Zika in Newborns: A Q&A for Clinicians

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Editor's Note:
The explosive rise in the number of cases of Zika virus infection, centered in Latin America and the Caribbean, prompted the US Centers for Disease Control and Prevention (CDC), in conjunction with the American Academy of Pediatrics (AAP), to issue interim guidelines\(^1\) in January for the evaluation, testing, and management of infants with possible congenital Zika virus infection. While endemic infections have not been reported in the United States, cases have been reported in 23 countries, and the CDC has issued a travel alert for individuals traveling to these countries. As warmer weather approaches, parts of the United States, particularly in the South, may see limited outbreaks.

Zika exposure during pregnancy has been linked to a recent surge in cases of microcephaly or intracranial calcifications detected prenatally or at birth. The guidelines address care of these infants. The document also provides information on the care of infants without these findings who are born to mothers who, while pregnant, traveled to or resided in an area with Zika virus transmission.

The CDC recently posted a Q&A for pediatric healthcare providers addressing issues in caring for infants with known or suspected Zika exposure. Excerpts from that more extensive document are provided below. The full text can be found on the CDC website.

Congenital Zika Infection and Microcephaly

What is the link between Zika virus in Brazil and the high numbers of infants born there with microcephaly?

Zika virus infections have been confirmed in several infants with microcephaly from Brazil. The time frame and geographic location of reports of infants with microcephaly coincides with the outbreak of Zika virus infections in Brazil. The baseline prevalence of congenital microcephaly is difficult to determine because of underreporting, and the inconsistency of clinical criteria used to define microcephaly. Although population-based estimates of congenital microcephaly in Brazil vary, the number of infants with microcephaly currently being reported in Brazil is greater than would be expected.

What birth defects have been reported in infants with confirmed Zika virus infection?

Brain abnormalities reported in infants with microcephaly and laboratory-confirmed congenital Zika infection include microcephaly and disrupted brain growth. Some infants with possible Zika virus infection have been found to have intracranial calcifications and abnormal eye findings. It is not known if Zika virus infection caused any of these abnormalities.

What birth defects have been reported in infants with suspected Zika virus infection?

A report of 35 infants with microcephaly who were born during an outbreak of Zika virus infection in Brazil in 2015 described the following brain abnormalities: intracranial calcifications, ventriculomegaly, and neuronal migration disorders (lissencephaly and pachygyria). Other anomalies included congenital contractures and clubfoot. An important distinction is that neither these infants nor their mothers had laboratory-confirmed Zika virus; however, most of the mothers (~75%) reported symptoms consistent with Zika virus.
Evaluation of Newborns with Zika Exposure

Which newborns should be tested for Zika virus infection?

Testing for Zika virus infection is recommended for infants born to women who traveled to or resided in an area with ongoing Zika virus transmission during pregnancy who were 1) diagnosed with microcephaly or intracranial calcifications detected prenatally or at birth, or 2) who have mothers with positive or inconclusive test results for Zika virus infection.

How are infants diagnosed with Zika virus infection?

Zika virus infection can be diagnosed by performing reverse transcriptase-polymerase chain reaction (RT-PCR) on infant serum. Serology assays can also be used to detect Zika virus-specific IgM and neutralizing antibodies. However, since it has not been established which test is most reliable for a diagnosis in infants, RT-PCR and IgM tests should both be performed. Plaque-reduction neutralization testing (PRNT) can also be performed to measure virus-specific neutralizing antibodies and differentiate from other flaviviruses.

If Zika virus testing of a newborn is indicated, how is the test ordered?

There are no commercially available tests for Zika virus. Zika virus testing is performed at the CDC Arbovirus Diagnostic Laboratory and at some state and territorial health departments. Healthcare providers should contact their state and local health department to facilitate testing. See the Diagnostic Testing webpage for information on how to obtain Zika testing.

If Zika virus testing of a newborn is indicated, what specimens are recommended?

Zika virus RT-PCR and serology assays can be performed on infant serum or serum or plasma collected from the umbilical cord. If cerebrospinal fluid (CSF) specimens are available, Zika virus RT-PCR should be performed; however, CSF specimens should not be collected for the sole purpose of Zika virus testing. Other specimens that can be tested include the placenta and the umbilical cord. Histopathologic examination and immunohistochemical staining can be performed. Zika virus RT-PCR on fixed and frozen tissue should also be considered.

Should healthcare providers report infants with positive or inconclusive Zika virus test results?

Healthcare providers should report positive or inconclusive results to their state or territorial health department. As an arboviral disease, Zika virus disease is a nationally notifiable condition.

What should healthcare providers do to evaluate infants with positive or inconclusive Zika virus test results?

A thorough physical examination should be performed, including careful measurement of the head circumference, length, weight, and assessment of gestational age. Cranial ultrasound is recommended unless it was performed as part of prenatal screening in the third trimester and clearly showed no abnormalities of the brain. Ophthalmologic evaluation is recommended as well as repeat hearing screen at six months of age. Continued evaluation of developmental characteristics and milestones, including head circumference, is recommended through the first year of life.
If a mother had Zika virus infection during pregnancy but the newborn tests negative for Zika virus, what is recommended for additional follow-up?

If the newborn does not have abnormal findings on examination, the infant should receive routine pediatric care including measurement of growth and development, and appropriate evaluation and follow-up for any clinical findings that arise. If the newborn has abnormal findings on examination, diagnostic testing for other causes of the newborn’s conditions should be performed including testing for other congenital viral infections if indicated.

If a mother had Zika virus infection during pregnancy, should she breastfeed her infant?

Although Zika virus RNA has been detected in breast milk, transmission of Zika infection through breastfeeding has not been documented. Based on available evidence, the benefits of breastfeeding infants outweigh any theoretical risk related to Zika virus infection.

References


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