

Preparedness for Zika Virus Disease — New York City, 2016

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The rapid spread of Zika virus across the World Health Organization's Region of the Americas has had a direct effect on the U.S. health care delivery system. Hospitals in New York City (NYC) have been implementing prevention and response efforts consistent with CDC guidance. As of September 21, 2016, a total of 715 cases of laboratory-confirmed Zika virus disease had been diagnosed in New York state among travelers who returned from affected areas, their sexual contacts, or infants infected in utero. This represents the highest number of reported cases in any state to date, and underscores the importance of health care systems preparing to care for patients with possible Zika virus disease (1). Building upon a framework that was established in 2014 to screen patients for possible exposure to Ebola virus disease (Ebola), NYC Health + Hospitals,* the largest municipal health care delivery system in the United States, implemented a Zika Preparedness and Response Action Plan† (Zika Action Plan) to address the threat from Zika and ensure appropriate patient care. The plan developed by NYC Health + Hospitals includes universal travel screening, signage depicting areas with active Zika virus transmission, clinical and epidemiologic evaluation for possible Zika virus exposure, diagnostic testing for Zika virus infection and linking of infected patients to appropriate specialists, and education on Zika virus disease and preventive measures (e.g., avoiding travel to areas with active Zika virus transmission).

NYC Health + Hospitals operates an integrated health care system that includes 11 acute care hospitals, six of which are regional trauma centers, six long-term care centers, numerous community-based health centers, a correctional health services unit, and a home care agency. The 42,000 staff members of NYC Health + Hospitals serve a population of approximately 1.2 million; the obstetrical units perform >18,000 deliveries each year.‡ To prepare for and manage the Zika virus threat, NYC Health + Hospitals built its Zika Action Plan from a framework established during the 2014 Ebola outbreak. The Zika Action Plan is closely coordinated internally with its integrated system of hospitals and externally with the New York City Department of Health and Mental Hygiene (DOHMH) and the New York State Department of Health. Existing general protocols, such as universal screening for recent travel and

exposure to communicable diseases, were augmented to include surveillance information about areas with local transmission of Zika virus to enhance early recognition and management of persons with Zika virus infection. The Zika Action Plan, which details the criteria for testing and reporting of Zika virus disease, includes Zika virus screening algorithms for pregnant and nonpregnant females, adult males, children, and newborns, and is based on guidance from CDC and DOHMH practices. Objectives of the Zika Action Plan include rapidly identifying patients at risk for Zika virus infection, offering testing, and providing all necessary care and counseling to persons with confirmed or probable Zika virus infection (2–4). The Zika Action Plan has been distributed across the NYC Health + Hospitals system of hospitals and ambulatory care centers and placed on the system's internal intranet site for easy access.

Initial screening for possible Zika virus infection at all points of entry into NYC Health + Hospitals emergency departments, ambulatory units, and obstetrical settings includes signage that depicts areas with active Zika virus transmission. The signage is continually updated based on CDC guidance, and as new countries are added to the list of those with active transmission. A Zika-specific job aid (Figure 1) prompts personnel at the point of entry with a set of initial screening questions regarding travel history of the patient and the patient's sexual contacts and any signs or symptoms compatible with Zika virus disease. Although local mosquito-borne transmission of Zika virus has not been documented, NYC Health + Hospitals personnel are encouraged to be vigilant for patients with Zika-compatible symptoms even in the absence of travel or sexual exposure risk (5). The Zika-specific job aid also references the NYC Health + Hospitals Zika Virus Pregnancy Screening Protocol (Figure 2). If a patient is pregnant, the greeter is prompted to refer her to the pregnancy screening protocol immediately for next steps.

The Zika Action Plan instructs clinicians to test for Zika virus disease after identifying a patient meeting the CDC case definition for suspected Zika virus disease¶ (6). Information is solicited about travel to an area with ongoing Zika virus transmission or sexual contact with a person who traveled from such an area; receipt of blood, blood products, or an organ transplant within 30 days of symptom onset; and other potential epidemiologic links to a confirmed or probable case of Zika virus disease, including suspected mosquito-borne transmission and

* <http://www.nychealthandhospitals.org/hhc/html/home/home.shtml>.

† The Zika Action Plan is based on guidance from CDC, the New York City Department of Health and Mental Hygiene, and the New York State Department of Health.

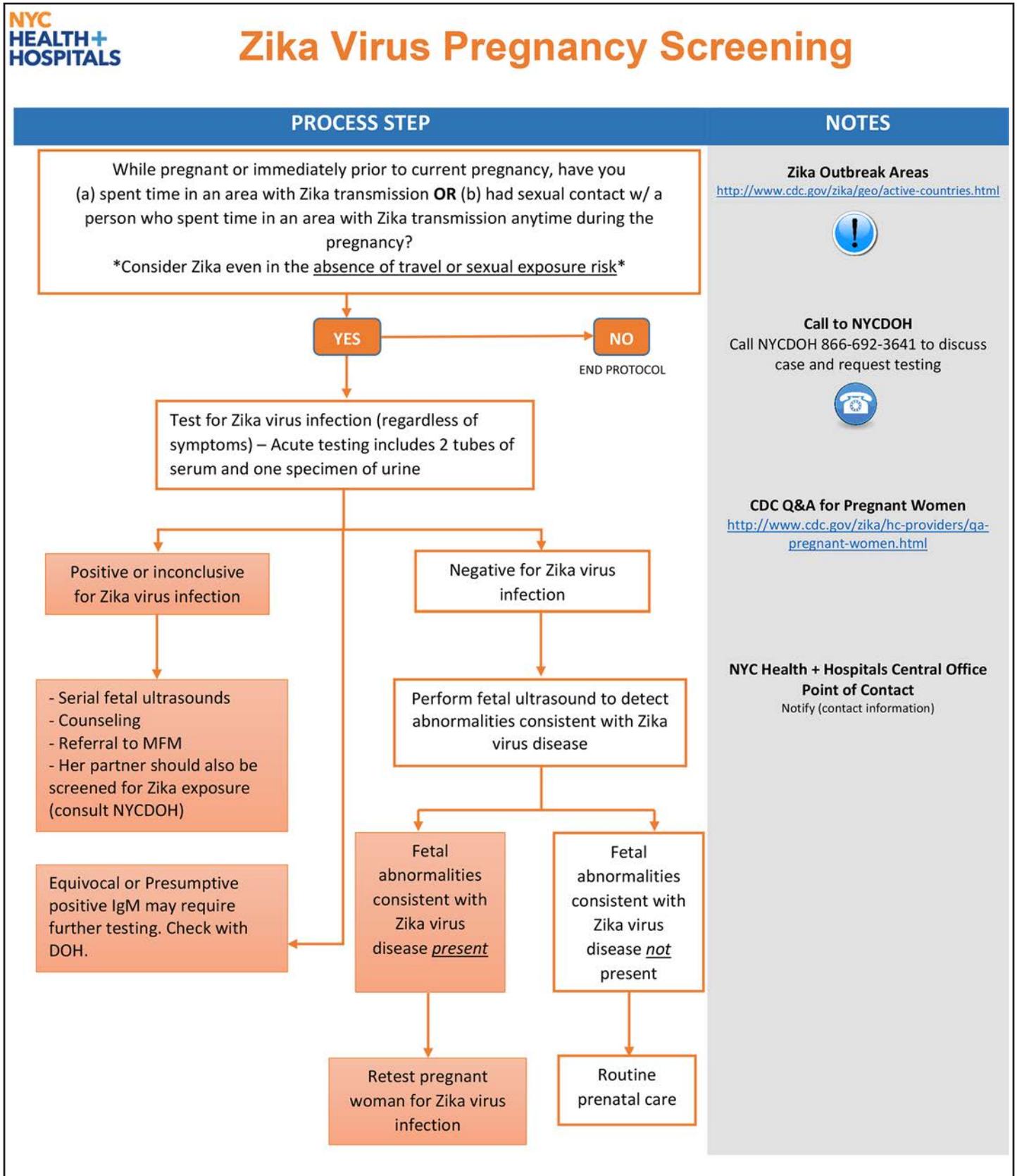
‡ New York City Health + Hospitals. 2015. Internal Systems Report.

¶ A person with one or more signs/symptoms of fever, maculopapular rash, arthralgia, conjunctivitis, complication of pregnancy, or Guillain-Barré syndrome not known to be associated with another diagnosed etiology.

FIGURE 1. Zika-specific job aid that prompts health care providers with a set of initial screening questions — NYC Health + Hospitals, 2016

LOCATION	ROLE	PROCESS STEP	NOTES
Registration Desk (Clinic or ED)	Greeter/Triage RN	<p>1 PATIENT HISTORY GATHERED (a) Traveled to an area with Zika virus transmission in the last 4 weeks? OR (b) Sexual contact w/ a person who spent time in an area with Zika transmission within the last 4 weeks? OR (c) *Other special conditions with epidemiological linkage to a confirmed or probable case of Zika virus infection (consult DOHMH if needed)</p> <p style="text-align: center;">YES</p> <hr/> <p>*If patient is pregnant, please refer to "Zika Virus Pregnancy Screening Protocol" for next steps. Her partner should also be screened/counseled for possible Zika exposure</p>	<p>Zika Outbreak Areas http://www.cdc.gov/zika/geo/active-countries.html</p>  <p>Case Definition: Compatible Zika Symptoms = fever >100.4/38C, rash, joint pain, +/- conjunctivitis (red eyes), arthralgia http://www.cdc.gov/zika/symptoms/index.html</p>
Patient Room	RN/Provider	<p>2 Does patient have ANY of the Zika symptoms listed to the top right?</p> <p style="text-align: center;">YES → NO → END PROTOCOL</p> <p>3 Ask Registration Desk staff to call Lead RN to report positive history/symptoms</p> <p>4 Escort patient to room and obtain further history from patient</p> <p>5 Call NYCDOH 866-692-3641 to discuss case and request testing if case meets testing criteria 1, 3, 4, 5 (listed to right)</p> <p><i>(NOTE: Testing criteria #2 – travel-related cases that are non-pregnant, non-critical, *non-special condition cases can be sent to a commercial lab for testing and do not require NYCDOH approval)</i></p> <p style="text-align: center;">YES</p> <p>DOH will collect required information and fax the clinician a copy of the completed DOH laboratory submission form</p> <p>6 Collect specimens as instructed by NYCDOH: (a) Blood (2 serum separator tubes: red, speckled or gold top), +/- (b) Urine (3-20 ml in sterile specimen cup)</p> <p>7 Send completed forms & specimens to your internal facility laboratory for further processing</p>	<p>Criteria for Testing:</p> <ol style="list-style-type: none"> 1. Pregnant women who (a) traveled while pregnant to an area with Zika transmission or (b) had unprotected sex (vaginal, anal, or oral) with a partner who spent time in an area with Zika transmission 2. Persons who develop/developed compatible symptoms during or within 4 weeks of travel to an area with Zika transmission 3. Neonates with suspected or confirmed microcephaly or intracranial calcifications born to women who (a) traveled to an area with Zika virus transmission while pregnant or (b) had unprotected sex (vaginal, anal, or oral) during pregnancy with a partner who spent time in an area with Zika transmission 4. Anyone who developed Guillain-Barre syndrome after spending time in an area with active Zika virus transmission 5. *Other special conditions with epidemiological linkage to a confirmed or probable case of Zika virus infection including (a) recipient of blood, blood products, or organ transplant, or (b) suspected transfusion-associated transmission, or (c) suspected mosquito-borne transmission, or (e) any other unusual clinical manifestation or suspected route of exposure
	RN/PCA/Provider		<p>Call to NYCDOH Be prepared to provide patient demographic information, travel and symptom information (e.g., dates and locations of travel, date of symptom onset), submitter information (i.e., your facility's lab and laboratory director), ordering provider information (Chief of Service)</p> <p>**When providing information to the DOH representative, indicate your facility's Lab as the "Submitter" and provide the contact information of your Lab Director. The "Ordering Provider" is your Chief of Service</p> <p>Specimen Collection Specimens must be labeled with patient's first and last name, date of birth, and date and time of collection</p> <p>NYC Health + Hospitals Central Office Point of Contact Notify (contact information)</p>

FIGURE 2. Zika-specific job aid that references Zika virus pregnancy screening protocol — NYC Health + Hospitals, 2016



Summary**What is already known about this topic?**

The state of New York has reported the highest number of Zika virus disease cases in the continental United States, with 715 cases reported as of September 21, 2016, underscoring the importance of the health care system to be prepared to care for patients with possible Zika virus disease.

What is added by this report?

NYC Health + Hospitals created a Zika Preparedness and Response Action Plan by building upon the framework established in 2014 to screen patients for possible exposure to Ebola virus disease. The Zika plan includes universal screening for travel-associated Zika virus exposure, signage and maps depicting areas with active Zika virus transmission, laboratory services, and timely linking of infected patients to appropriate care.

What are the implications for public health practice?

A robust emergency preparedness and response program can help health care systems limit the effects of Zika virus and ensure appropriate screening, diagnosis, and care. Potentially effective strategies include modification of established and tested protocols, offering ongoing health care provider education, and close collaboration with state and local health departments for Zika guidance and support.

any other unusual clinical manifestation or suspected route of exposure (6,7). Laboratory testing, if indicated, can be performed at DOHMH or at a specified commercial laboratory. Patient specimens from travel-associated cases of suspected Zika virus infection are sent to the commercial laboratory for testing and do not require the clinician to call DOHMH. Clinicians are instructed to call DOHMH for testing in all nontravel-associated cases of suspected Zika virus disease.

The NYC Health + Hospitals electronic health system also has built-in algorithms to prompt for Zika virus testing if relevant travel history and pregnancy status is entered. The laboratory management section of NYC Health + Hospitals Zika Action Plan discusses consideration of obtaining laboratory studies for alternative diagnoses, including chikungunya and dengue virus infection, when appropriate and consistent with current guidance (8). Nonpregnant patients with possible Zika virus exposure who do not meet clinical criteria for Zika virus testing (i.e., lack symptoms of Zika virus infection) are offered counseling to limit potential spread of Zika virus.

Zika preparedness and response efforts of NYC Health + Hospitals include hosting a series of internal, system-wide electronic town hall meetings. These events are open to all 42,000 staff members of NYC Health + Hospitals. A Zika-specific e-mail address also has been created for staff members to submit ongoing Zika-related questions or concerns. This Zika-specific e-mail address is monitored continually

by NYC Health + Hospitals, Emergency Management, and questions are answered within 24 hours by clinical leaders. To assess staff competency and appropriate screening and identification of suspected cases of Zika virus infection, NYC Health + Hospitals, Simulation Center and Emergency Management is conducting a series of no-notice simulation exercises at each of the system's prenatal clinics. Scenarios include a pregnant woman and accompanying partner with Zika-compatible risk factors. The goal of these exercises is to assess each clinic's ability to screen for, identify, offer testing for, and provide education on Zika virus infection, including modes of transmission and ways to prevent the spread of Zika virus, and then provide corrective actions as necessary when deficiencies are identified (e.g., directing the prenatal clinic leadership to the NYC Health + Hospitals Zika intranet page for the most up-to-date Zika guidance and information).

During April–July 2016, a total of 729 patients from NYC Health + Hospitals were tested for possible Zika virus infection.** Testing for Zika virus infection increased substantially over the 4-month period, with 29 tests in April, 69 in May, 314 in June, and 317 in July. Since mid-July, NYC Health + Hospitals has been sending specimens from nonpregnant persons with noncritical, travel-related cases of potential Zika virus infection to a commercial laboratory for testing. All other specimens for Zika virus testing are sent to DOHMH.

As the number of laboratory-confirmed Zika virus disease cases continues to rise, health care systems should be vigilant and prepared to address this public health concern. Close collaboration with state and city health departments will play a critical role. The program implemented by NYC Health + Hospitals can serve as a guide for other health care systems to screen patients and offer Zika virus testing, and to link patients with laboratory-confirmed infection to appropriate care.

** New York City Health + Hospitals. 2016. Internal Zika weekly statistic report.

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