



Department of Health's Zika Testing, Investigation and Notification Process

The steps below detail the Florida Department of Health's process for identifying, testing, investigating and informing the public about cases of locally acquired Zika virus. This is the current process, but as the department learns more about the Zika virus, it may change and updates will be made available. The department works closely with local physicians, mosquito control and local leaders to ensure they are informed and prepared to respond to locally acquired Zika with the primary goal of keeping Floridians and visitors safe.

The Centers for Disease Control and Prevention (CDC) advises that Zika can be transmitted through the bite of an infected mosquito, sexual contact, blood transfusion and from pregnant mothers to their growing baby.

- 1. For those who believe they may have the Zika virus:**
 - **If the person is a pregnant woman, she may receive a free Zika assessment and test at the local county health department or their health care provider.**
 - **If a person is not pregnant but has two of the following symptoms: fever, rash, joint pain, red eyes and either recent travel history to Zika-affected area or suspected local transmission they should go to a health care provider to be evaluated. The department recommends the health care provider take the following steps:**
 - a. Screen using CDC Zika risk guidelines.
 - b. Collect information about travel history and other factors to determine if a Zika test is required.
 - c. Direct questions to the County Health Department (CHD) on testing.
 - d. Educate person on Zika virus and potential impact on their health if found positive
 - e. Advise on Zika prevention measures including to keep skin covered, use repellent and condoms for at least eight weeks in order to prevent transmission if a person tests positive.
 - f. After physician screening, if the physician determines the person meets criteria for Zika testing, the test is ordered.
- 2. The person is reported by the health care provider to the CHD as a person under investigation that may have Zika virus (please note: many people tested have negative test results).**
- 3. The CHD contacts mosquito control within 24 hours of notification of a potential case to conduct a mosquito assessment and begin mosquito elimination around**

the person's residence. This is an aggressive, proactive strategy prior to receiving any laboratory test results.

Per the Florida Department of Agriculture and Consumer Services, mosquito control takes the following actions:

- a. Look for standing water, mosquito breeding grounds.
- b. Spraying is conducted within 150 yards of the person's home and other areas of interest.
- c. Education and outreach to residents in the area on drain and cover and other precautions to reduce risk of transmission.

4. Person provides samples (urine, blood) to be sent to laboratory for testing and analysis.

There are two primary tests for Zika virus. One can identify present virus (PCR) and the other can identify recent past infection (IgM antibody) after virus is no longer present in blood or urine.

- **PCR** - (Reverse Transcription Polymerase Chain Reaction or rt-PCR) This test can be run on a blood (serum or whole blood) or urine specimen and is commercially available in private labs. Depending on the specimen type, a PCR test will be positive for five days to two weeks following symptom onset. A positive result means that the person was actively infected with Zika virus at the time they were tested. A negative result suggests that the person did not have an active infection at the time of testing; antibody testing may be required to determine if the person was recently infected. Equivocal or inconclusive/ indeterminate results, indicate the test cannot be considered positive or negative. Additional testing is required to determine infection in this circumstance. Results for PCR are typically available within three days.
- **IgM Antibody** – (Antibody Capture Enzyme-Linked Immunosorbent Assay) This test requires a blood specimen; some commercial labs can also run this test. It can take up to nine days from symptom onset to produce antibody. IgM results are typically available within three to five days but require additional testing to interpret the positive results which may take several weeks. A positive result indicates a person has recently been infected with a flavivirus, the family of viruses that includes Zika and dengue. A negative result more than nine days from symptom onset indicates no recent flavivirus infection. Equivocal or inconclusive/ indeterminate results indicates the test cannot be confidently considered positive or negative. An antibody test alone cannot be used to determine if a person is actively infected with Zika. Required additional testing includes dengue antibody testing or a complex virus neutralization test called PRNT (plaque reduction neutralization test) that can only be done by the CDC and may take four to eight weeks.

Potential Zika Testing Outcomes			
PCR	IgM	Result	Additional Action Steps Before Case Determination (results must be reviewed with case investigation materials)
-	-	No infection	No additional steps
+	+	Active infection	Case investigation is conducted
+	-	Active infection	Case investigation is conducted

-	+	Recent Flavivirus Infection	Must rule out other recent infections by related viruses (dengue) in the past several months. This requires additional testing which can take several weeks. Case investigation is conducted.
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5. **The laboratory that conducts the test shares the results with the medical provider who submitted the specimens for testing along with DOH.**

6. **For persons with a positive test result, DOH epidemiologists conduct investigation to determine where exposure may have occurred.**
 - a. Investigations involve gathering important information to determine how/where the patient contracted Zika. The DOH epidemiologists take the following actions:
 - i. Gather travel history to determine if the patient has traveled to a country with widespread Zika infection.
 - ii. Gather sexual history and travel of sexual partners to a country with widespread Zika infection.
 - iii. Gather information on transmission exposure risk and mosquito breeding sites at the person's home, work and recreational locations. Travel history of close contacts at these locations and any history of recent contacts with similar symptoms will be gathered and analyzed to identify a potential source of infection.
 - iv. Obtain additional case history such as previous exposure to dengue and related flaviviruses.
 - b. The collection of additional samples from close contacts are gathered and samples are shipped to the state laboratory for testing.
 - c. An investigation to confirm an individual case typically takes 7-14 days to complete.

7. **Once the investigation is completed, DOH epidemiologists review investigation details along with the laboratory results to make a determination as to whether the case meets the CDC case definition as well as whether the case is likely travel related, a result of sexual transmission, congenital (mother to baby) or non-travel acquired (mosquito-borne).**

8. **The person is confirmed as a case if they meet the CDC definition, and the most likely mode of transmission is identified (travel-related, mosquito-borne, sexual, or congenital). Based on the investigation and testing results a person is considered a:**
 - **Suspected Case:** A person who is being considered as a possible non-travel associated Zika virus case who has at least one supportive laboratory result. The person may have compatible symptoms, possible exposure to Zika virus through travel, sexual contact or exposure to a location with a confirmed case.
 - **Probable Case:** A person with a positive Zika antibody test. Antibody tests can cross-react with other flaviviruses such as dengue. Additional testing may be required including PRNT from CDC to classify the case. West Nile virus also needs to be excluded for cases with certain neurologic symptoms.
 - **Confirmed Case:** A person with at least one positive PCR test. Local and high priority cases require positive PCR results from the state public health laboratory.

Any potential local case in a new area requires at least two positive Zika tests including one or more PCR tests to be considered confirmed.

- 9. For confirmed and probable cases, DOH contacts mosquito control to conduct a secondary assessment and more aggressive mosquito elimination techniques.**
- 10. DOH adds confirmed case to the DOH daily Zika update which is distributed to media and partners.**
- 11. DOH continues investigation to determine if/where active ongoing local transmission is occurring. If additional cases are found, a map is developed to identify the possible area of local transmission.**
 - a. Mosquito reduction, spraying and trapping continues in the areas under investigation.
 - b. Investigation includes additional collection of samples from person's close contacts and assessment of test results to determine if active transmission is occurring. Steps 6 through 8 are conducted for each person.
 - c. Per CDC guidance, DOH identifies if individuals are linked by location and timing of symptoms, which would suggest on-going local transmission. If two cases are within one mile of each other and have onset of symptoms more than two weeks apart, then a map is drawn to indicate an area of local transmission. The area is defined based on CDC guidance centered around where there is evidence of local transmission with a buffer zone around the area to protect the public.
 - d. An investigation to determine location of active transmission typically takes one to four weeks to complete.
- 12. DOH announces area(s) of local transmission. DOH works with local leaders and state partners on outreach to key populations such as pregnant women, schools/students, elderly, businesses, etc. in impacted area(s).**
- 13. DOH continues to work with the Department of Agriculture and Consumer Services, local mosquito control districts and private providers to increase spraying and trapping activities in area(s) of local transmission in accordance with CDC guidelines for vector control until it can be determined that local transmission is no longer occurring.**
- 14. DOH may continue to conduct targeted sampling in areas of local transmission.**
- 15. DOH provides the public and media with daily updates on active investigation in the impacted area(s) and will notify the public when testing results from sampling find no evidence of local transmission.**