



**Department  
of Health**

# **Zika Virus Collection, Processing and Shipping**

**An Overview for Specimen Collection Sites**

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# Objectives

At the conclusion of this webinar, Zika specimen collection sites will be able to:

- Describe the types of specimens that must be collected to diagnose Zika virus exposure
- Articulate NYSDOH's requirements for specimen processing, storage, and shipment
- Recognize the needs and requirements for being a Zika virus specimen collection center

# Zika Virus

- Single stranded RNA Virus
- Genus *Flavivirus*, Family *Flaviviridae*
- Closely related to dengue, yellow fever, Japanese encephalitis and West Nile viruses
- Transmitted to humans primarily by *Aedes* species mosquitoes

# Zika Virus

- Prior to 2015, Zika virus outbreaks occurred in areas of Africa, Southeast Asia, and the Pacific Islands
- In May 2015 - the first confirmed Zika virus infections in Brazil
- No local transmission to date in the continental United States



# Modes of Transmission

- **Mosquito Bite**
  - From infected to uninfected humans and primates by bite of a mosquito
- Maternal-fetal
  - Intrauterine
  - Perinatal
- Other
  - Sexual Transmission
  - Blood transfusion
- Theoretical
  - Organ or tissue transplantation
  - Breast milk



# Zika Virus Imported Cases in the U.S.

- Approximately 45 cases of Zika virus diagnosed in the continental U.S.
  - All but one are travel-associated/imported
  - One report of sexual transmission
  - **NO** local vector-borne transmission
- New York State
  - 16 cases → All imported/travel-associated (2/11/16)
- With outbreaks in the Americas, cases among U.S. travelers will likely increase
- Imported cases may result in virus introduction and local spread in some areas of U.S.



# Diagnostic Testing for Zika Virus

- **No commercially-available diagnostic tests at present**
  - CDC is working with commercial laboratories to address this issue in the near future
- Testing is available at NYSDOH's Public Health Laboratory – The Wadsworth Center
  - No cost for laboratory testing
- CDC is working to expand laboratory diagnostic testing to other state and large urban area public health laboratories

# Diagnostic Testing for Zika Virus

1. PCR assay to detect viral RNA in serum and urine
2. Serological assays to detect either IgM or IgG in serum collected  $\geq 4$  days after illness onset
3. Plaque reduction neutralization test (PRNT) to detect a  $\geq 4$ -fold rise in Zika virus-specific neutralizing antibodies in paired sera



## Department of Health

**ANDREW M. CUOMO**  
Governor

**HOWARD A. ZUCKER, M.D., J.D.**  
Commissioner

**SALLY DRESLIN, M.S., R.N.**  
Executive Deputy Commissioner

February 9, 2016

**TO: Healthcare Providers, Hospitals, Local Health Departments (LHDs)**  
**FROM: NYSDOH Bureau of Communicable Disease Control (BCDC) and Wadsworth Center (WC)**

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- **HEALTH ADVISORY: ZIKA VIRUS TESTING PROCESS** -  
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[http://www.health.ny.gov/diseases/zika\\_virus/](http://www.health.ny.gov/diseases/zika_virus/)



# NYSDOH Zika Testing Procedures

- Physician verifies that the patient meets testing criteria and authorizes specimens collection (doctor's order or script)
- The physician contacts the local health department (LHD) **where the patient resides** to coordinate a review of their case and received prior authorization
- The LHD will complete the NYSDOH Zika virus testing authorization questionnaire with the patient and physician.

# NYSDOH Zika Testing Procedures

- If testing is approved by the LHD, an authorization form will be emailed to the patient to present at the collection site
  - Collection sites will accept a printed ticket or an image on a smartphone
  - If patient does not have an email address, LHD can fax the form to the patient, provider, or directly to the specimen collection site

## NYS DOH - Authorization for Zika Virus Testing

Thank you for registering with us. Please print the Registration Ticket below and bring it with you to your selected hospital. This ticket will help to reduce wait time at your event.

### Recipient

Jane Doe

### Event Information

Campaign: MattD - Zika test Campaign

Form: MattD Zika Form

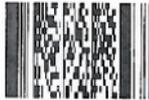
County: NYS DOH

Zika Registration

Selected Hospital: Albany Memorial Hospital

Public Notes - Additional information to share with people want to be test for the Zika virus.

<br>



ID# 3184

# NYSDOH Zika Testing Procedures

- Physician will provide the patient with orders, the LHD prior authorization\* and completed Infectious Diseases Requisition (IDR) form

New York State Department of Health  
Wadsworth Center  
Empire State Plaza  
PO Box 609, Albany, NY 12201-0509  
Shipping address: [www.wadsworth.org/labinfo.htm](http://www.wadsworth.org/labinfo.htm)  
Telephone: (518) 474-4177

### Infectious Diseases Requisition

NYIS Accession Number \_\_\_\_\_  
Date received: / /

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**Patient Demographics** \* denotes required information

Last Name \* First Name \* MI DOB \* Sex:  Male  Female  
Street Address City State Zip Code  
NYIS County of Residence \* NYIS DOH Outbreak Number CCSSD Case Number Submitter's Reference Number

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**Submitter (Laboratory report will be sent to)** \* denotes required information

Name and Address \* Laboratory PFI \_\_\_\_\_  
Contact Person \_\_\_\_\_  
Telephone Number (\_\_\_\_\_) \_\_\_\_\_

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**Specimen Information** \* denotes required information

Specimen is:  Isolate  Primary Specimen  Autopsy Specimen Collection Date \* / /  
Source / Specimen Type \* Time Collected (if applicable for test) / /

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**Laboratory Examination Requested** [www.wadsworth.org/Diastest](http://www.wadsworth.org/Diastest)

Bacterial  Fungal  Mycobacterial  Parasitic  Serology  Viral

Suspected Organism / Agent \_\_\_\_\_

Identification / Confirmation  Susceptibility (specify antimicrobial(s))  
 TB Fast Track [www.wadsworth.org/microbac/tbtrack.htm](http://www.wadsworth.org/microbac/tbtrack.htm)  Serology (specify test and define onset date)  
 Viral Encephalitis Panel [www.wadsworth.org/clinical/lab/viral/enceph.htm](http://www.wadsworth.org/clinical/lab/viral/enceph.htm)  Other (specify) \_\_\_\_\_

Submitting lab findings: Smear/Stain/Other results \_\_\_\_\_ Comments \_\_\_\_\_  
Specimen submitted on/in: Media Preservative Tissue cell line  
Relevant Exposure:  Contact known case  Food/water  Nosocomial  
 Travel, Location & Date \_\_\_\_\_  Animal \_\_\_\_\_  Arthropod \_\_\_\_\_

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**Clinical History**

Name of patient's healthcare provider \_\_\_\_\_ Telephone Number \_\_\_\_\_  
Diagnosis: \_\_\_\_\_ Hospitalized?  Yes  No  Unknown If hospitalized, hospital name: \_\_\_\_\_  
Pregnant (trimester): \_\_\_\_\_ Symptoms:  Acute  Chronic  Other Onset of symptoms: / /  
Fever: max \_\_\_\_\_ duration \_\_\_\_\_ CSP: Glu \_\_\_\_\_ Prot \_\_\_\_\_ RBC \_\_\_\_\_ WBC \_\_\_\_\_  
Relevant treatment: \_\_\_\_\_ Date / / Relevant immunization: \_\_\_\_\_ Date / /

Symptoms/Clinical Epidemiology (check all that apply):  
Central Nervous System:  Altered Mental Status  Coma  Encephalitis  Headache  Meningitis  Paralysis  Seizures  
Gastrointestinal:  Diarrhea  Blood/Mucus  Nausea  Vomiting  
Respiratory:  Bronchitis  Bronchiolitis  Cough  Pneumonia  Upper Respiratory Infection  
Skin/Infections:  Hemorrhagic  Maculopapular Rash  Petechial Rash  Vesicular  
Cardiovascular:  Endocarditis  Myocarditis  Pericarditis  
Miscellaneous:  Arthralgia  Conjunctivitis  Cystitis  Hepatitis  Hemostomegaly  Immunocompromised  Jaundice  
 Keratitis  Lymphadenopathy  Malaise  Myalgia  Pleurodynia  Splenomegaly  Urticaria  
Other Symptoms: \_\_\_\_\_

DOI-4403 (6/06) p. 1 of 2 Non-human Sample form on page 2

← Patient name and address

← Physician name and address

← Specimen details

← Test request

← Travel history – location and dates

← ? Pregnant ? trimester

← Clinical symptoms

Please identify the name of the collection site somewhere on the form

# NYSDOH Zika Testing Procedures

- The LHD will provide a list of specimen collection sites and the patient can choose the site most convenient for them

<https://commerce.health.state.ny.us/hcsportal/docs/Source/hpn/preparedness/zika/ZikaCollectionSites.pdf>

- Physician should advise patients to call the collection site to find out if an appointment is required

# NYC Residents - Zika Testing Process

- NYCDOHMH is using a different specimen collection and transportation procedure **for NYC residents only**
- If the **patient resides in NYC**, see NYCDOHMH guidance <http://www1.nyc.gov/assets/doh/downloads/pdf/cd/lab-instructions-zika.pdf>
- Providers should contact the New York City Department of Health and Mental Hygiene's (NYCDOHMH) Provider Access Line for questions and other assistance at:
  - **1-866-692-3641**

# Specimens

## Serum

Collect whole blood in red top tubes  
minimum 6ml



Centrifuge and remove serum  
minimum 3ml

## Urine

Minimum 3ml



Freeze serum and  
urine -70 to -80°C

# Specimen Collection

- Label the specimens: Failure to properly label a specimen will result in rejection and the specimen will not be tested
- Specimens must be labeled with:
  - Patient's First and Last Names
  - Patient's Date of Birth
  - Date and Time of Collection
- All information on the specimen label must exactly match the information on Wadsworth's Infectious Diseases Requisition (IDR) form (described below), including the patient's first and last names
- Identify each tube as containing either urine or serum



# Specimen Processing

- It is best that blood specimens be centrifuged, separated and frozen immediately
- Specimens that are not directly centrifuged should be immediately refrigerated and must be centrifuged and the serum frozen within 6 hours
- Specimens must be on cold packs when transported from the refrigerator to the freezer during this 6 hour time period
- Both the urine and serum need to be frozen at -70 to -80 degrees Celsius. Freezing preserves the integrity of the Zika virus RNA in the samples
- Serum collected for convalescent evaluation does not have to be frozen at -70 to -80 degrees Celsius and can be shipped on ice packs



# Packaging, Shipping, and Certification



IATA  
DOT  
Certification

# Specimen Transport for Non-NYC Residents

- Wadsworth's Infectious Diseases Requisition (IDR) form must be completed in full and accompany each specimen being **submitted on a non-NYC resident**. If present, *symptoms should be clearly noted on the IDR.*

[http://www.wadsworth.org/sites/default/files/WebDoc/1065760803/infectious\\_diseases\\_requisition\\_DOH\\_4463.pdf](http://www.wadsworth.org/sites/default/files/WebDoc/1065760803/infectious_diseases_requisition_DOH_4463.pdf)

- Follow shipping regulations for UN 3373 Biological Substance, Category B and UN 1875, Class 9 for dry ice.
- Specimens must be shipped on dry ice to the Wadsworth Center, David Axelrod Institute, 120 New Scotland Avenue, Albany, NY 12208. Label the outside of the package with storage conditions (-70 to -80C).



# Optimal shipping temperature

Generally, freezing at ultra low temperatures preserve the viral RNA best. But we do not have data for optimal Zika virus shipping temperature.

- Wadsworth is conducting stability studies that should be available soon
- We will then advise the best method for shipping
- In the meantime we will continue to request shipping on dry ice

# Comments

- If necessary, specimens could be batched for delivery 3 days per week
- Please mark outer container with large letters – store frozen
- Wadsworth will accept deliveries 24/7, but not necessary unless otherwise indicated by ordering physician
- Patient should have the IDR\*, LHD authorization, and physician order upon arrival

# Zika Specimen Collection Sites

- NYSDOH is posting on the secure Health Commerce System (HCS) a list of facilities that have been designated as collection sites for healthcare providers
- Collection sites must consider their hours of operation, distance from main laboratory with -70 to -80 degrees Celsius freezers, timing of couriers, ability to freeze specimens within 6 hours following collection, access to dry ice, and ability to accept out of network patients
- If you would like to sign up to be a collection site please provide: name of facility, address, directions, hours of operation, contact information



# Zika Specimen Collection Sites

## Reimbursement

NYS DOH in collaboration with the hospital associations are working to establish a reimbursement rate

## Rates will include:

- Shipping boxes
- Dry ice
- Shipping
- Staff time

**[Div\\_Epi@health.ny.gov](mailto:Div_Epi@health.ny.gov)**



# Zika Resources

- **CDC's Zika Virus Information Page**
  - <http://www.cdc.gov/zika/index.html>
- **NYSDOH's Zika Virus Information Page**
  - Testing process advisory posted
  - Testing process one page information sheet for the public to be posted
  - Webinars posted
  - Testing algorithm and interpretation will be posted
  - [http://www.health.ny.gov/diseases/zika\\_virus/](http://www.health.ny.gov/diseases/zika_virus/)
- **PAHO's Zika Virus Information Page**
  - <http://www.paho.org/zika>

# Questions?



Contact the NYSDOH Zika Information Line at:

**1-888-364-4723**

9AM-6PM weekdays