

Zika Virus

The Role of Birth Facilities in Reporting to Maryland's Newborn Screening Programs

April 26, 2016

Prevention and Health Promotion Administration



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HEALTH AND MENTAL HYGIENE



MISSION AND VISION

MISSION

•The mission of the Prevention and Health Promotion Administration is to protect, promote and improve the health and well-being of all Marylanders and their families through provision of public health leadership and through community-based public health efforts in partnership with local health departments, providers, community based organizations, and public and private sector agencies, giving special attention to at-risk and vulnerable populations.

VISION

•The Prevention and Health Promotion Administration envisions a future in which all Marylanders and their families enjoy optimal health and well-being.



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Zika Virus and Newborn Screening Webinar

1. Overview of Zika Virus
2. DHMH and Local Health Department (LHD) response
3. Newborn Screening
 - a. Consent
 - b. Hearing Screening reporting
 - c. Birth Defect reporting
4. OZ Systems Database
5. Questions



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Zika Virus Overview

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Director
Maternal and Child Health Bureau



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The Virus

- Single-stranded, enveloped RNA virus
- In the *Flaviviridae* family: includes Yellow Fever, West Nile, Dengue
- Arbovirus transmitted primarily by *Aedes* species mosquitoes, most importantly *A. aegypti* (but possibly less efficiently by *A. albopictus*)



ESTIMATED range of *Aedes albopictus* and *Aedes aegypti* in the United States, 2016*



 *Aedes aegypti*  *Aedes albopictus*



Aedes aegypti mosquitoes are more likely to spread viruses like Zika, dengue, chikungunya and other viruses than other types of mosquitoes such as *Aedes albopictus* mosquitoes.

These maps DO NOT show

- Exact locations or numbers of mosquitoes living in an area
- Risk or likelihood that these mosquitoes will spread viruses

These maps show

- CDC's best estimate of the potential range of *Aedes aegypti* and *Aedes albopictus* in the United States
- Areas where mosquitoes are or have been previously found

* Maps have been updated from a variety of sources. These maps represent CDC's best estimate of the potential range of *Aedes aegypti* and *Aedes albopictus* in the United States. Maps are not meant to represent risk for spread of disease.

CS264451-F



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



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History

- **First discovered in rhesus monkeys 1947 in Uganda, near the Zika Forest**
- **Subsequently described in humans in 1952 in Uganda and United Republic of Tanzania**
- **Cases in Africa and Asia during 20th century**
- **First outbreak outside of Asia or Africa in 2007 in Yap**
- **Outbreak in French Polynesia starting in 10/2013**

ORIGINAL ARTICLE

Zika Virus Outbreak on Yap Island, Federated States of Micronesia

Mark R. Duffy, D.V.M., M.P.H., Tai-Ho Chen, M.D., W. Thane Hancock, M.D., M.P.H., Ann M. Powers, Ph.D., Jacob L. Kool, M.D., Ph.D., Robert S. Lanciotti, Ph.D., Moses Pretrick, B.S., Maria Marfel, B.S., Stacey Holzbauer, D.V.M., M.P.H., Christine Dubray, M.D., M.P.H., Laurent Guillaumot, M.S., Anne Griggs, M.P.H., Martin Bel, M.D., Amy J. Lambert, M.S., Janeen Laven, B.S., Olga Kosoy, M.S., Amanda Panella, M.P.H., Brad J. Biggerstaff, Ph.D., Marc Fischer, M.D., M.P.H., and Edward B. Hayes, M.D.

N Engl J Med 2009; 360:2536-2543 | June 11, 2009 | DOI: 10.1056/NEJMoa0805715



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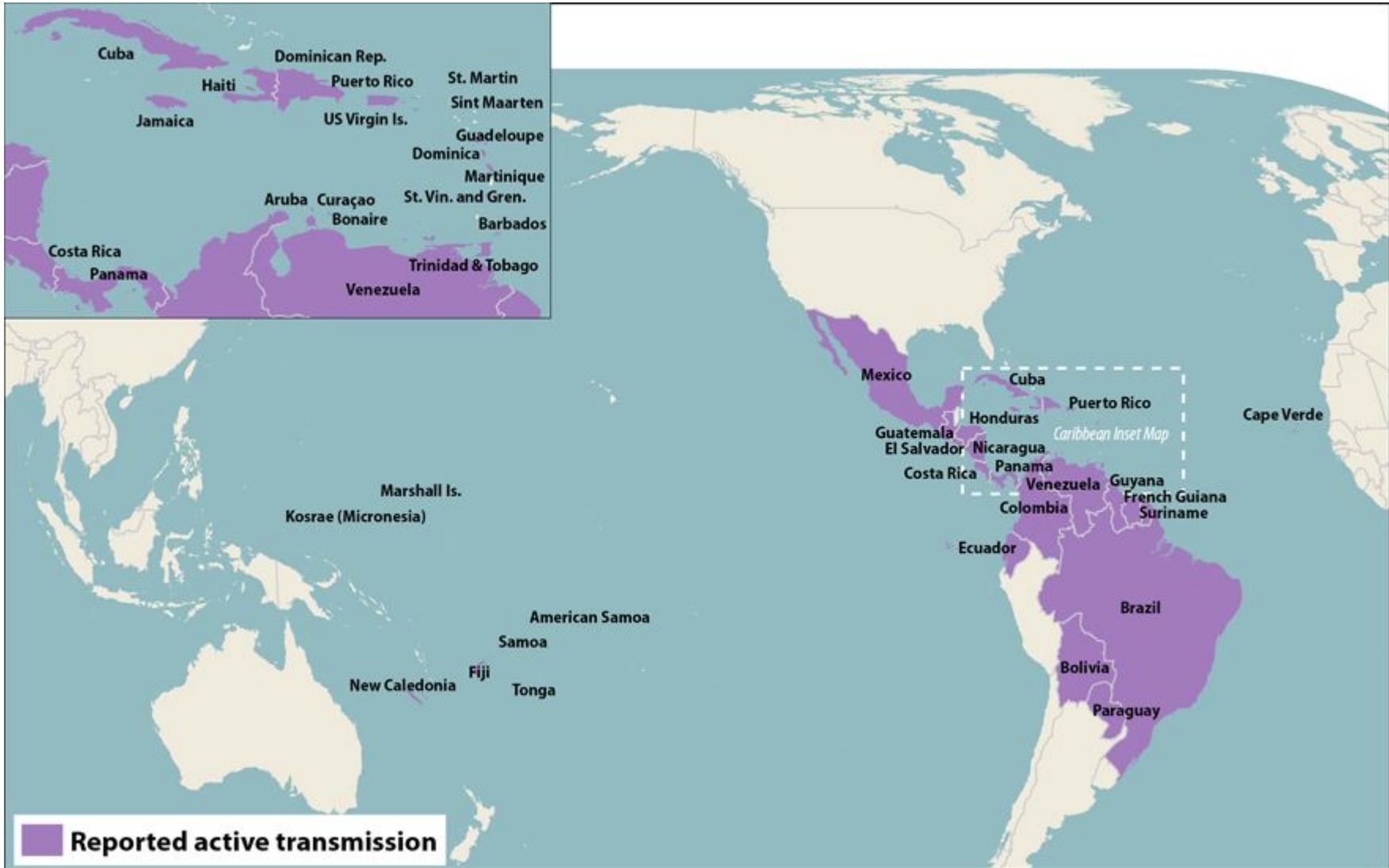
<http://www.nejm.org/doi/full/10.1056/NEJMoa0805715>

<http://who.int/mediacentre/factsheets/zika/en/>

http://ecdc.europa.eu/en/press/news/_layouts/forms/News_DispatchForm.aspx?List=8db7286c-fe2d-476c-9133-18ff4cb1b568&ID=954



Areas with Zika Transmission – April 2016



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Zika Infection

- **Incubation period: estimated 3-5 days, up to 14 days**
- **Only about 20% of people infected have symptoms**
- **Duration of illness: brief, typically ~1 week**
- **Viremia lasts for ≤ 1 week**
- **Generally illness is mild, but with two important potential complications**
 - **Guillain-Barre Syndrome (GBS)**
 - **Pregnancy complications and birth defects, especially microcephaly**



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Zika & Pregnancy

- **Increased rates of microcephaly noted in Brazil in late 2015, 10-20x normal (reported) incidence**
- **Weight of evidence now strongly implicates Zika virus as a cause of microcephaly**
- **CDC currently recommending pregnant women consider deferring travel to areas with ongoing transmission**
- **Pregnant women who have traveled to affected areas warrant Zika testing**



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Zika Transmission

- **Primarily by mosquitoes**
- **Sexual transmission – now documented, though still many unanswered questions**
- **Blood transfusion – at least 1 patient, possibly transmitted prior to symptom onset**
- **Virus isolated from breast milk, no known cases transmitted**
- **Organ or tissue donation – no confirmed cases but theoretically possible**
- **NOT like Ebola – No special PPE or isolation needed for Zika patients (just normal Standard Precautions)**



Diagnostic Testing

- PCR can detect virus in first week after illness onset
- Serological testing can detect illness for longer
 - IgM detectable starting Day #4 after illness onset
 - Significant interactions with other viruses (WNV, YFV, Dengue) making test interpretation sometimes difficult
 - More complex serological tests can be done to help distinguish Zika from other infections; less helpful if previously infected/vaccinated
- Testing now available at DHMH public health laboratory
- No commercial testing available at this time



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Treatment

- **No specific antiviral treatment**
- **No vaccine**
- **Supportive — rest, fluids, antipyretics, anti-nausea meds**
- **Acetaminophen for fever and pain**
- **Avoid aspirin and NSAIDs until dengue ruled out to avoid hemorrhagic complications**



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DHMH and LHD Response

- **Providing Zika information to Marylanders via a variety of formats (DHMH website, LHD and provider transmittals)**
- **Providing guidance to MD healthcare providers**
- **Working with providers to get testing done when appropriate (with focus on pregnant women)**
- **Maintaining surveillance**
 - **Zika Virus**
 - **Microcephaly / GBS**
 - **Mosquito surveillance**
- **Mosquito control in concert with Maryland Department of Agriculture**



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Roles for Hospitals and Birth Facilities

- **Obtaining and transporting specimens for testing**
- **Reporting**
 - **Zika infections**
 - **Microcephaly and other potential pregnancy related complications**
 - **GBS**
- **Assisting Maternal-Fetal Medicine specialists in the care of pregnant women requiring special testing and monitoring**
- **Disseminating information to clinicians**
- **Assisting with disseminating information to the public**



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Surveillance and Informing the Public

- Reporting
- Laboratory testing
- Newborn Screening and online reporting
 - Birth Defects reporting
 - Infant Hearing Screen
 - Weekly microcephaly report
- Collaboration with CDC, other state and local providers and resources
- Dedicated DHMH webpage to Zika Virus and current information regarding standards of care, testing, reporting and state response



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- > [STD Awareness Month](#)

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Zika Virus Information



(Aedes Mosquito)

Zika Virus Basics:
 Zika virus is a virus spread to people through mosquito bites of Aedes species mosquitoes. Aedes

<http://phpa.dhmh.maryland.gov/pages/zika.aspx>



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Newborn Screening



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Tanya D. Green M.S., CCC-A



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Newborn Screening

Identifies conditions that can affect a child's long-term health or survival.

- **Early detection, diagnosis, and intervention can prevent death or disability and enable children to reach their full potential.**
- **Maryland newborns are routinely screened for 50+ genetic, endocrine, and metabolic disorders via a heel stick.**
- **Screened for hearing loss prior to hospital discharge**
- **Assessed for any birth defects prior to discharge from hospital or birth facility**



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Consent for Newborn Screening

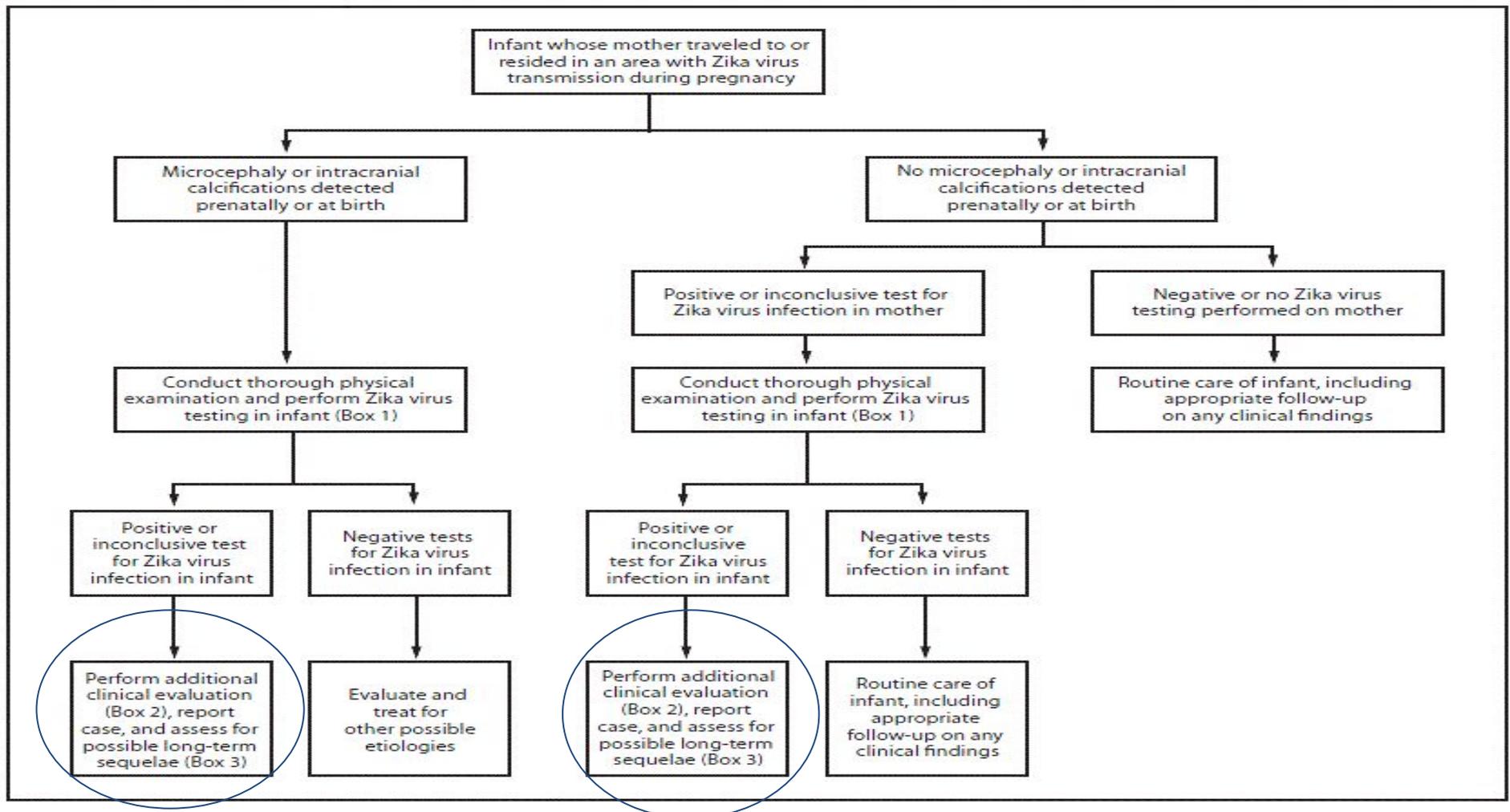
- **Newborn screening is based on implied consent**
- **Birth facility is responsible for educating family about newborn screening and notifying State Health Department if parent declines**



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Interim guidelines for the evaluation and testing of infants with microcephaly or intracranial calcifications whose mothers traveled to or resided in an area with Zika virus transmission during pregnancy (CDC, February 26, 2016)



Interim guidelines for the evaluation and testing of infants with microcephaly or intracranial calcifications whose mothers traveled to or resided in an area with Zika virus transmission during pregnancy (CDC, February 26, 2016)

BOX 2. Recommended clinical evaluation and laboratory testing for infants with possible congenital Zika virus infection

Evaluation of hearing by evoked otoacoustic emissions testing or auditory brainstem response testing, either before discharge from the hospital or within 1 month after birth. Infants with abnormal initial hearing screens should be referred to an audiologist for further evaluation.

BOX 3. Recommended long-term follow-up for infants with possible congenital Zika virus infection

Consider conducting additional hearing screen at age 6 months. Refer any child with developmental delay for an audiologic evaluation. Ensure that appropriate follow-up of abnormal newborn hearing screening has occurred.



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Newborn Hearing Screening

The Maryland Early Hearing Detection and Intervention (MD EHDI) Program:

- Ensures completion of newborn hearing screening
- Ensures completion of diagnostic audiologic evaluation for infants with risk factors for hearing loss
- Follows the 1-3-6 Joint Committee on Infant Hearing timeline recommendations:
 - **SCREEN** by age 1 month
 - **DETERMINE HEARING STATUS** by age 3 months
 - **BEGIN EARLY INTERVENTION SERVICES** by age 6 months for babies who have been diagnosed with a hearing loss
 - Studies show that infants with hearing loss who begin early intervention services before 6 months of age, develop language (spoken or signed) on par with their hearing peers.



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OZ Systems Database

Needed from hospital staff:

- Confirm hearing screening was completed prior to hospital discharge and document in OZ Systems Database
- For babies who missed or did not pass the hearing screen in one or both ears, emphasize the importance of receiving a hearing screen/rescreen by one month of age
- Notify each infant's pediatrician of the hearing screen results
- Update baby's file in the OZ Systems Database within 48 hours of discharge with:
 - Hearing screen results
 - Pediatrician/Medical Home the baby will see after discharge
 - Any existing risk factors for hearing loss (*Risk factors for hearing loss include any cranio-facial anomalies, including microcephaly*)
 - Positive for Zika virus or exposure in utero



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Birth Defects Reporting

- Completed within 48 hours of discharge
- Complete demographics
- Lifestyles factors
- Birth Conditions
 - ICD10
- Prenatal Testing
- Prenatal Health History
- Pregnancy History
- Case notes
 - Documentation of travel outside of the US prior to or during pregnancy, or partner traveled outside of the US prior to or during pregnancy



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Birth Defects Reporting

- **Birth Condition/Disorder**
- **Suspected vs. Detected**
- **If “suspected” should have PCP and/or lab information in case note.**
- **Documented in case note**



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Birth Defects Reporting

- **Stillbirth**
 - **Greater than 20 weeks need death certificate**
 - **Less than 20 weeks should be reported if obvious birth condition/disorder is detected.**



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OZ Systems Database

User: Monika Piccardi
Facility: MDEHDI
Last Login: 3/30/2016 11:30:28 AM

[logout](#) [support](#) [select facility](#)

Z SYSTEMS
SCREENER PLUS

MARYLAND EARLY HEARING DETECTION AND INTERVENTION
INFANT HEARING PROGRAM



Alert: System Message

Main Area

- home page <<
- Patients
- Professional Contacts
- CCHD
- Letters
- Reminders
- Tools
- Reports
- Transfers
- Admin

Welcome to Maryland Early Hearing Detection and Intervention Program

Please select the appropriate option from the menu on the left of the screen to continue.

If you have any questions while using eSP, support materials can be found by clicking the HELP icon at the left of every screen or the support link at the top of the page. For additional support, please contact the help desk via email at ozhelp@oz-systems.com or call (888) 727-3366 ext. 3

If you need assistance from Maryland Newborn Screening program staff, please contact any of the following:

Maryland Early Hearing Detection and Intervention (MD EHDI)
Tanya Green 410-767-6432 Tanya.Green@Maryland.gov
Erin Filippone 410-767-6762 Erin.Filippone@Maryland.gov
Theresa Thompson 410-767-5093 Theresa.Thompson@Maryland.gov

Maryland Critical Congenital Heart Disease (CCHD)
Johnna Watson 443-681-3916 Johnna.Watson@Maryland.gov

Maryland Birth Defects Reporting Information System (BDRIS)
Monika Piccardi 410-767-6737 Monika.Piccardi@Maryland.gov

Maryland Newborn Metabolic Screening
Johnna Watson 443-681-3916 Johnna.Watson@Maryland.gov

Funding for this database is provided by grants from the U.S. Center for Disease Control to the Office for Genetics and People with Special Health Care Needs.

MDEHDI Helpdesk: (888) 727-3366 ext. 3 Wednesday, 30 March 2016 | [home](#) [contact](#)



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← → ↻ 🏠 <https://www.mdehdi.com/Patients/demo.aspx>

Apps Irvine Nature Center Camper Mods Amazon.com Store Card Lowes Card Girl Scout Camp Hilton Hor

User: Monika Piccardi Facility: MDEHDI Last Login: 4/19/2016 10:49:59 AM [logout](#) [support](#) [select facility](#)

Child Information quick links: [select a page](#)

Main Area

Patients

add patient
current patient
new search
current search
current search results
import test results
patient journey
imported files
merge patients
manage patient notes
Audiology Care

Professional Contacts

CCHD

Letters

Reminders

Tools

Reports

Transfers

Admin

Help

Patient: [REDACTED] Confidential ID: [REDACTED] [Edit Patient](#)

Blood Spot Card No. NA Medical Record No. [REDACTED]

Date of Birth: [REDACTED]

Demographics:

Date of Birth: 04/15/2016

Birth: St. Joseph's Hospital

Facility: GA:

Birth Weight: 3050 (g)

Hearing Case Status: Open

Location:

Inpatient

Outpatient

[Set](#)

Core Risks

Cranio-facial anomalies U

Exchange Transfusion for elevated bilirubin U

Family History of Permanent Childhood hearing loss U

NICU > 5 days U

[Other Risks \(0\)](#)

Primary Contact Details: [View/Add Contacts \(1\)](#)

[REDACTED] (Mother)

Mother's MRN: [REDACTED]

Phone: [REDACTED]

Language: English

Mother's DOB: (no date)

Education:

Last General Case Note: [View/Add Case Notes \(0\)](#)

no note available

Reminders: [View/Update Hearing Reminders \(0\)](#)

Professional Contacts:

Name	Service Type	Phone
St. Joseph's Hospital	Birth Screen Provider	410-337-1000

[Add Professional Contact](#)

Hearing Outcome: Normal Hearing

Birth Conditions Outcome: Disorder Detected

CCHD Outcome: Missed



Main Area

Patients

- add patient
- current patient
- new search
- current search
- current search results
- import test results
- patient journey
- imported files
- merge patients
- manage patient notes
- Audiology Care

Professional Contacts

CCHD

Letters

Reminders

Tools

Reports

Transfers

Admin

Help

Patient: [REDACTED] **Confidential ID:** [REDACTED] [Edit Patient](#)

Blood Spot Card No.: [REDACTED] **Medical Record No.:** [REDACTED]

Date of Birth: [REDACTED]

Demographics:

Date of Birth: [REDACTED]

Birth Facility: University Of Maryland Medical System

GA: 40

Birth Weight: 3555 (g)

Hearing Case Status: Closed

Location:

Inpatient

Outpatient

[Set](#)

Core Risks

Cranio-facial anomalies **U**

Exchange Transfusion for elevated bilirubin **U**

Family History of Permanent Childhood hearing loss **U**

NICU > 5 days **U**

[Other Risks \(0\)](#)

Primary Contact Details: [View/Add Contacts \(1\)](#)

[REDACTED]

[REDACTED]

[REDACTED]

Mother's MRN: [REDACTED]

Phone: [REDACTED]

Language: **English**

Mother's DOB: **(no date)**

Education:

Last General Case Note: [View/Add Case Notes \(0\)](#)

no note available

Reminders: [View/Update Hearing Reminders \(0\)](#)

Professional Contacts:

Name	Service Type	Phone
University Of Maryland Medical System	Birth Screen Provider	410-328-5949

[View](#) [Remove](#) [Add Professional Contact](#)

Hearing **Outcome: Normal Hearing**

Birth Conditions **Outcome: Disorder Detected**

[View/Update Birth Conditions](#)

Last Birth Conditions Case Note: [View/Add Case Notes \(0\)](#)

no note available

CCHD **Outcome: No Disorder Detected**

— MDEHDI — Helpdesk: (888) 727-3386 ext. 3 Wednesday, 20 April 2016 | [home](#) [contact](#)



Questions?



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Contact Information

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