

Management 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

- **Describe specific brain abnormalities and other physical findings in Congenital Zika Syndrome**
- **Discuss diagnostic testing methods for Zika in newborns**
- **Discuss recommended evaluation for infants with suspect Congenital Zika Syndrome or Zika exposure**

Zika and Newborns - Examination

- **All infants born to mothers who have laboratory evidence of Zika virus infection during pregnancy should have:**
 - **Comprehensive physical exam**
 - **Neurologic assessment**
 - **Postnatal ultrasound**

Zika and Newborns - Examination

- **Standard newborn hearing assessment**
- **Ophthalmologic evaluation**
- **Other labs/imaging/consultation by AAP/CDC guidance**

Zika and Newborns - Other Infants to Consider for Evaluation

- **Possible maternal Zika exposure and no maternal testing**
- **Negative Zika testing in a mother with ongoing exposure**
- **Negative Zika testing in a mother 12 weeks after exposure**
- **Concerning physical findings**

Zika and Newborns – Define Microcephaly

- Occipitofrontal circumference (OFC) less than the third percentile, based on standard growth charts for sex, age, and gestational age at birth
- OFC should be disproportionately small in comparison with the length of the infant and not explained by other etiologies (e.g., other congenital disorders)

Zika and Newborns - Correct Head Measurement

- OFC - Measure in first 24 hours of life
 - Use a tape measure that cannot be stretched
 - Wrap tape securely around the widest possible circumference of the head

Zika and Newborns - Correct Head Measurement

- Measure 1-2 finger widths above the eyebrow on the forehead and at the most prominent part of the back of the head
- Measure three times and record largest measurement to the nearest 0.1 cm

Zika and Newborns – Head Circumference

- www.youtube.com/watch?v=HWV1JdAhsSo
- Demonstration of head circumference measurement using plastic model

Zika and Newborns - Which Newborns to Test

- Infants born to mothers who have laboratory evidence of Zika virus infection during pregnancy
- Infants with abnormal clinical findings suggestive of congenital Zika and maternal epidemiologic link

Zika and Newborns – Testing, But When and What Specimens?

- Test within two days of birth
- Test Serum and urine
- If clinically indicated, CSF

Zika and Newborns-What tests to perform on the Infant?

- Zika virus RNA nucleic acid test (RNA NAT) on urine and serum
- Zika virus IgM on serum
- Test infant serum NOT CORD BLOOD
- If CSF is clinically indicated, perform RNA NAT and Zika IgM
- Interpretation? Coming up at the end of the presentation!

Zika and Newborns - 5 Features of Congenital Zika Syndrome

- Severe microcephaly
 - Decreased brain tissue; calcifications
 - Ocular abnormalities including macular, optic nerve, and retinal lesions
 - Congenital contractures
 - Hypertonia soon after birth
- (Other findings may be associated with maternal Zika infection)

Zika and Newborns - CNS Abnormalities

- Microcephaly
- Intracranial calcifications
- Cerebral atrophy
- Abnormal cortical formation
- Corpus callosum abnormalities
- Porencephaly, Hydranencephaly
- Ventriculomegaly/Hydrocephalus

Zika and Newborns - Brain Disruption/Other Findings

Fetal brain disruption sequence

- Collapsed skull
- Overlapping sutures
- Prominent occipital bones
- Scalp rugae

Pre and post natal intraventricular hemorrhage (IVH)

Zika and Newborns - Neural Tube Defects

- Anencephaly
- Encephalocele
- Spina bifida

Zika and Newborns – Ocular Abnormalities

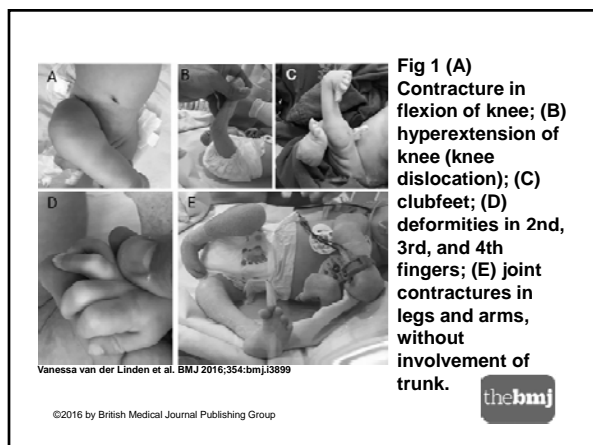
- Macular-Focal pigmented mottling/chorioretinal atrophy
- Optic nerve- Hypoplasia/cupping/atrophy
- Retinal-Hemorrhage/hypo pigmentation/vascular tortuosity

Zika and Newborns - Other Ocular Abnormalities

- Microphthalmia/Anophthalmia
- Iris Coloboma
- Cataracts
- Intraocular calcifications
- Subluxed lens

Zika and Newborns - Congenital Contractures

- Arthrogryposis
- Congenital talipes equinovarus (Clubfoot)
- Developmental dysplasia of the hip



Zika and Newborns - Hearing Loss

- Post natal testing
- Follow standard procedures for newborn hearing testing in hospital

Zika and Newborns - So we have concerning findings, testing has been done. What is next?

- Test interpretation by CDC guidelines
- Current CDC algorithm
- Follow up/registry

Interpretation of Results of Laboratory Testing for Congenital Zika Virus

CDC Chart for Overhead Camera

**Initial Evaluation and
Outpatient Management for
Zika and Newborns**

CDC Chart for Overhead Camera

**Outpatient Management
Checklist for Zika and
Newborns**

CDC Chart for Overhead Camera

References

- <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Zika/Pages/Zika.aspx>
- **AAP-Webinar Beyond the Basics: The Impact of Zika Virus on Vision and Hearing-September 5, 2017**
- <http://www.bmj.com/content/354/bmj.i3899>
- www.cdc.gov/Zika