

October 10, 2017

OKHAN-258-2017-10-10-UPD-N

## Updated Zika and other Travel-associated Arboviral Diseases Screening Guidance

### Summary

*This HAN Advisory serves to inform healthcare providers across the state that new Zika screening and evaluation guidance has been implemented by the Oklahoma State Department of Health (OSDH) to reflect changes in guidance published by the Centers for Disease Control and Prevention (CDC).<sup>1,2</sup> For this reason, the OSDH Acute Disease Service (ADS) has updated our Zika clinician packet and laboratory guidance documents. Clinicians should use the updated forms during patient evaluation to determine if the clinical and travel criteria are met to access diagnostic testing for Zika virus infection.*

### Updated Testing Recommendations

#### Symptomatic Patients with Zika Exposure

It is still recommended to test symptomatic patients with at least two Zika-compatible symptoms (fever, rash, arthralgia, conjunctivitis) who report travel to or sexual contact with a person who resides/visited a Zika outbreak-affected country.

#### Asymptomatic Pregnant Women

New changes have been implemented for asymptomatic pregnant women. CDC has established two risk levels for asymptomatic, pregnant females: (1) Pregnant women with ongoing exposure, and (2) those without ongoing exposure. Ongoing exposure is defined as those who have had foreign residence in a Zika-affected country during pregnancy or the eight weeks prior to conception, as well as those patients who report frequent (at least monthly) travel to a Zika-affected region.

#### 1. Asymptomatic, Pregnant Women With Ongoing Exposure

It has now been established that previous residence in a Zika-affected country or frequent travel to a Zika-affected region places a pregnant woman and her fetus at higher risk of both infection and adverse outcomes.

It is recommended to continue to test women in this category for Zika virus infection. It is important to understand there has been a change in the frequency and testing type. The Zika IgM test has proven to be unreliable for asymptomatic, pregnant women as CDC studies have now shown that IgM levels can actually remain elevated well beyond 200 days post-exposure making it impossible to determine if positive IgM results reflect exposure that occurred prior to conception or is actually reflective of recent travel or sexual exposure. This makes follow-up difficult and confusing for both clinicians and patients. For this reason, CDC is now recommending asymptomatic, pregnant women with ongoing Zika exposure to be only tested by PCR three times during pregnancy. Testing should occur at initial prenatal visit and then two additional times, preferably once per trimester.

#### 2. Asymptomatic, Pregnant Women Without Ongoing Exposure

CDC's new guidance states that Zika testing for this category of women is no longer recommended for the majority of states. Oklahoma is not a border or high risk state with documented local mosquito transmission of Zika virus. Furthermore, both state and national data support the notion that the risk of Zika virus infection in pregnant women who only travel out of the US for vacation or short stays are at a low risk of developing Zika virus disease, thus low risk to the fetus acquiring infection.

Asymptomatic, pregnant females comprise approximately 75% of consultations and testing requests done by the Oklahoma State Department of Health. Since February 2016, OSDH has tested 544 asymptomatic, pregnant females with either travel to Zika-affected region or reported sexual exposure with a partner who traveled to high risk area; one (0.18%) tested positive for Zika virus infection.

Given the strong state and national data supporting the low risk of Zika virus in this group, the OSDH will no longer be testing women in this category or their sexual partners. Women (or partners) who still desire testing outside of CDC guidelines may elect to pursue testing through a commercial reference laboratory.

### Infant and Placental Testing

The OSDH will continue to evaluate and test infants who have suspected or confirmed microcephaly or other neurologic birth defects (diagnosed prenatally or at birth) whose mother was potentially exposed to Zika virus, as well as infants born to mothers with laboratory evidence of Zika virus infection during pregnancy.

### Summary

If the completed screening process indicates the patient is at risk for Zika virus infection, notify the ADS epidemiologist-on-call at (405) 271-4060 for consultation, to confirm all criteria for testing are met, and to coordinate specimen collection and submission. Once the patient has been approved for testing, clinicians should follow the attached specimen collection guidance to submit the required specimen(s) to the OSDH Public Health Laboratory (PHL). The epidemiologist-on-call will work with clinicians to coordinate specimen transport to the PHL. Guidance related to appropriate specimen collection, handling, and shipping can be found in the attached "Laboratory Testing Guidance" document.

Please note CDC is currently offering a free continuing education (CE) activity discussing recent updates regarding U.S. pregnant women and infants with recent Zika virus exposure. Interested clinicians can register at the following link: [https://www.cdc.gov/mmwr/cme/medscape\\_cme.html](https://www.cdc.gov/mmwr/cme/medscape_cme.html)

**Healthcare providers can contact the ADS epidemiologist-on-call at (405) 271-4060 for questions or clarification regarding this guidance or Zika Virus testing.**

1. *Updated Guidance for US Laboratories Testing for Zika Virus Infection*, Centers for Disease Control and Prevention, July 24, 2017, accessed at <https://www.cdc.gov/zika/pdfs/laboratory-guidance-zika.pdf>
2. *The Updated Interim Guidance for Healthcare Providers Caring for Pregnant Women with Possible Zika Virus Exposure – United States, July 2017:*  
[https://www.cdc.gov/mmwr/volumes/66/wr/mm6629e1.htm?s\\_cid=mm6629e1\\_w](https://www.cdc.gov/mmwr/volumes/66/wr/mm6629e1.htm?s_cid=mm6629e1_w)

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### Categories of Health Alert messages

**Health Alert** highest level of notification that the Oklahoma State Department of Health will send out. This usually refers to an immediate threat to the OSDH community and requires immediate action.

**Health Advisory** advises medical providers of a condition in the area. These are usually not medical emergencies. These may not require immediate action.

**Health Update** provides updates on previous alerts or advisories. These are unlikely to require immediate action.

## This advisory has been distributed to Primary Care and Obstetrics & Gynecology Physicians, Emergency Departments, Infection Preventionists, Advance Practice Nurses, and State and Local Health Officials ##

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You have received this message based upon the information contained within our emergency notification database. If you have a different or additional e-mail or fax address that you would like us to use please contact the OSDH Acute Disease Service at (405) 271-4060.

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## ZIKA AND OTHER TRAVEL-ASSOCIATED ARBOVIRAL DISEASES SCREENING AND EVALUATION GUIDANCE

**ACTIONS REQUESTED OF CLINICIANS:** If patient meets one of the criteria below, please:

1. Fill out the screening form.
2. Fax it to Oklahoma State Department of Health (OSDH), Acute Disease Service (ADS) at (405) 271-6680.
3. Call the epidemiologist-on-call at (405) 271-4060 to consult and obtain the required pre-approval for testing.
4. If patient is approved for testing, complete the attached OSDH Public Health Lab requisition form for each specimen. This form is required to be submitted with each specimen collected for testing at the Public Health Lab.

*If a patient meeting the criteria below is seen during non-business hours, specimens can be collected and held refrigerated until the next business day when an OSDH ADS epidemiologist is available for consultation and submission approval. If the patient is part of a suspected outbreak, or suspected local transmission event, please contact the ADS epi-on-call immediately at (405) 271-4060 (available 24/7/365).*

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### ❖ **Symptomatic Individuals with Travel History or Concern for Sexual Transmission:**

- ◆ Two or more of the following symptoms: Acute fever, rash, arthralgia, conjunctivitis;

#### **AND**

- ◆ Travel to a Zika-affected area within 2 weeks prior to symptom onset. Countries or areas within the continental U.S. at risk for Zika transmission can be determined by accessing the following website: <http://wwwnc.cdc.gov/travel/page/zika-travel-information>;

#### **OR**

- ◆ Concern for sexual transmission: Reports unprotected sex with partner(s) who traveled to a Zika-affected area. Specimen must be collected within 12 weeks after partner's departure from a Zika-affected country in order to be eligible for testing;

#### **AND**

- ◆ Ability to collect urine and serum specimens within 12 weeks of symptom onset. *Additional specimens may be requested during consultation with an ADS epidemiologist.*

### ❖ **Asymptomatic, Pregnant Women:**

- ◆ Those with ONGOING\* possible Zika exposure:

- Should be tested three times during pregnancy.
  - At initial prenatal visit and then two more times, preferably each trimester.
- Collect urine and serum samples for Zika virus RT-PCR testing.

- ◆ Those without ONGOING\* possible Zika exposure:

- **Testing is no longer recommended** (i.e., vacation travel, unprotected sexual exposure following vacation travel).

\***Ongoing** possible exposure to Zika virus includes frequent (at least monthly) travel to a Zika-affected area or frequent (at least monthly) unprotected sex with a partner who either resides in or frequently travels to a Zika-affected area. Travelers with short stays overseas (e.g., vacations, short mission trips) regardless of pregnancy status are no longer eligible for testing at the Oklahoma State Department of Health. Patients interested in Zika testing that don't qualify for testing at OSDH can access testing through major reference laboratories at the patient's expense.

### ❖ **Infant and Placental Testing:**

- ◆ Infants who have suspected or confirmed microcephaly or other neurologic abnormality (diagnosed prenatally or at birth) and mother was potentially exposed to Zika virus.
- ◆ Infants who were born to mother with laboratory evidence of Zika virus infection during pregnancy.



## Zika and Other Travel-Associated Arboviral Diseases Laboratory Testing Guidance

Zika virus testing is performed by the Oklahoma State Department of Health (OSDH) Public Health Laboratory (PHL). However, prior to specimen collection/submission, an epidemiologist from the OSDH Acute Disease Service (ADS) must gather pertinent clinical signs and symptoms, travel, and other epidemiologic information from the clinician to determine if a patient meets the required criteria for Zika virus testing as indicated by the Centers for Disease Control and Prevention (CDC). All specimens must be approved by the ADS prior to shipping to the OSDH PHL for testing.

The OSDH PHL is a CDC-designated laboratory that performs Zika virus testing by Emergency Use Authorization using the CDC Zika IgM Antibody Capture (MAC) ELISA and the CDC Triplex Real-time RT-PCR Assay. Specimens may be referred by the OSDH PHL to the CDC or other laboratories for additional testing, as indicated.

For questions concerning Zika testing criteria, contact the **OSDH ADS epidemiologist-on-call at (405) 271-4060**.

For questions regarding specimen collection, storage, transport, and lab requisition forms, contact the **OSDH PHL Client Services at (405) 271-5070**.

*Please, note that an **OSDH PHL Test Requisition Form** **must be submitted with each specimen**.  
If the form is not completed appropriately, or is not received, testing may be canceled or significantly delayed.*

- ❖ **Urine and serum are the preferred specimen types and are required for each individual approved for testing. Additional specimens may be recommended during consultation with an ADS epidemiologist.**

### **Specimen Collection, Storage, and Shipping:**

- **Whole blood** in serum separator tube (SST) (a.k.a., tiger-top tube)
  - Following collection, gently invert SST no more than 8 times then allow blood to clot in upright position for at least 30 mins and no more than 60 mins then centrifuge at 3000 rpm for 10 mins.
  - ≥ 2.0 mL (minimum) required; collect additional tubes to meet volume requirements, as needed.
  - Store refrigerated (2-8 °C) and ship using ice packs.
  - If transit time will be > 7 days post-collection, pour serum into a sterile, leak-proof, screw-cap tube and store/ship frozen (-20°C or colder).
- **Urine** in sterile container with sterile screw-cap container
  - Following collection, transfer urine to a sterile screw-cap container. To prevent leakage during shipping, secure parafilm around container cap. Do not ship urine cups.
  - ≥ 1.0 mL (minimum) required; must be submitted together with a patient-matched serum specimen.
  - Store refrigerated (2-8 °C) and ship using ice packs; prefer specimen frozen (-20°C or colder), then shipped on dry ice, if possible.
- **CSF and amniotic fluid** in sterile screw-cap container
  - ≥ 1.0 mL (minimum) required; must be submitted together with a patient-matched serum specimen.
  - Store refrigerated (2-8 °C) and ship using ice packs; prefer specimen frozen (-20°C or colder), then shipped on dry ice, if possible.
- **Other specimens types**
  - For submission of other specimen types, such as placenta tissue or umbilical cord, coordinate with the OSDH ADS epidemiologist-on-call at (405) 271-4060.



### **Completing the Test Requisition Form**

- An OSDH *PHL Test Requisition Form* must be completed and submitted with each specimen type.
- The OSDH *PHL Test Requisition Form* can be downloaded/electronically completed at the OSDH PHL website (“Forms”) or a hard copy can be provided by the OSDH ADS epidemiologist-on-call.
  - Include patient’s name or unique patient identifier (e.g., MR#), DOB, sex, specimen type, date of specimen collection, name and address of submitter, and test requested.
  - Indicate specimen source; a separate test requisition form is required for each specimen type, e.g., if submitting a serum and urine specimen on the same patient, then two test requisition forms will be required.
  - Under the Virology section of the form, mark ‘Zika virus, IgM antibodies and/or Zika virus, chikungunya virus, dengue virus, PCR’.

### **Shipping to the OSDH PHL**

- Ship to the OSDH PHL Monday through Thursday using the following address:
  - OSDH Public Health Laboratory
  - 1000 NE 10<sup>th</sup> Street
  - Oklahoma City, OK 73117-1299
- For specimens that cannot be shipped immediately, store according to specimen storage guidelines above.
- Specimens must be packaged and shipped in accordance with Category B agent guidelines.
- Courier service to the OSDH PHL may be available through your local hospital; contact the PHL Client Services.

### **Cautionary Note Regarding Alternative Commercial Testing**

Currently, several commercial laboratories in the US offer Zika virus testing using real-time RT-PCR. However, these laboratories do not provide Zika IgM ELISA testing with PRNT confirmation, and have no routine process to forward specimens to another laboratory when test results are negative. Therefore, if requesting Zika rRT-PCR testing from a commercial laboratory, **providers should request the draw site/laboratory to retain an aliquot of the serum for Zika IgM testing if the rRT-PCR testing is negative.** Whole blood should be collected and processed per guidelines of the commercial testing laboratory but serum from an additional serum separator tube should be transferred to a polypropylene tube and stored refrigerated (2-8°C) until it is known if additional IgM testing is indicated. If a serum aliquot cannot be stored or is not available, but further testing is indicated, a new blood sample should be collected.

# ZIKA AND OTHER TRAVEL-ASSOCIATED ARBOVIRAL DISEASES SCREENING FORM

**Please complete all sections of the form, fax to the Acute Disease Service (ADS), F:(405) 271-6680, and then call the ADS epidemiologist-on-call at (405) 271-4060 prior to specimen collection and submission. Please complete all fields.**

## Patient Information

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_ MI: \_\_\_\_\_  
Date of Birth: \_\_\_\_/\_\_\_\_/\_\_\_\_ Sex:  Male  Female  
Address: \_\_\_\_\_ City: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_  
Primary contact number: \_\_\_\_\_ Secondary contact number: \_\_\_\_\_  
Race:  White  Black  Native America  Asian  Native Hawaiian/Pacific Islander  Asian  
 Unknown  Other \_\_\_\_\_  
Ethnicity:  Hispanic  Non-Hispanic  Unknown Preferred Language: \_\_\_\_\_  Interpreter needed

## Healthcare Provider Information

Name of Reporting Person: \_\_\_\_\_  
Ordering Physician: \_\_\_\_\_  
Work Phone: \_\_\_\_\_ Fax Number: \_\_\_\_\_ Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

## Symptom Information

Did patient have two or more of the symptoms below?  Yes  No **(If yes, complete symptom information below. If no, go to next question.)**

- ❖ *Is the patient pregnant?*  Yes  No **(If yes, go to next question. If no, testing not indicated.)**
- ❖ *If patient is pregnant, does the patient report having at least monthly travel to a Zika-affected area or monthly sexual contact with partner who resides in/travels to a Zika affected area?* **(If no, testing not indicated. If yes, skip to exposure assessment.)**

Symptom Onset date: \_\_\_\_/\_\_\_\_/\_\_\_\_

**Fever** (subjective OR measured)  Yes  No  Unknown *If yes, max temp: \_\_\_\_\_*  
**Rash**  Yes  No  Unknown *Rash description:  Petechial  Macular  Vesicular*  
**Conjunctivitis**  Yes  No  Unknown  
**Arthralgia**  Yes  No  Unknown

Was the patient hospitalized?  Yes  No  Unknown

Hospital name: \_\_\_\_\_ Admit Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Discharge Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

## Exposure Assessment

### If symptomatic:

Within 14 days before symptom onset, did the patient travel in an area in which Zika virus is present?

Yes  No *(If yes, please list patient's travel details on the following page.)*

- *If no, did the patient report unprotected sex with their sexual partner following their return from a Zika-affected country?*  Yes  No *(If yes, please list partner's travel details on the following page. If no, testing not indicated.)*

### If asymptomatic and pregnant:

Did the patient live in a foreign country in the eight weeks prior to conception or anytime during pregnancy?  Yes  No

*If yes, please list country of foreign residence and dates of residence.*

Country: \_\_\_\_\_ Dates of residence: \_\_\_\_/\_\_\_\_/\_\_\_\_ - \_\_\_\_/\_\_\_\_/\_\_\_\_

Does the pregnant patient report frequent (at least monthly) travel to a Zika outbreak-affected region during pregnancy?



Acute Disease Service  
Oklahoma State  
Department of Health

Phone: (405) 271-4060  
Fax: (405) 271-6680  
Website: <http://ads.health.ok.gov>

# ZIKA AND OTHER TRAVEL-ASSOCIATED ARBOVIRAL DISEASES SCREENING FORM

Yes  No

❖ If yes, how often does the patient report travel during pregnancy?  
\_\_\_\_\_

Does the pregnant patient report repeated (at least monthly), unprotected sexual exposure to a partner who has continued to travel to a foreign country during client's pregnancy?  Yes  No

❖ If yes, how often does the patient report unprotected sexual exposure during pregnancy?  
\_\_\_\_\_

**Exposure Assessment (Continued)**

Refer to CDC Zika Travelers Advisory page for list of countries: <http://wwwnc.cdc.gov/travel/page/zika-travel-information>

**If yes**, list which countries and regions/areas/cities visited, and dates of travel:

1) Country: \_\_\_\_\_  
Date Arrived in Country: \_\_\_\_/\_\_\_\_/\_\_\_\_ Date Departed Country: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Regions/areas/cities visited: \_\_\_\_\_

2) Country: \_\_\_\_\_  
Date Arrived in Country: \_\_\_\_/\_\_\_\_/\_\_\_\_ Date Departed Country: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Regions/areas/cities visited: \_\_\_\_\_

❖ Was the patient pregnant at the time of travel?  Yes  No

**If yes**, number of gestational weeks at the time of travel: \_\_\_\_ weeks

**If yes**, is the patient still pregnant?  Yes  No

*If the patient is no longer pregnant, indicate outcome of pregnancy:*  Live birth  Fetal loss  Elective termination

*If live birth, what was date of delivery and facility of delivery:*  
\_\_\_\_\_

❖ Did the patient become pregnant within approx. 2 weeks after returning from a Zika affected country or region?

Yes  No

❖ Has the patient ever been vaccinated for Yellow Fever or Japanese encephalitis?  Yes  No  Unknown

❖ Has the patient previously been diagnosed with Dengue, Chikungunya, Yellow Fever, or West Nile virus?

Yes  No  Unknown

**If yes**, specify disease and year: \_\_\_\_\_

❖ Has the patient been tested for other etiologies for the current illness?  Yes  No  Unknown

<input type="checkbox"/> Chikungunya	Lab name: _____	Date of test ____/____/____	Result: _____
<input type="checkbox"/> Dengue	Lab name: _____	Date of test ____/____/____	Result: _____
<input type="checkbox"/> West Nile Virus	Lab name: _____	Date of test ____/____/____	Result: _____
<input type="checkbox"/> Other	Lab name: _____	Date of test ____/____/____	Result: _____

**FOR INTERNAL USE ONLY:**

<input type="checkbox"/> Symptomatic	<input type="checkbox"/> Pregnant	<input type="checkbox"/> Ongoing Exposure	<input type="checkbox"/> Specimen < 14 days from symptom onset or exposure
<input type="checkbox"/> Asymptomatic	<input type="checkbox"/> Not Pregnant	<input type="checkbox"/> No Ongoing Exposure	<input type="checkbox"/> Specimen ≥ 14 days and < 12 weeks from symptom onset or exposure



Acute Disease Service  
Oklahoma State  
Department of Health

Phone: (405) 271-4060  
Fax: (405) 271-6680  
Website: <http://ads.health.ok.gov>



Oklahoma State Department of Health  
Creating a State of Health

Oklahoma State Department of Health  
Public Health Laboratory

1000 N.E. 10<sup>th</sup> Street, Oklahoma City, OK 73117-1299  
Tel: (405)271-5070; Fax: (405)271-4850  
Email: [PublicHealthLab@health.ok.gov](mailto:PublicHealthLab@health.ok.gov)  
Test Directory: <http://phl.health.ok.gov>

Laboratory Director:  
S. Terence Dunn, PhD  
CLIA #: 37D0656594

Please, PRINT; \*indicates required fields

**Patient Information**

Name (last, first)\* \_\_\_\_\_, \_\_\_\_\_ Initial \_\_\_\_ DOB\* \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_

Sex:\*  M  F Ethnicity:  Hispanic/Latino  Non-Hispanic/Non-Latino  Unknown  
Race: (mark all applicable)  White  Black/African American  Asian  American Indian/ Alaska Native  
 Native Hawaiian/Other Pacific Islander  Other

**Submitter Information**

Practitioner Name (last, first)\* \_\_\_\_\_, \_\_\_\_\_ Initial \_\_\_\_ NPI \_\_\_\_\_

Facility Name\* \_\_\_\_\_ Phone # ( ) - Fax # ( ) -

Address\* \_\_\_\_\_ City\* \_\_\_\_\_ State \_\_\_\_ Zip\* \_\_\_\_\_

**Clinical Information**

Diagnosis \_\_\_\_\_ Onset (mm-dd-yyy) \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Antibiotics (list and start dates) \_\_\_\_\_

**Specimen Information**

Collection Date (mm-dd-yyy)\* \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Time (hour:minute) \_\_\_\_\_ AM / PM By \_\_\_\_\_

Source/Type\* (check one only)

- Blood  Serum  Urine  Stool  CSF  Pleural fluid  Pericardial fluid  Blood smears
- Sputum, expect.  Sputum, induced  Bronchial brush  Bronchial wash  Bronchoalveolar lavage  Tracheal aspirate
- Nasopharynx  Nasal  Throat  Eye  Rectum/anus  Vagina  Cervix
- Tissue (specify):  Wound/Lesion (specify):
- Cultured isolate (specify suspect agent):  Environmental (specify):
- Other (specify):

**Test Request (mark one only)**

**Bacteriology**

- Bacterial isolate, identification/serotyping/confirmation  
Variable specimen according to source (contact lab)
- Bacteria, non-enteric, isolation and identification  
Variable specimen according to source (contact lab; requires pre-approval)
- Enteric pathogens, isolation and identification  
Feces, 2 g or 5-10 mL in Cary Blair or GN Broth (STEC only)
- Bordetella  
Nasopharynx, 1 or 2 swabs; Isolate, confirm visible growth
- Chlamydia/Gonorrhea  
Urine, first 20-60 mL of void – transfer to UPT tube
- Group B streptococcus  
Vaginal/anal swab in LIM broth (combined vaginal/anal collection preferred)
- Syphilis, RPR w/ reflex to TP-PA  
Serum in SST, 2 mL
- Syphilis, RPR and TP-PA  
Serum in SST, 2 mL; (CHDs only, requires pre-approval by DIS)
- Bacteria, environmental (contact lab)

**Virology**

- Hepatitis B surface antigen (HBsAg)  
Serum, 2 mL (approved submitters only)
- HIV-1/2 antigen/antibodies  
Serum in SST, 2 mL (approved submitters only)
- Human papillomavirus, high risk  
Residual ThinPrep, 1 mL
- Influenza virus A and B  
Nasopharyngeal (preferred), nasal or throat swabs, 1 or 2 in VTM
- Rubella antibodies  
Serum in SST, 1 mL (female CHD patients only)
- Virus isolation and/or identification  
Throat, nasopharynx, rectum, eye, lesion, 1 swab in VTM; Blood, 5 mL heparin; Feces, 2 g or 5-10 mL; CSF, 1 mL; Eye scrapings in VTM; Urine, 20 mL (first morning void); Isolate; Other (contact lab)
- West Nile virus/St. Louis encephalitis virus, IgM antibodies  
Serum in SST, 2 mL; CSF, 1 mL (CSF must be accompanied by serum)
- Zika virus, IgM antibodies and/or Zika virus, chikungunya virus, dengue virus, PCR  
Serum in SST, 2mL; CSF, 1 mL; Urine 1 mL; Amniotic fluid 1mL (CSF, urine and amniotic fluid must be accompanied by serum)  
(requires pre-approval by OSDH Acute Disease Service)

**Mycobacteriology/Mycology**

- Fungal isolate, identification  
Plate or slant with visible growth
- Mycobacteria, smear and culture w/ reflex to identification  
Respiratory sediments, 5-10 mL; Sterile fluid, >2 mL; Blood, 5-10 mL ACD or heparin; Tissue, 1 g; Urine, >5 mL
- Mycobacteria, isolate identification  
Liquid culture, >3 mL; Solid culture, visible growth
- M. tuberculosis complex PCR  
Respiratory sediments, 5-10 mL (CHDs require OSDH TB physician pre-approval)

**Parasitology**

- Intestinal ova and parasites (O&P)  
Solid feces, 2 g or Liquid feces, 5-10 mL in PVA and 10% formalin
- Parasites, blood  
Babesia/trypanosomes/filariae: Giemsa or Giemsa-Wright-stained blood smears, 1 thick and 1 thin  
Malaria: Giemsa or Giemsa-Wright-stained blood smears, 1 thick and 1 thin AND 2-6 mL EDTA blood
- Parasites, tissue  
Impression or biopsy; Other (contact lab; requires pre-approval)