Zika Virus Infection:
Reporting Guidance for County Health Departments (CHDs)

Version 2.1 (April 19, 2016)
www.floridahealth.gov/zika

Summary

- **Updates to previous guidance document (version 1.0 and 2.0):**
  - Data should be updated in Merlin daily by 2:00 p.m. (Eastern Time).
  - A new streamlined survey in Merlin is available for persons under investigation in Merlin.
  - When Zika virus infection is ruled out, cases should no longer be deleted in Merlin. They should be submitted with a diagnosis status of “not a case”.
  - Laboratory testing on saliva is no longer recommended.

- **Purpose:** The purpose of this document is to provide guidance to CHD staff on the surveillance and reporting of Zika fever in Florida.

- **Background:** Zika fever is an illness caused by Zika virus that is currently circulating in Central and South America, Mexico, Puerto Rico, and other Caribbean islands, raising concern about the possible introduction of Zika virus into Florida. Zika virus has been associated with Guillain-Barré syndrome (GBS) and fetal abnormalities or birth defects.

- **Surveillance:**
  - Zika fever is reportable upon initial suspicion, 24/7.
  - **Person Under Investigation (PUI):** A person who is having a specimen tested for Zika virus at the Bureau of Public Health Laboratories (BPHL) or the Centers for Disease Control and Prevention (CDC) is considered a PUI. Testing algorithms are available on the Surveillance and Investigation Guidance website (www.floridahealth.gov/SurveillanceInvestigationGuide).
  - **Case definition (confirmed, probable, suspect):** A person with clinical criteria, laboratory evidence, and potential exposure or epidemiologic linkage. The current case definitions are available on the Surveillance and Investigation Guidance website (www.floridahealth.gov/SurveillanceInvestigationGuide).
  - **CHD laboratory result notification process for Zika virus:** CHDs will be notified of both positive and negative laboratory results for Zika virus from BPHL via the Merlin ELR Task List. Polymerase chain reaction (PCR) results will be available within 1-2 business days, unless otherwise specified. Serum IgM enzyme immunoassay (EIA) results will take longer. Dr. Danielle Stanek or Dr. Andrea Bingham will also call CHDs with positive results.

- **Recording information about PUIs and cases:**
  - PUIs and anyone meeting the confirmed, probable, or suspect case definition for Zika virus infection should be entered into Merlin by 2:00 p.m. (Eastern Time) on business days.

- **Monitoring health status of PUIs and cases:**
  - Health status (resolved, improving, unchanged, worsening, or died) should be monitored every 72 hours for all non-hospitalized PUIs and cases until Zika virus infection is ruled out or illness resolves.
  - Health status for hospitalized PUIs and cases should be monitored every 24 hours until Zika virus infection is ruled out or the patient is discharged.
    - If the PUI/case is still symptomatic at the time of hospital discharge, continue to monitor every 72 hours until Zika virus infection is ruled out or illness resolves.
  - Health status data should be entered in Merlin the same day it is collected (before midnight).

- **Daily Situation Reports:** Daily Situation Reports will be produced each business day for the State Surgeon General and Incident Management Team (IMT). **All PUIs and cases must be updated in Merlin by 2:00 p.m. (Eastern Time) on business days** to ensure accurate information is used for the Situation Report.
I. Background

Zika fever is an illness caused by the flavivirus Zika virus that is transmitted by the Aedes mosquito. The most common symptoms of Zika virus disease are fever, rash, joint pain, and conjunctivitis. The illness is usually mild with symptoms lasting from several days to a week. Severe disease requiring hospitalization is uncommon. The Ministry of Health of Brazil has reported an increase in the number of babies born with microcephaly and other poor pregnancy outcomes in areas experiencing Zika virus outbreaks. Further studies are being conducted to investigate this concern. Fetuses and infants of women infected with Zika virus during pregnancy should be evaluated for possible congenital infection and neurologic abnormalities. Suspected links between Zika virus infection and GBS have also been reported in infected persons.

Zika virus is currently circulating in Central and South America, the Caribbean including Puerto Rico, the U.S. Virgin Islands, and American Samoa, as well as other parts of the world, raising concern about the possible introduction of Zika virus into Florida (areas with current Zika virus outbreaks: www.cdc.gov/zika/geo/index.html). Zika virus is considered endemic in parts of Africa and Southeast Asia. As of March 25, 2016, over 75 cases in returning travelers and one case of sexual transmission have been identified in Florida. With the recent outbreaks, the number of Zika fever cases among travelers visiting or returning to the U.S. and Florida will increase. Although Zika virus should not spread easily in developed countries such as the U.S., the Florida Department of Health (DOH) wants to ensure that possible Zika cases are identified in order to inform local mosquito control and prevention efforts. For more information visit www.cdc.gov/zika/index.html.


II. Surveillance

A. Florida Administrative Code Emergency Rules 64DER16-1 (64D-3.029) and 64DER16-2 (64D-3.040) were issued and effective February 5, 2016: www.flrules.org/Faw/FAWDocuments/FAWVOLUMEFOLDERS2016/4224/4224doc.pdf.

1. Zika fever is now reportable upon initial suspicion, 24/7. Florida Administrative Code Emergency Rule 64DER16-1 (64D-3.029) revises the reporting requirement by providers from next business day to suspect immediately.

2. Zika fever PUIs and cases now require monitoring/follow-up to determine health status. Florida Administrative Code Emergency Rule 64DER16-2 (64D-3.040) Control of Specific Communicable Diseases includes Zika fever case and PUI follow-up. See Health status monitoring for PUIs and cases on page 10 for more information.

B. Person under investigation (PUI)

1. A person who is having a specimen tested at BPHL (or CDC) for Zika virus is considered a PUI.

C. **Case definition (confirmed, probable, suspect)**
   1. A person with clinical criteria, laboratory evidence, and potential exposure or epidemiologic linkage.

D. **Exposure**
   1. Mosquito bites while traveling to an area with ongoing Zika virus activity or with sporadic activity.
   2. Fetus or infant infected in utero or during birth.
   3. Potential sexual transmission (most relevant for pregnant women and investigations of suspected locally acquired cases) or transfusion acquired infections.
   4. For suspected locally-acquired cases, determine:
      a. What testing has been done to rule out more common illnesses such as influenza?
      b. If household members or sexual partners report travel in the month prior to illness onset. Note that duration of viral persistence in semen is unknown.
      c. History of blood transfusion or organ transplant in past month.
      d. Recent outside activities.
      e. Other contacts with similar symptoms.

E. **Signs and symptoms**
   Zika fever is characterized by fever (measured or reported), rash, arthralgia, or conjunctivitis (two of these symptoms are required to meet the clinical criteria for the surveillance case definition). Symptoms may be followed by GBS. Fetal microcephaly, fetal intracranial calcifications, or poor fetal outcome diagnosed after the first trimester are additional clinical presentations that may be seen.

   Please alert Dr. Andrea Bingham or Dr. Danielle Stanek immediately of any suspect local cases or cases with severe illnesses such as birth deformities, poor fetal outcome, or GBS.

III. **Laboratory testing**
   A. PCR on serum and urine is recommended in the first three weeks of acute illness. PCR is most consistently positive in the first four days of illness. PCR may also be performed on samples from asymptomatic pregnant women who have IgM antibodies to Zika virus or patients with suspect GBS or other neurologic sequela. PCR testing may also be done on fetal or placental tissues, amniotic fluid, semen, or cerebral spinal fluid.
   B. Immunohistochemical (IHC) tests can be performed on tissue.
   C. EIA is recommended ≥4 days post-illness onset. Detection of Zika virus IgM antibodies in the absence of dengue virus IgM antibodies is indicative Zika virus infection. Cross-reaction with related flaviviruses (e.g., dengue, West Nile, yellow fever, Japanese encephalitis viruses) on serological tests is common and results may be difficult to interpret.
   D. Seroconversion from negative Zika IgM in an acute-phase specimen (< 8 days post illness onset) to positive in a convalescent-phase specimen (≥8 days post-illness onset) is indicative of Zika virus infection.
   E. Plaque reduction neutralization test (PRNT) can be performed on serum. A ≥4-fold difference in neutralizing antibody titers by PRNT between Zika virus and dengue virus
(other flaviviruses endemic to the region where exposure occurred) is indicative of Zika virus infection.

F. For additional information on laboratory criteria, please see the current case definitions on the Surveillance and Investigation Guidance website (http://www.floridahealth.gov/SurveillanceInvestigationGuide). Algorithms to help with testing requests and test result interpretation can also be found on this website.

G. Please alert BPHL if specimens are being submitted for suspect local cases or cases with severe illnesses such as birth deformities, poor fetal outcome or GBS are reported to ensure sample tracking and expedited testing.

IV. CHD laboratory result notification process for Zika virus

All Zika virus testing, except for PRNT testing, is currently being performed at BPHL. BPHL PCR results will be available within 1-2 business days, unless otherwise specified. EIA results will take longer (approximately 4 days). BPHL laboratory results (positive or negative) will be sent to counties via their Merlin ELR Task List. At this time, counties will also receive a phone call from the Bureau of Epidemiology (BOE) notifying them of positive results. Note that BPHL testing results are sufficient for case classification; CDC results are not required for imported cases.

Process all Zika virus results from the Merlin ELR Task List to create a Merlin lab the same day. In Merlin, every BPHL or CDC Zika lab result (positive and negative) should be attached to a Zika case. All data about PUIs and cases must be updated in Merlin by 2:00 p.m. (Eastern Time) on business days to ensure accurate information is used for the IMT Situation Report and State Surgeon General. See Entering and reporting PUIs and cases in Merlin on page 4 for additional information on creating a Merlin case for a PUI.

V. Entering and reporting PUIs and cases in Merlin

Every PUI and confirmed, probable, or suspect Zika fever case should be entered in Merlin.

A. Creating a case in Merlin

Please create a record in Merlin for every PUI as soon as possible, and within the same business day of CHD notification. All data about PUIs and cases must be updated in Merlin by 2:00 p.m. (Eastern Time) on business days to ensure accurate information is used for the Situation Report.
When creating a case in Merlin, two dates are required. For asymptomatic PUIs or cases, please use the Date Diagnosis rather than the Date Onset. CHD Notified Date can be used for the Date Diagnosis.

1. Once the case is created, note that there is a new question on the Basic Case screen called Survey, which must be populated to continue.

Please choose Person Under Investigation from the Survey dropdown. A short survey will display. This survey streamlines data entry for users and allows for more disease-specific instructions. The survey is limited to just the key pieces of information for a PUI.

If the PUI is later determined to be a case, then the user can select Case from the Survey dropdown, and the normal Basic Case screen will display. All data entered in the Person Under Investigation survey will populate the corresponding Basic Case and Extended Data fields when the survey is changed to Case.
Note that when the Survey field is set to Person Under Investigation, a survey displays and the Dx Status is set to Not a Case.

Sections on the Person Under Investigation survey include Screening Questions, Health Status Monitoring, and Notifications.

2. Screening Questions section
   Complete all fields in this section. Additional instructions are provided within the section:
   - If the case is pregnant or locally acquired, please check the appropriate checkbox on the Case Definition screen.
   - Note that Puerto Rico and the U.S. Virgin Islands are considered part of the U.S. and should be marked as “Acquired in the United States, not in Florida”. Please only include the country name(s), not cities or dates.
   - How First Notified reflects how public health (i.e., the CHD or BOE) first became aware of the case. It should not be via ELR, as the PUI should have come to the attention of the CHD for testing prior to the ELR result.
   - If the person is asymptomatic, please use the CHD notified date as the diagnosis date rather than including an onset date.

   If pregnant or locally acquired, please go to the Case Definition screen and check the appropriate box.

   Note that Puerto Rico and the U.S. Virgin Islands are considered “Acquired in the US, not in FL”.

   How First Notified should reflect how public health (i.e., the CHD or BOE) first became aware of the PUI or case.

   If the person is asymptomatic, use the CHD notified date as the diagnosis date, rather than including an onset date.

   If rash was present, please indicate whether it was pruritic (itchy).
2. Health Status Monitoring section

Health status monitoring is required for all PUIs and cases. See Health status monitoring for PUIs and cases on page 10 for additional information about monitoring. Monitoring data should be entered into the Health Status Monitoring section on the survey. Health status monitoring data should be entered in Merlin the same day it is collected by 2:00 p.m. (Eastern Time).

![Health Status Monitoring](image)

Each follow-up should include the following information:

- **Date**: date of the contact.
- **Contact**: contact was attempted (i.e., tried unsuccessfully to reach the PUI/case/health care provider) or completed. Note that CHDs are not required to document unsuccessful attempts.
- **Hospitalized**: is the PUI/case currently hospitalized (i.e., admitted)?
- **Health Status**: is the PUI/case’s condition resolved, improving, unchanged, worsening, or died?
- **Fever**: does the PUI/case currently have fever?
- **Rash**: does the PUI/case currently have rash?
- **Arthralgia**: does the PUI/case currently have arthralgia?
- **Conjunctivitis**: does the PUI/case currently have conjunctivitis?
- **Other symptom**: does the PUI/case currently have other symptoms? If so, specify.

Once the person’s illness has resolved, enter the date the illness resolved. This date should be the date that symptoms ended, not the date of the last health status follow-up.

3. Notifications section

Complete all questions about mosquito control and specimen information.

![Notifications](image)
4. **Symptoms screen**

Navigate to the *Symptoms* screen using the left-hand menu and complete symptoms and onset dates.

- “Asymptomatic” is a symptom, so at least one symptom should be marked for every person.
- If a person has any symptoms included on the *Symptoms* screen, do not mark asymptomatic as a symptom.
- If a person is asymptomatic, do not include an onset date.

Additional symptoms are available in Merlin in order to characterize the possible range of symptoms associated with Zika virus infection. Newly added signs/symptoms include weakness, paresthesia, nasal congestion, sore throat, thrombocytopenia, and leukopenia. If any previous cases have had these symptoms, please add the information into Merlin.

5. **Case Definition screen**

If the person is pregnant or the person did not travel, navigate to the *Case Definition* screen using the left-hand menu and check the appropriate box.

Note that ≥2 of the 4 symptoms below are required to meet the case definition:

- Fever
- Rash
- Arthralgia
- Conjunctivitis

Note that all other case definition criteria are “smart” and the dx status for the case will set automatically.
6. If the person is epidemiologically linked to another case, please use the *Epi Link* screen to link related people.

B. **Completing a PUI in Merlin**
Clinical criteria, laboratory evidence, and potential exposure or epidemiologic linkage should be used to determine whether the PUI meets the surveillance case definition or is ruled out.

1. **PUI meets the case definition – report case**
   a. If the person meets the suspect, probable, or confirmed case definition, the dx status will set appropriately, the Survey dropdown will automatically update to Case, and the *Basic Case* screen will display.
   b. Note that all information entered on the Person Under Investigation survey will populate the appropriate fields on the *Basic Case* and *Extended Data* screens.
   c. Complete the remaining *Basic Case* and *Extended Data* screen questions and click the “Report” button at the bottom of the *Basic Case* screen to report the case.

2. **PUI is ruled out – submit with Dx Status of Not a Case**
   a. If laboratory testing is negative or not sufficient to meet the case definition, then the PUI has been ruled out for Zika infection.
   b. **Do not delete the case. Submit the case with a Dx Status of Not a Case.** Ensure that the Survey dropdown is set to Person Under Investigation; remember that when Survey is set to Person Under Investigation, the Dx Status is set to Not a Case. At the bottom of the survey, click the Submit button.

   ![Notifications](image)
   
   Clicking the Submit button indicates that the investigation is completed and the person is not a case. The user will go to a screen where reporting requirements are checked, similar to when a case is reported. However, none of these requirements are applied to cases with a Dx Status of Not a Case, so all sections should display green text, and the user can click the Submit button.
1. Note that after the case is submitted with a Dx Status of Not a Case, the status of the case will be REPORTED, while the Dx Status remains Not a Case. Clicking Submit will remove the case from the CHD Cases task list.

2. Person was entered but is not a PUI or is a duplicate – delete case
This is the only scenario where a case should be deleted. If the person was not actually a PUI or a duplicate case was created, please delete the case by clicking the Delete button at the bottom of the screen. Note that the Delete button is available when Survey is set to Case or Person Under Investigation.

For questions about processing laboratory results or entering PUIs or cases in Merlin, please contact the Merlin Helpdesk (Merlin.Helpdesk@flhealth.gov).

VI. Health status monitoring for PUIs and cases
Health status monitoring is required for all PUIs and cases. Per Emergency Rule 64DER16-2 (64D-3.040), physicians are required to report on case health status to the CHD. For additional information on this requirement, please see Zika Fever: Reporting Guidance for Physicians and Healthcare Providers (www.floridahealth.gov/diseases-and-conditions/zika-virus/_documents/zika-reporting-guidelines-providers.pdf). Health status monitoring data should be entered in Merlin the same day it is collected by 2:00 p.m. (Eastern Time).
A. Non-hospitalized PUIs and cases
   1. Monitor health status every 72 hours with every case to check health status until the Zika virus illness resolves. Per Emergency Rule 64DER16-2 (64D-3.040), physicians are required to report on case health status to the CHD.
   2. If the physician does not report on the health status, the CHD is required to follow-up to ensure health status information is received every 72 hours until illness resolves. The date illness resolved should be the date that symptoms ended, not the date of the last health status follow-up.
   3. Note that asymptomatic PUIs (including pregnant women) do not need to be monitored.

B. Hospitalized (i.e., admitted) PUIs and cases
   1. Hospitals should report status of PUIs and cases every 24 hours until Zika virus infection is ruled out or the patient is discharged.
   2. If the PUI or case is still symptomatic at the time of discharge, continue to follow-up every 72 hours until Zika virus infection is ruled out or illness resolves.
   3. If the hospital does not report on the PUI/case status, the CHD is required to follow-up to ensure health status information is received every 24 hours until illness resolves or the patient is discharged.

VII. Daily Situation Reports
Daily Situation Reports will be produced each business day for the State Surgeon General and Incident Management Team (IMT). All PUI and case data must be updated in Merlin by 2:00 p.m. (Eastern Time) on business days to ensure accurate information is used for the Situation Report. Reports that come in after 2:00 p.m. (Eastern Time) should be entered before 2:00 p.m. the next day. Merlin will be used as the source of the data for the daily Situation Report.

Key pieces of information requested in the Situation Report or by the Governor’s office for cases and PUIs:
- Age
- Race
- Sex
- County
- Pregnancy status
- Imported or locally acquired
- Country or location where exposed
- Hospitalized (i.e., admitted)
- Current health status and current hospitalization status
- Symptoms
- How public health was first notified of the case
- Was BPHL testing requested
- Date BPHL testing requested