



Public Health Department

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Public Health
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PROVIDER HEALTH UPDATE

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Zika Virus Testing Guidelines

Please be aware that while some commercial laboratories may offer Zika testing, not all offer the full testing algorithm recommended by CDC.

Because Zika virus RNA is only transiently present in blood and data on urine testing are still emerging, a negative polymerase chain reaction (PCR) test does not rule out Zika virus infection. Additional serologic testing is needed to improve diagnostic sensitivity because PCR may not detect all recent infections.

Zika specimens sent to the [SLO Public Health Laboratory](#) are submitted to the [CDPH Viral and Rickettsial Disease Laboratory](#) for the recommended testing. Please contact the Laboratory before sending us specimens for Zika testing.

CDC and CDPH recommendations for laboratory testing are summarized below and in the attached quicksheet, also available at www.cdph.ca.gov/programs/vrdl/Documents/Zika_Testing_VRD_L_Quicksheet.pdf.

Summary of CDPH Recommendations for Zika Virus Testing

1. Symptomatic persons
 - a. serum (<7 days after symptom onset) and urine (<21 days after symptom onset) by PCR AND, if PCR negative
 - b. serum for IgM antibodies (preferably >3 days after symptom onset). If IgM antibodies are present, neutralizing antibodies should be tested to differentiate Zika virus from other flaviviruses.
2. Asymptomatic persons
 - a. serum for IgM antibodies (2-12 weeks after last exposure). If IgM antibodies are present, neutralizing antibodies should be tested to differentiate Zika virus from other flaviviruses.

If you have any questions regarding commercial Zika virus testing, please contact the [CDPH Viral and Rickettsial Disease Laboratory](#) Medical and Epidemiology Liaison Section, (510) 307-8585, or email VRDL.submittal@cdph.ca.gov.

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ZIKA LABORATORY TESTING GUIDANCE

Appropriate Clinical Specimens for Laboratory Testing of Suspected Cases *					
	Symptomatic Suspect Cases				Asymptomatic Pregnant Women
	Serum	CSF	Urine [§]	Other [¶]	Serum only
RT-PCR [§]	YES	YES	YES	YES	NO
Serology: IgM with PRNT confirmation [†]	YES	YES		YES	YES

[¶] CDC will consider testing other specimen types (e.g., saliva, placental tissue, umbilical cord, fetal and other tissues) on a case by case basis.

[§] RT-PCR is the preferred method and urine is the preferred specimen for confirming an acute case.

[†] PRNT (plaque-reduction neutralization test) may confirm cross-reactive IgM tests by measuring virus-specific neutralizing antibodies.

Recommended Diagnostic Testing

CDPH is now providing diagnostic testing (PCR, IgM and PRNT serology) for Zika virus as well as dengue and chikungunya viruses. All Zika virus testing will be performed at VRDL as described below.

Health care providers wishing to arrange testing for Zika virus must contact your local public health department for consultation and approval.

- For any suspect cases of Zika virus infection, testing should be considered for the following viruses:
 - Zika
 - Chikungunya
 - Dengue
- CDC will **only** perform diagnostic testing for Zika virus that is not performed in VRDL.

RT-PCR Testing: Testing performed on **symptomatic cases** only. VRDL is currently using the Triplex Real-time RT-PCR assay which is validated for serum, CSF, urine and amniotic fluid. Serum **must** be submitted with CSF, urine or amniotic fluid.

- Serum or CSF:** PCR can detect Zika, chikungunya, and dengue viruses.
 - Collect within 7 days of illness onset.
 - Collect at least 2 ml of serum (5-10 ml of blood) in a red top or serum separator tube.
 - For CSF, at least 1 ml is required.
- Urine or Amniotic fluid:** PCR can detect Zika virus only.
 - Collect urine within 21 days (3 weeks) of illness onset.
 - Amniotic fluid: collect if amniocentesis is performed.
 - Collect **at least 2 mls** of fluid.
 - Urine specimen cups leak and are not recommended for shipping. To avoid leakage of the urine sample, transfer to a small sterile screw-cap tube (e.g., 15 ml conical tube) and use parafilm to seal. Place the tube in a Ziploc bag with absorbent material. It is not necessary to spin or process the urine.

Serology: IgM and PRNT testing

- Asymptomatic pregnant women:** A blood sample should be collected between 2 and 12 weeks after last potential exposure.

NOTE: A negative serology test obtained 2-12 weeks after exposure cannot definitively rule out Zika virus infection.
- Symptomatic cases:** Optimal collection of acute blood is >3 days after illness onset, although serum collected any time between illness onset to 12 weeks after onset will be accepted. Serum collected within 7 days of illness onset may be falsely negative.
- If initial IgM testing is negative and Zika is strongly suspected, a second convalescent serum should be collected.
- IgM antibodies against Zika virus, dengue viruses, and other flaviviruses (e.g., yellow fever virus, West Nile virus) can cross-react possibly generating false positive results in serological tests;

therefore, all IgM positive samples will be reflexed to PRNT to discriminate among these viruses.

Other tissues: Consult with VRDL prior to collecting other tissues for testing.

Specimen storage and shipping: Store all specimens at 4°C. Ship on cold pack within 24 to 72 hours.

Specimen shipment – Complete Following forms

- VRDL General Purpose Specimen Submittal Form** Lab 300: <http://tinyurl.com/VRDLlab300>
- The **2016 CDC DASH** (Only required for special test requests on saliva, semen, or tissue samples. Please consult with VRDL before sending.) The following information is **required**:
 - Your *local public health department* contact information as the “Intermediate Submitter”
 - Date of symptom onset. For asymptomatic pregnant women:
 - Under “Clinical Diagnosis” choose “asymptomatic”
 - Leave “Onset dates” blank
 - Pregnancy status and estimated due date, as applicable (testing will be expedited for pregnant women)
 - List of clinical symptoms
 - Travel history – list countries visited and date of departure from risk area
- See <http://www.cdph.ca.gov/programs/vrdl/Pages/Zikainfo.aspx> for detailed instructions and examples of completed forms.
- Please email electronic copies of all forms to VRDLsubmittal@cdph.ca.gov.
- Specimens should be shipped as directed by the local public health laboratory.** For those jurisdictions without a local Public Health Laboratory, specimens can be shipped and directed to the VRDL using the following address:

**Specimen Receiving
CDPH VRDL
850 Marina Bay Parkway
Richmond, CA 94804**

Questions about specimen collection, submittal, or shipping: Please contact the VRDL Medical and Epidemiology Liaison Section, (510) 307-8585, or email VRDLsubmittal@cdph.ca.gov.

Other resources: <http://www.cdc.gov/zika/index.html>