



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
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Commissioner

2016 DOHMH Health Alert #46: Evaluation and Management of Infants with Possible Congenital Zika Virus Infection

Please share with your colleagues in Obstetrics/Gynecology, Internal Medicine, Family Medicine, Emergency Medicine, Urgent Care, Primary Care, Pediatrics, Infectious Disease, and Neurology:

- **CDC recently updated its guidance for care of infants with possible congenital Zika virus infection.**
- **Key differences from past guidance include:**
 - **New recommendation to test infant urine and serum for Zika virus RNA.**
 - **Testing cord blood for Zika virus is not recommended.**
 - **New recommendation for postnatal head ultrasound for all infants born to mothers with laboratory evidence of Zika infection.**
- **Contact the Health Department within the first 2 days of an infant's life and before hospital discharge to discuss testing for any infant with findings consistent with congenital Zika syndrome and maternal exposure to Zika virus, regardless of maternal test results.**

October 12, 2016

Dear Colleagues,

Zika virus infection during pregnancy is a cause of microcephaly and other serious neurologic anomalies, including intracranial calcifications and other brain or eye abnormalities, collectively referred to as **congenital Zika syndrome**. In New York City (NYC), as of September 30, 2016, more than 71 cases of Zika virus infection had been confirmed among women who were pregnant at the time of laboratory diagnosis, and one case of congenital Zika virus infection in a newborn with microcephaly had been confirmed. Given the increasing number of infants in NYC with potential prenatal exposure to Zika virus, pediatric providers should know guidelines for screening and management of congenital Zika virus infection.

On August 26, 2016, CDC issued new interim guidance for the evaluation and management of infants with possible congenital Zika virus infection ([MMWR 65\(33\):870-878](#)). The recommendations highlighted in this Alert reflect this latest CDC interim guidance and replace guidance previously disseminated by the Health Department.

A. LABORATORY TESTING RECOMMENDATIONS

According to the new CDC recommendations, an evaluation for congenital Zika virus infection should be conducted on all infants (1) born to mothers with laboratory evidence of Zika virus infection or (2) with findings suggestive of congenital Zika syndrome and maternal exposure to Zika virus (e.g., via travel or sexual exposure), regardless of the results of maternal Zika testing. Pregnant women tested many months after exposure to Zika virus may have no detectable viral RNA or IgM antibody at the time of testing despite an earlier infection with Zika virus.

The evaluation of an infant for congenital Zika virus infection should consist of both laboratory testing and clinical assessment. Laboratory testing of infants with possible congenital Zika virus infection

ideally should be performed within the first 2 days of life. Testing beyond 2 days makes it difficult to distinguish congenital infection from perinatal or postnatal infection. If the timing of infection cannot be determined, infants should be managed as if they have congenital Zika virus infection.

All infants born to mothers with laboratory evidence of Zika infection during pregnancy should have the following tests conducted, ideally within the first 2 days of life:

- 1) Zika virus Nucleic Acid Amplification Testing (NAAT)¹ and IgM testing of serum: Specimens should be collected directly from the infant. Cord blood is no longer recommended due to the risk of both false-positive *and* false-negative results;
- 2) Zika virus Nucleic Acid Amplification Testing (NAAT)¹ testing of urine: Testing both serum *and* urine is especially important as there have been cases in which the NAAT was positive in urine but not serum;
- 3) Head ultrasound: This new recommendation applies to all infants born to mothers with laboratory evidence of Zika virus infection, including apparently healthy infants, as some abnormalities associated with congenital Zika syndrome may not be detected easily on prenatal ultrasound.

If you are unsure whether the maternal laboratory test results for your patient suggest evidence of Zika virus infection, call the Health Department to discuss those results with an epidemiologist. When there is laboratory evidence of maternal Zika virus infection at the time of delivery, the above testing should be conducted within the infant’s first 2 days of life. To facilitate identification of infants requiring this evaluation, pediatric and obstetric teams should coordinate closely. If maternal Zika virus infection status is unknown, either because testing has not been performed or because results are unavailable at the time of delivery, and the infant has no findings concerning for congenital Zika syndrome, further evaluation, including testing the infant for Zika virus infection, can be deferred until maternal test results are available. If maternal testing is not performed, or if the infant has clinical findings consistent with congenital Zika syndrome, the infant should be tested without delay.

Interpretation of Newborn Zika Test Results

	Serum NAAT Result*	Urine NAAT Result*	IgM Result
Confirmed Congenital Zika Infection	Either one is +		+/-
Probable Congenital Zika Infection	-	-	+

*Positive result is equivalent to “Zika RNA Detected” and a negative result to “Zika RNA NOT Detected.”

¹ *Nucleic Acid Amplification Testing (NAAT) includes reverse transcription real time polymerase chain reaction (RT-PCR) testing, transcription mediated amplification (TMA) testing, and other tests that detect Zika virus-specific RNA (nucleic acid) sequences.

B. MANAGEMENT OF INFANTS BORN TO MOTHERS WITH LABORATORY EVIDENCE OF ZIKA VIRUS INFECTION

Infants born to mothers with laboratory evidence of Zika virus infection will need an evaluation including laboratory and imaging studies (detailed in **Box 1** below). The scope of these studies will depend on whether the infant presents with clinical findings consistent with congenital Zika virus syndrome. Infants with suspected congenital Zika syndrome will need ongoing monitoring and management by a multidisciplinary team of specialists, including a developmental specialist. A medical home is recommended, along with family and supportive services. An [Early Intervention](#) referral is needed for infants who have abnormalities consistent with congenital Zika syndrome.

Recommendations for outpatient management of infants who have positive test results for Zika virus infection, with and without clinical findings consistent with congenital Zika syndrome, are included in the MMWR, linked above.

The Health Department is following all infants born to women with laboratory evidence of Zika virus infection for the first 12 months of life. Health Department staff will contact pediatric providers periodically to collect information about the clinical and developmental status of infants. Data will be submitted to CDC's U.S. Zika Pregnancy Registry without identifying information to better understand the range of effects of prenatal exposure to Zika virus.

Please continue to request testing for all pregnant women with possible exposure to Zika virus through travel to or unprotected sex with a partner who traveled to an area with active Zika transmission. Please also ensure infants born to mothers with laboratory evidence of Zika virus infection are tested for possible congenital Zika virus infection. In these cases, please notify the Health Department to facilitate evaluation and Zika virus testing of the infant by calling the Provider Access Line at 1-866-692-3641; [a quick reference guide](#) for such testing is also available.

As always, we appreciate your continued collaboration with our Zika virus control, surveillance, and management efforts in NYC.

Sincerely,



Jay K. Varma, MD, Deputy Commissioner, Division of Disease Control

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BOX 1. INITIAL EVALUATION OF NEWBORNS BORN TO MOTHERS WITH LABORATORY EVIDENCE OF ZIKA VIRUS INFECTION^a

Infant has no evidence of abnormalities

- Comprehensive physical examination, including
 - Precise measurement of head (occipitofrontal) circumference
 - Length and weight
 - Assessment of gestational age
 - Examination for neurologic abnormalities and dysmorphic features
 - Routine hearing screen
- Zika virus testing within 2 days of delivery [Nucleic Acid Amplification testing (NAAT) of urine and serum, IgM testing of serum]
- Postnatal head ultrasound, including for infants with normal prenatal ultrasound

Infant has evidence of abnormalities consistent with congenital Zika syndrome As above plus

- Other laboratory testing
 - Complete blood count
 - Metabolic panel
 - Liver function tests
 - Thyroid function tests (at 2 weeks and 3 months after birth)
- Auditory brainstem response (ABR) test (within 1 month of birth)
- Ophthalmologic evaluation (within 1 month of birth)
- Consider advanced neuroimaging (in consultation with a neurologist)
- Consider transfer to facility with pediatric subspecialty care available
- Evaluation for other causes of microcephaly or intracranial calcifications
- Contact the Health Department to discuss case and possible additional evaluation

^aZika virus RNA detected by nucleic acid amplification testing [NAAT; includes reverse transcription real time polymerase chain reaction (RT-PCR) testing, transcription mediated amplification (TMA) testing, and other tests that detect Zika virus-specific RNA (nucleic acid) sequences] in any clinical specimen; or positive Zika virus immunoglobulin M (IgM) with confirmatory neutralizing antibody titers seen on plaque reduction neutralization testing (PRNT).

Resources for more information on Zika virus:

New York City Health Department: <http://www1.nyc.gov/site/doh/health/health-topics/zika-virus.page>

New York State Health Department: http://www.health.ny.gov/diseases/zika_virus/

CDC: <http://www.cdc.gov/zika/>