ordering Zika virus testing for prenatal patients. In addition, the data provided by the DOHMH assisted NYC Health + Hospitals in ensuring that Zika virus screening and testing was optimized and that vulnerable populations, such as the uninsured and low-income immigrants from the Caribbean and Latin America, were screened and tested more systematically by including questions about

travel history within the electronic medical records systems. This systematic Zika screening approach increased the overall number of suspected Zika virus infection cases that were identified during triage at NYC Health + Hospitals. Testing for the Zika virus infection also increased substantially; for example, 29 Zika virus infection tests were ordered in April 2016, 69 in May 2016, 314 in June 2016, and 317 in July 2016.³ This increase in Zika testing and subsequent patient counseling with those with a positive diagnosis may have prevented secondary cases of the Zika virus infection in NYC.

The DOHMH also deployed an electronic Zika virus test ordering application at NYC Health + Hospitals, given the volume and travel-history of patients within its system, thereby allowing providers to more easily order Zika virus testing through the DOHMH. By using data provided by the DOHMH, NYC Health + Hospitals was able to engage in evidence-based decision-making that informed clinical practice and policy decisions.

PRENATAL CLINIC AND LABORATORY SUPPORT FROM THE DOHMH

Due to the potential health consequences for fetuses with the Zika virus infection and the complicated nature of laboratory testing for the Zika virus, NYC Health + Hospitals, together with the DOHMH, implemented processes to identify women with exposure to the Zika virus during pregnancy and to offer testing for the Zika virus infection when appropriate. The DOHMH played an integral role in facilitating the testing process by creating a streamlined method of accepting specimens and requisition forms for a subset of patients. In addition, NYC Health + Hospitals used patient education materials developed by the DOHMH and adapted for specific NYC Health + Hospitals patient populations, disseminating them throughout prenatal clinics.⁷ These patient education materials included information on how to prevent the Zika virus infection, including avoiding travel to areas with active Zika virus transmission. The DOHMH also developed Zika Prevention Kits, comprising insect repellent, condoms, and a Zika educational flyer in English and Spanish, that were available at no charge to obstetric and gynecologic practices across NYC, including NYC Health + Hospitals. These kits aimed to reduce the risk of the Zika virus infection, particularly in pregnant women. Utilization and distribution of the Zika patient education materials and Zika Prevention Kits throughout NYC Health + Hospitals prenatal clinics may have reduced the number of sexually transmitted Zika virus infection cases and may have decreased the number of pregnant women traveling to areas with Zika virus transmission.

The DOHMH also facilitated diagnostic testing, including molecular and serological testing, for persons with a potential Zika virus exposure^{3,5,8,9} or with other special conditions (eg, suspected local mosquito-borne transmission)⁹ through its Zika Testing Call Center (ZTCC).⁵ Before authorizing

testing through the public health laboratory, staff at the ZTCC screened all requests for Zika virus testing from health care providers, based on the Centers for Disease Control and Prevention testing recommendations, for the presence of a compatible clinical history and risk factors for potential exposure to the Zika virus. Through a strong and continuous collaboration with the ZTCC, NYC Health + Hospitals was able to increase Zika virus screening and testing at each of its 14 prenatal clinics.³

CONCLUSION

As demonstrated through the collaboration between NYC Health + Hospitals and the DOHMH during NYC's Zika virus response, communication, coordination, and collaboration (the "three Cs") were the hallmarks of effective preparedness and response efforts.¹⁰ By embracing communication, coordination, and collaboration in response to an emerging infectious disease threat, the DOHMH and NYC Health + Hospitals successfully implemented new protocols to ensure access to critical lab testing services for New Yorkers, including the most vulnerable. Vital to this success was NYC Health + Hospitals' use of continuously updated DOHMH data, which served as a catalyst for the DOHMH to provide targeted decision support and resources, and which underscored the need for enhanced bilateral data sharing; as such, the DOHMH is developing enhancements to its electronic Zika virus test ordering application for use with other pathogens.

As the lines continue to be complementary between public health and health care delivery, our experience demonstrates what is possible when stakeholders comprising the public health and health care delivery spheres function as a unified system for the public good. The close collaboration and trust between NYC Health + Hospitals and the DOHMH in preparing for and responding to the Zika virus in NYC demonstrate the importance of working together to combat complex public health emergencies and can serve as a guide for other jurisdictions to optimize collaboration between external partners during major outbreaks, emerging threats, and disasters that affect public health.

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