

Follow-up of Infants with Suspected Zika Virus Exposure

**Satellite Conference and Live Webcast
Tuesday, August 29, 2017
1:00 – 3:00 p.m. Central Time**

**Produced by the Alabama Department of Public Health
Distance Learning and Telehealth Division**

Faculty

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Objectives

- **Define best practices in newborn hearing screening for infants with possible Zika virus exposure**
- **Explain the follow-up and referral process for infants with congenital Zika syndrome or other birth defects**
- **Discuss the birth defect reporting procedure and purpose of the U.S. Zika Pregnancy and Birth Defects Registries**

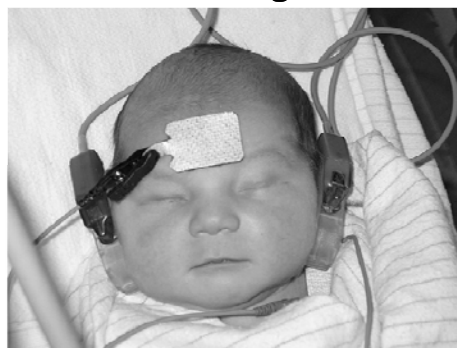
Newborn Hearing Screening

- **Auditory Brainstem Response (ABR) testing must be completed for infants that present with abnormalities consistent with congenital Zika syndrome**
- **ABR testing is the preferred test to detect hearing loss resulting from neurologic damage**

Newborn Hearing Screening

- **ABR screens the inner ear and the auditory nerve**
- **A soft click is presented to each ear while electrodes record the response as it travels between the ear and brain**
- **The response is analyzed to determine how well the inner ear and auditory nerve are working**

Newborn Hearing Screening



Newborn Hearing Screening

- **Joint Committee on Infant Hearing :**

- Both ears should be screened
- Screen by 1 month of age
- Diagnostic testing by 3 months of age
- Referral to early intervention by 6 months of age



Newborn Hearing Screening

- If the initial newborn hearing screen was performed using only Otoacoustic Emission (OAE) testing, the infant should be referred for ABR screening before 1 month of age
- If the newborn hearing screen was normal, an ABR should be performed at age 4-6 months

Newborn Hearing Screening

- If hearing results are abnormal, referrals to appropriate specialists should occur as soon as possible

Newborn Hearing Screening

- Directory of audiology providers can be found at the following links:
- www.ehdipals.org
- www.alabamapublichealth.gov/newbornscreening/newborn-hearing-screening.html

Follow-up and Referral Process

- Receive a referral for baby:
 - Born to a Zika positive mother
 - Abnormalities consistent with congenital Zika syndrome
- Call the hospital of birth or the primary care provider (PCP) to verify if the infant has been tested for Zika virus

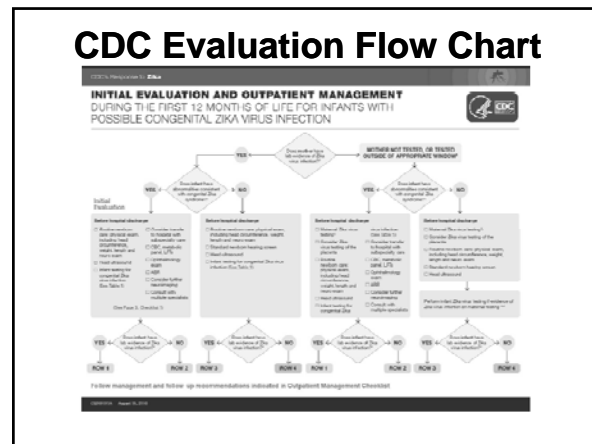
Follow-up and Referral Process

- Send Zika packet to the hospital or PCP to include:
 - Zika Notification Letter
 - Medical Record Request Form
 - CDC Resources

CDC Outpatient Management Checklist

CDC's Response to Zika

Assessment/Recommendation	1 Month	2 Months	3 Months	4 Months	5 Months	6 Months
Infant's Health 1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of Zika virus infection (rash, fever, conjunctivitis, muscle/joint pain, headache, malaise, fatigue, irritability, and decreased appetite). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).
Infant's Development 1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).	1. Monitor for signs and symptoms of developmental delay (e.g., poor motor skills, poor language skills, poor social interaction skills). 2. Monitor for signs and symptoms of congenital Zika syndrome (microcephaly, intracranial calcifications, and other neuroanatomical abnormalities).



CDC Zika Lab Interpretation

CDC's Response to Zika

Interpretation of results of laboratory testing of infant's blood, urine and/or cerebrospinal fluid for evidence of congenital Zika virus infection.

Test Result	Interpretation
RT-PCR (Positive)	Infant has evidence of Zika virus infection.
RT-PCR (Negative)	Infant does not have evidence of Zika virus infection.
IgM (Positive)	Infant has evidence of Zika virus infection.
IgM (Negative)	Infant does not have evidence of Zika virus infection.
Neutralization (Positive)	Infant has evidence of Zika virus infection.
Neutralization (Negative)	Infant does not have evidence of Zika virus infection.

Recommendations:

- Infants with evidence of Zika virus infection should be managed according to the CDC's outpatient management checklist.
- Infants with evidence of Zika virus infection should be monitored for signs and symptoms of congenital Zika syndrome.
- Infants with evidence of Zika virus infection should be monitored for signs and symptoms of developmental delay.

ADPH Zika Virus Specimen Guidance

Guidance for Zika Virus Specimen for Serology or for Virus Culture, Shipping, and Testing

ADPH Zika Virus Specimen Guidance

Specimen Collection & Storage

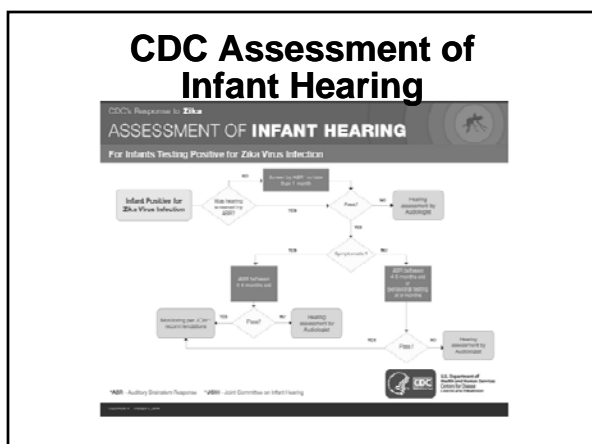
1. Collect 5-10 mL of blood in a red-top (serum) or light-blue (plasma) tube.
2. Collect 5-10 mL of urine in a clean, dry container.
3. Collect 5-10 mL of CSF in a clean, dry container.
4. Collect 5-10 mL of amniotic fluid in a clean, dry container.
5. Collect 5-10 mL of breast milk in a clean, dry container.

Specimen Shipping

1. Ship all specimens on dry ice.
2. Ship all specimens in a leak-proof container.
3. Ship all specimens in a sturdy container.
4. Ship all specimens to the ADPH within 7 days of collection.

Specimen Testing

1. Test all specimens for Zika virus RNA.
2. Test all specimens for Zika virus IgM.
3. Test all specimens for Zika virus neutralization.



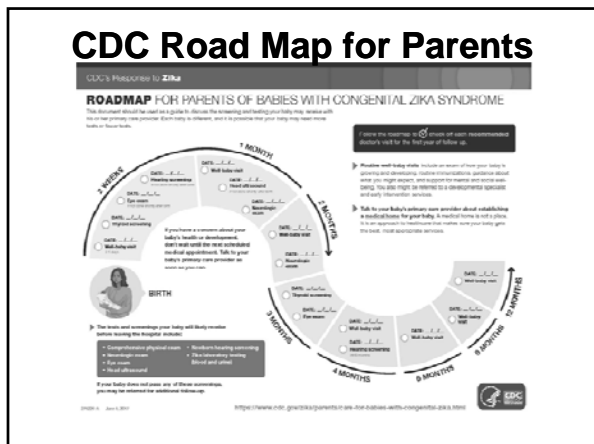
CDC Measuring Head Circumference

MEASURING HEAD CIRCUMFERENCE

Instructions:

- Use a measuring tape that cannot be stretched.
- Do not pull the tape around the infant's forehead.
- Measure part of the measured above ear.
- Measure the occipital protuberance.
- Must pass just behind the ears.

For more information: www.cdc.gov/zika



- ### Follow-up and Referral Process
- Ensure infant receives appropriate evaluation and outpatient management per the CDC guidance
 - Monitor infants up to one year of age as recommended by the CDC
 - If abnormalities are present, ensure that a referral has been made to the appropriate specialist(s) and early intervention

- ### Follow-up and Referral Process
- What is Early Intervention?
 - Created as Part C of the Individuals with Disabilities Education Act (IDEA)
 - School readiness is its sole function

- ### Follow-up and Referral Process
- A child must be between birth and age 3 with at least a 25 percent delay in one or more of the five developmental areas (communication, physical, adaptive, cognitive, and social/emotional) to be eligible for services

Follow-up and Referral Process

- Referral to Early Intervention
- Complete Child Find Form and fax to (334) 293-7393
- For more information call 1-800-543-3098

Alabama's Early Intervention System (EISE) Child Find Form

1. Child's Name: _____ Date of Birth: _____ Sex: Male Female

2. Last Name: _____ First Name: _____ Middle Name: _____

3. Is your child's name on the list of children with disabilities? Yes No

4. How did you learn about your child's suspected disability? Health care provider School Other: _____

5. How long has your child been suspected to have a disability? Less than 1 year 1-2 years More than 2 years

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12. How long has your child been suspected to have a disability? Less than 1 year 1-2 years More than 2 years

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18. How long has your child been suspected to have a disability? Less than 1 year 1-2 years More than 2 years

19. How long has your child been suspected to have a disability? Less than 1 year 1-2 years More than 2 years

20. How long has your child been suspected to have a disability? Less than 1 year 1-2 years More than 2 years

- ### U.S. Zika Pregnancy Registry
- Purpose:
 - Understand more about Zika virus infection by collecting information about pregnancy and infant outcomes

U.S. Zika Pregnancy Registry

- Aggregate data is used to update recommendations for clinical care, to plan for services for pregnant women and families affected by Zika virus, and to improve prevention of Zika virus infection during pregnancy

U.S. Zika Pregnancy Registry

- For more information please visit the following CDC link at:
www.cdc.gov/zika/reporting/registry.html

Birth Defects Surveillance Registry

- A birth defect is a structural, functional, or biochemical abnormality regardless of cause and irrespective of any known genetic or environmental association
- Birth defects are the leading cause of infant mortality, accounting for more than 20% of all infant deaths

Alabama Birth Defects Surveillance Registry

- Awarded funding from the CDC to establish a Birth Defects Surveillance Registry
- Currently in the process of establishing administrative code to specify the type of information to be provided to the birth defects registry and persons who will be required to report

Birth Defects Surveillance Registry

- Purpose:
 - Monitor birth defects for changes in incidence or other unusual patterns suggesting preventable causes
 - Ensure long term follow up and delivery of service

Birth Defects Surveillance Registry

- Ensure children identified with birth defects are placed in a system of care and receive appropriate intervention services

Contact Information

**Johnna Horn, RN
Zika Pregnancy
Surveillance Nurse Coordinator
Bureau of Family Health Services
Office Phone: (334) 206-9467
After hours: (334) 303-3575
Fax: (334) 206-0305**

References

- **Update: Interim Guidance for the Evaluation and Management of Infants with Possible Congenital Zika Virus Infection – CDC, MMWR, August 26, 2016, 65(33); 870-878**
- **www.cdc.gov/zika/hc-providers/infants-children/resources-hc-providers-caring-for-infants.html**
- **www.jcih.org**
- **www.rehab.alabama.gov/individuals-and-families/early-intervention**