

Arizona Interim Zika Testing Algorithms for Healthcare Providers

Testing guidance is subject to change

October 30, 2017



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Zika Testing & Counseling Considerations

- **Consult with [local public health](#)** to coordinate Zika virus testing.
- **All pregnant women in the United States should be assessed for possible Zika virus exposure and symptoms during each prenatal visit. Pregnant women should be counseled on Zika virus [prevention](#).**
- **A summary document for providers with Zika prevention messaging for patients is available [here](#).**
- **No treatment is available for Zika virus**, and the decision to test should be made carefully after conversations between the patient and healthcare provider.
- **Zika testing can lead to inconclusive results due to IgM antibody cross-reactivity with infections from other flaviviruses including dengue and West Nile, as well as yellow fever and Japanese encephalitis virus vaccination.** A positive or inconclusive serologic test result might not indicate true Zika virus infection.
- **IgM antibodies may persist after infection.** A positive IgM test may not necessarily indicate recent infection.
- **Patients should be informed that presumptive positive IgM results need to be confirmed.** Do not rely on presumptive positive Zika IgM test results as the sole basis of significant patient management decisions.
- **For pregnant women with exposure to Zika virus, there are potential risks for microcephaly, birth defects, and other complications. Consultation with a perinatologist is recommended.**
- Although some countries have ongoing Zika virus transmission, the risk level for disease transmission is not the same in all areas. **Decisions to test based on travel history can be made on an individual basis at the discretion of the local health department and healthcare provider.**



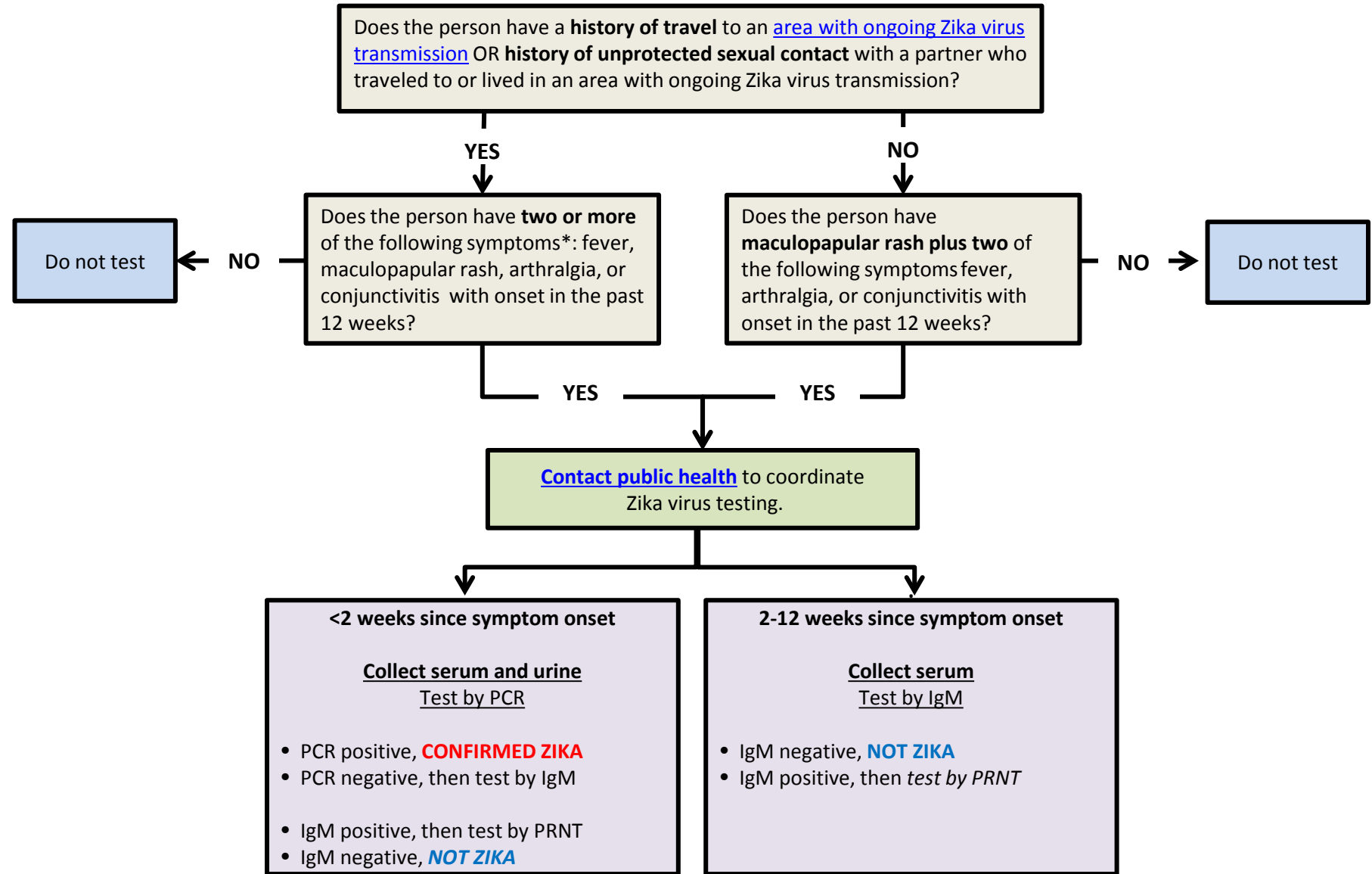
Case Reporting and Specimen Submission

- **All suspected cases should be reported immediately to the local health department:**
<http://www.azhealth.gov/localhealth>
 - Local health departments can help coordinate testing.
- If testing is approved, specimens can be sent to the Arizona State Public Health Laboratory accompanied by the laboratory submission form: <http://azdhs.gov/documents/preparedness/state-laboratory/public-health-microbiology/clinical-microbiology-submission-form.pdf>
 - On the submission form, indicate Zika virus (IgM EIA/PCR) under the Virology/Serology section.
- **Serum and urine should be collected for testing.** Serum is a required specimen for testing; whole blood (EDTA), CSF, urine, and amniotic fluid may also be tested alongside a patient-matched serum specimen **at the Arizona State Public Health Laboratory.**
- **Simultaneous testing for dengue and chikungunya is recommended.**
- **Results for Zika virus testing might not be available until 3-4 weeks after the specimen is collected. Zika test interpretation guidance is available from the CDC:**
 - [Fact Sheets for Zika test interpretations](#)
 - [Interim Guidance for Interpretation of Zika Virus Results](#)

Zika Virus Terminology

- **IgM testing**— a diagnostic assay that measures the level of virus-specific antibodies in the blood or other body fluids. *Zika IgM cross-reactivity with similar viruses, such as dengue can occur. IgM antibodies can also persist after infection, so an IgM response may not necessarily indicate recent infection.*
- **Polymerase Chain Reaction (PCR)**— a diagnostic assay that detects genetic material (RNA or DNA) specific to a certain virus.
- **Plaque Reduction Neutralization Antibodies (PRNT)**— a virus-specific serological diagnostic method for measuring antibodies that neutralize and prevent viruses from infecting cultured cells.
- **Immunohistochemical staining**— a diagnostic method to visualize antigen-antibody binding reactions by using fluorescence dyes and microscopy techniques.
- **Last menstrual period (LMP)**— the first day of a woman’s last menstrual period.
- **Confirmed Zika**— all indicated diagnostic testing has been completed and the individual has evidence of a recent Zika virus infection.
- **Not Zika**— all indicated diagnostic testing has been completed and the individual does not have evidence of a recent Zika virus infection.
- **SToRCH**— syphilis, toxoplasmosis, rubella, cytomegalovirus, herpes testing.
- **[U.S. Zika Pregnancy Registry](#)**— a national registry to monitor the frequency and types of pregnancy and infant outcomes following Zika virus infection during pregnancy with the aim of informing prevention efforts and services for Zika virus infections in this population.

Zika Testing for Men and Non-Pregnant Women



*Simultaneous testing for dengue and chikungunya is recommended.

Note: Healthcare providers should [consult with local public health](#) for patients that may not fit above criteria.



Zika Testing for Pregnant Women

Does the woman have a **history of travel** to an [area with ongoing Zika virus transmission](#) OR **history of unprotected sexual contact** with a partner who traveled to or lived in an area with ongoing Zika virus transmission?

YES

NO

Has the asymptomatic pregnant woman had **ongoing exposure[†]** to Zika virus during her pregnancy?

Does the woman have **two or more** of the following symptoms*: fever, maculopapular rash, arthralgia, or conjunctivitis?

Does the woman have **maculopapular rash plus two** of the following symptoms: fever, arthralgia, or conjunctivitis with onset in the past 12 weeks?

Do not test

← NO

← NO

← NO

Do not test

YES

YES

YES

[Contact public health](#) to coordinate Zika virus testing.

[Contact public health](#) to coordinate Zika virus testing.

If exposure is ongoing:
TEST ONCE PER TRIMESTER

If exposure has ended:
SINGLE TEST

Collect serum and urine
Test by PCR

- PCR positive, **CONFIRMED ZIKA**

≤12 weeks since symptom onset

Collect serum and urine
Test by PCR & IgM

- PCR positive, **CONFIRMED ZIKA**
- IgM positive, then test by PRNT

>12 weeks since symptom onset

Consider serial fetal ultrasounds every 3-4 weeks to assess fetal anatomy and growth.

See infant follow-up and testing algorithms.

*Simultaneous testing for dengue and chikungunya is recommended.
[†]Ongoing exposure is defined living in or sustained daily/weekly travel to an area of active Zika virus transmission. In addition, daily/weekly unprotected sexual contact with a partner who meets ongoing exposure criteria should be considered.
 Note: Healthcare providers should [consult with local public health](#) for patients that may not fit above criteria

Infant Follow-up and Infant/Placental Testing

Does the infant have abnormalities consistent with [congenital Zika syndrome](#) (including but not limited to: microcephaly, structural brain abnormalities, contracture of one or more joints, functional neurological abnormalities)?

YES

NO

Clinically evaluate for other possible etiologies (e.g. STORCH, genetic, drug exposure).
Consider Zika virus testing.

Does the mother have a **history of travel** during pregnancy or **within 6 weeks of her LMP** to an [area with ongoing Zika virus transmission](#) OR a **history of unprotected sexual contact** with partner who lived in or traveled to an area with ongoing Zika virus transmission?

Was the mother positive for Zika or other unspecified flaviviruses?

NO

NO/
NOT TESTED

Routine care*

YES

YES

[Contact public health](#) to coordinate Zika virus testing.

Collect infant serum and urine within 2 days of birth
Test by PCR and IgM

Fix and store [placenta](#). May be tested based on infant/maternal test results.

AT BIRTH perform standard evaluation; **BY ONE MONTH OF AGE** perform a head ultrasound, newborn hearing assessment using auditory brainstem response (ABR) methodology, and ophthalmologic examination. [CDC evaluation guidelines.](#)

*Routine care should include, but not be limited to, a comprehensive physical examination, standardized measurement of head circumference, and standard newborn hearing screening. Additional evaluation for congenital Zika virus can be considered in consultation with families, taking into account the infant's complete examination, risks of screenings, and maternal factors.
Note: Healthcare providers should [consult with local public health](#) for patients that may not fit above criteria.