

# Zika

## **DISEASE REPORTABLE WITHIN 24 HOURS OF DIAGNOSIS**

Per N.J.A.C. 8:57, healthcare providers and administrators shall report by mail or by electronic reporting within 24 hours of diagnosis, confirmed cases of Zika to the health officer of the jurisdiction where the ill or infected person lives, or if unknown, wherein the diagnosis is made. A directory of local health departments in New Jersey is available at <http://localhealth.nj.gov>.

If the health officer is unavailable, the healthcare provider or administrator shall make the report to the Department by telephone to 609-826-5964 between 8:00A.M. and 5:00 P.M. on non-holiday weekdays or to 609-392-2020 during all other days and hours.



## 1 THE DISEASE AND ITS EPIDEMIOLOGY

### A. Etiologic Agent

Zika virus (ZIKV) is a single-stranded RNA virus in the genus *Flavivirus* and is closely related to dengue, yellow fever, Japanese encephalitis, and West Nile viruses. Neutralizing antibodies are expected to persist for many years after flavivirus infections and are believed to confer prolonged, possibly lifelong, immunity.

### B. Clinical Description

Most Zika infections are asymptomatic or have only mild symptoms lasting several days to one week. The most common symptoms are: fever, rash, arthralgia (joint pain), conjunctivitis (red eyes), headache, eye pain, and muscle pain.

Research suggests that Guillain-Barré syndrome (GBS) is strongly linked to Zika; however, only a small proportion of people with a recent Zika infection develop GBS. GBS is a neurological disorder causing muscle weakness and sometimes, paralysis.

Zika infection during pregnancy is a cause of congenital microcephaly and other severe brain abnormalities. Zika has also been linked to miscarriage, stillbirth, and other birth defects. CDC has identified a distinct pattern of birth defects called congenital Zika syndrome. In addition to cognitive, sensory, and motor disabilities that are shared with other birth defects, congenital Zika syndrome is associated with five types of birth defects that are either not seen or occur rarely with other infections (e.g., cytomegalovirus or rubella) during pregnancy:

1. Severe microcephaly resulting in a partially collapsed skull
2. Decreased brain tissue with brain damage (as indicated by a specific pattern of calcium deposits)
3. Damage to the back of the eye with a specific pattern of scarring and increased pigment
4. Limited range of joint motion, such as clubfoot
5. Too much muscle tone restricting body movement soon after birth

In 2016, approximately one in 10 pregnancies with laboratory-confirmed Zika infection resulted in a fetus or infant with Zika-associated birth defects. There is limited information available about the risk of peri-conceptual Zika infection (8 weeks before conception), but reports suggest there may be adverse outcomes.

Perinatal Zika transmission occurs when a woman is infected with Zika within 2 weeks of delivery, and the virus passes to the infant at or around the time of delivery. When an infant acquires Zika perinatally, the infant may develop symptoms such as rash, conjunctivitis, arthralgia, and fever.

**C. Reservoirs**

Zika is maintained in enzootic transmission cycles between non-human primates and mosquitoes in forested areas of Africa, Asia, and South America. In urban and suburban areas however, Zika is transmitted between people by *Aedes* mosquitoes, especially *Ae. aegypti* (the main vector worldwide) and potentially *Ae. albopictus*. *Ae. aegypti* is not an established vector in NJ, but *Ae. albopictus* is found in most areas of the state.

**D. Modes of Transmission**

Zika is transmitted to humans primarily through the bite of an infected *Aedes* species mosquito. *Ae. aegypti* mosquitoes live in tropical, subtropical, and in some temperate climates and are the primary vector of Zika, dengue, chikungunya, and other arboviral diseases. Because *Ae. aegypti* mosquitoes live near and prefer to feed on people, they are considered highly efficient at spreading these diseases. *Ae. albopictus* mosquitoes live in tropical, subtropical, and temperate climates. Because these mosquitoes feed on people and animals, they are less likely to spread these viruses. These mosquitoes bite during the day and night, but usually do not live at elevations above 6,500 feet (2,000 meters).

Zika can be transmitted from an infected pregnant woman to her fetus. 2016 data showed that the proportion of fetuses and infants with Zika-associated birth defects was highest among those with first trimester Zika infections.

Zika can be transmitted from an infected sexual partner during unprotected oral, anal, or vaginal sexual activity, whether or not the infected person has symptoms of Zika. Zika has been found in semen and vaginal fluids, but the duration of virus and how long it can be transmitted sexually is unknown. Current research indicates that Zika can remain in semen longer than in other body fluids, including vaginal fluids, urine, and blood. There is no evidence to suggest that Zika can be passed through saliva during deep kissing.

Zika may also be transmitted via organ transplantation and blood transfusions from infected donors; and through healthcare/laboratory exposures. There are no known reports of transmission of Zika through breastfeeding and no evidence that Zika is spread through touching, coughing, or sneezing.

**E. Incubation Period**

3-14 days

**F. Period of Communicability or Infectious Period**

Viremia is expected to occur from several days before until a week after illness onset. During this time, the infected person could be a source of exposure through percutaneous transmission or through a mosquito bite. It is unknown how long the virus persists in semen and vaginal fluids, but among four published reports, virus was reported in semen up to 69 days after symptom onset. Pieces of Zika virus (Zika RNA) have been found in semen as many as 188 days after symptoms began and seems to persist longer than in the blood.

## G. Epidemiology

Zika was first identified in the Zika Forest of Uganda in 1947. Before 2007, at least 14 human cases of Zika had been documented. In 2007, an outbreak of Zika occurred on Yap Island, Federated States of Micronesia and the ensuing investigation included the first population-based epidemiological study of Zika infection and disease. It was estimated that 75% (attack rate) of the island's inhabitants were infected with Zika resulting in 18% symptomatic and 82% asymptomatic infections. From 2013 to 2014 there was a large outbreak in French Polynesia where possible associations between Zika and congenital malformations and severe neurological and autoimmune complications were noted. By 2015, Zika outbreaks had occurred in areas of Africa, Southeast Asia, and the Pacific Islands. Because the symptoms of Zika are similar to many other diseases, cases may have been unrecognized.

Zika emerged in the Region of the Americas on Easter Island, Chile, in 2014 and in northeast Brazil in 2015. Brazilian investigators reported an increase in Guillain-Barré syndrome (GBS) and identified an association between Zika infection during pregnancy and congenital microcephaly. On February 1, 2016, WHO declared Zika-related microcephaly clusters and other neurologic disorders a Public Health Emergency of International Concern.

The number of countries and territories in the Americas reporting Zika cases increased to 48 by late 2016. Several factors might have contributed to this rapid spread. The absence of previous reports of Zika outbreaks in the region suggests that populations were immunologically naïve. The presence of *Ae. aegypti* mosquitoes in most countries facilitated widespread establishment of local transmission. In addition, high levels of travel within the region might have promoted spread to previously unaffected areas.

After reporting high numbers of Zika cases during the first half of 2016, incidence in all subregions declined. Reasons for the decline might include the reduction in the number of susceptible persons and seasonal or meteorologic changes, especially in areas with a nontropical climate, leading to lower density of *Ae. aegypti*. On November 18, 2016, WHO declared that Zika and associated complications remain a considerable public health challenge requiring long-term coordinated action, but no longer represent a Public Health Emergency of International Concern.

The majority of Zika cases reported in the continental US were acquired elsewhere by travelers or immigrants. Local mosquito-borne transmission was initially reported in Florida (July 2016) and Texas (November 2016). CDC advises pregnant women not to travel to any area where there is a risk of Zika infection (<https://wwwnc.cdc.gov/travel/page/world-map-areas-with-zika>).

Mosquitoes that transmit Zika are present in the United States. *A. aegypti* is present throughout southern Florida, southern Louisiana, parts of New Mexico and Arizona, southern and central Texas, and have recently been detected in central California and southern Utah. *Ae. albopictus* is widely present throughout most of the southern United States and as far north as Illinois and New York, including in New Jersey.

## 2 CASE DEFINITION

The NJDOH Infectious & Zoonotic Disease Program follows the most current Zika case definition as published on the CDC National Notifiable Disease Surveillance System (NNDSS) website.

Zika Case Definition: <https://wwwn.cdc.gov/nndss/conditions/zika/>

Case definitions enable public health to classify and count cases consistently across reporting jurisdictions, and should not be used by healthcare providers to determine how to meet an individual patient's health needs.

The June 2016 case definition includes four subgroups, which differ by the presence of symptoms and whether infection is congenital:

Zika virus disease, congenital  
Zika virus infection, congenital

Zika virus disease, non-congenital  
Zika virus infection, non-congenital

### LABORATORY CRITERIA:

#### Recent ZIKV infection

- Culture of ZIKV from blood, body fluid, or tissue; OR
- Detection of ZIKV antigen or RNA in serum, cerebrospinal fluid (CSF), placenta, umbilical cord, fetal tissue, or other specimen (e.g., amniotic fluid, urine, semen, saliva), OR
- Positive IgM antibody test in serum or CSF with positive ZIKV neutralizing antibody titers and negative neutralizing antibody titers against dengue or other endemic flaviviruses

#### Recent flavivirus infection, possible ZIKV

- Positive IgM antibody test of serum or CSF with positive neutralizing antibody titers against ZIKV and dengue virus or other endemic flaviviruses
- Positive ZIKV IgM antibody test AND negative dengue virus IgM antibody test with no neutralizing antibody testing performed

### EPIDEMIOLOGIC LINKAGE:

- Resides in or recent travel to an area with known ZIKV transmission; OR
- Sexual contact with a confirmed or probable case within the transmission risk window of ZIKV infection or person with recent travel to an area with known ZIKV transmission; OR
- Receipt of blood or blood products within 30 days of symptom onset; OR
- Organ or tissue transplant recipient within 30 days of symptom onset; OR
- Association in time and place with a confirmed or probable case; OR
- Likely vector exposure in an area with suitable seasonal and ecological conditions for potential local vector-borne transmission

### **SUBGROUP - ZIKA VIRUS DISEASE, CONGENITAL**

Clinical criteria: Liveborn infant with congenital microcephaly, intracranial calcifications, structural brain or eye abnormalities, or other congenital central nervous system-related abnormalities not explained by another etiology

#### Case Classification

##### **Probable**

- A neonate meets clinical criteria for congenital disease; **AND**
- The neonate’s mother has an epidemiologic linkage or meets laboratory criteria; **AND**
- The neonate has laboratory evidence of ZIKV or flavivirus infection by:
  - Positive ZIKV IgM antibody test of serum or CSF collected within 2 days of birth; **AND**
    - positive neutralizing antibody titers against ZIKV and dengue or other flaviviruses endemic to the region where exposure occurred<sup>1</sup>; **OR**
    - negative dengue virus IgM antibody test and no neutralizing antibody testing performed.

##### **Confirmed**

- A neonate meets the clinical criteria for congenital disease AND meets one of the following laboratory criteria:
  - ZIKV detection by culture, viral antigen, or viral RNA in fetal tissue or amniotic fluid; or neonatal serum, CSF, or urine collected within 2 days of birth; **OR**
  - Positive ZIKV IgM antibody test of neonatal serum or CSF collected within 2 days of birth with positive ZIKV neutralizing antibody titers and negative neutralizing antibody titers against dengue or other flaviviruses endemic to the region where exposure occurred<sup>1</sup>.

### **SUBGROUP - ZIKA VIRUS INFECTION, CONGENITAL**

Same as Zika Virus Disease, Congenital, EXCEPT that neonate DOES NOT MEET clinical criteria for congenital disease.

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<sup>1</sup> For congenital cases, PRNT is needed for either the mother’s OR infant’s specimen. PRNT includes IgG antibodies, which cross the placenta.

## **SUBGROUP – ZIKA VIRUS DISEASE, NON-CONGENITAL**

Clinical criteria: A person with one or more of the following not explained by another etiology:

- Clinically compatible illness that includes
  - acute onset of fever (measured or reported), OR
  - maculopapular rash, OR
  - arthralgia, OR
  - conjunctivitis
  
- Complication of pregnancy
  - fetal loss; OR
  - fetus or neonate with congenital microcephaly, intracranial calcifications, other structural brain or eye abnormalities, or other congenital central nervous system-related abnormalities including defects such as clubfoot/multiple joint contractures
  
- Guillain-Barré syndrome or other neurologic manifestations

### Case Classification

#### **Probable**

- Meets clinical criteria for non-congenital disease; **AND**
- Has an epidemiologic linkage; **AND**
- Has laboratory evidence of recent ZIKV or flavivirus infection by:
  - Positive ZIKV IgM antibody test of serum or CSF with:
    - positive neutralizing antibody titers against ZIKV and dengue or other endemic flaviviruses; **OR**
    - negative dengue IgM antibody test and no neutralizing antibody testing.

#### **Confirmed**

- Meets clinical criteria for non-congenital disease; **AND**
- Has laboratory evidence of recent ZIKV infection by:
  - Detection of ZIKV by culture, viral antigen or viral RNA in serum, CSF, tissue, or other specimen (e.g. amniotic fluid, urine, semen, saliva); **OR**
  - Positive ZIKV IgM antibody test of serum or CSF with positive ZIKV neutralizing antibody titers and negative titers against dengue or other endemic flaviviruses

## **SUBGROUP – ZIKA VIRUS INFECTION, NON-CONGENITAL**

Same as Zika Virus Disease, Non-Congenital, EXCEPT that neonate DOES NOT MEET clinical criteria for non-congenital disease.

## 3 LABORATORY TESTING

Laboratory diagnosis for Zika is based primarily on molecular methods and serologic tests. Nucleic acid testing (NAT) testing, including RT-PCR (PCR) can be performed on serum, urine, cerebral spinal fluid, amniotic fluid, and placental/cord tissue. PCR should be performed on serum and urine ideally collected during the first two weeks after symptom onset. A positive PCR test result confirms Zika virus infection. However, because Zika virus RNA decreases over time, a negative PCR result does not rule out Zika virus infection. Serologic assays can be used to detect Zika virus-specific IgM and neutralizing antibodies, which typically develop toward the end of the first week of illness and last for about 12 weeks. Due to cross-reaction with other flaviviruses and possible nonspecific reactivity, IgM results may be difficult to interpret. Consequently, presumed positive and equivocal tests must be forwarded for confirmation by plaque-reduction neutralization testing (PRNT). However, neutralizing antibodies may yield cross-reactive results in a person who was previously infected with another flavivirus, such as dengue or who has been vaccinated against yellow fever or Japanese encephalitis. For congenital cases, PRNT is needed for either the mother's OR the infant's specimen. PRNT includes IgG antibodies, which cross the placenta.

Laboratory testing for Zika (PCR and serology) is available at many commercial laboratories. Persons meeting NJDOH criteria can also be tested at the NJDOH Public Health and Environmental Laboratories (PHEL). Testing at PHEL requires pre-approval from CDS and/or the LHD. LHDs should review the latest [NJDOH Zika Testing Criteria](#) when approving physician test requests. The following tests are available through PHEL and/or regional public health laboratories:

- Triplex Real-time Reverse-Transcript Polymerase Chain Reaction (RT-PCR) assay (tests for Zika, dengue, and chikungunya)
- Zika IgM Antibody Capture Enzyme-Linked Immunosorbent Assay (MAC-ELISA)
- PRNT: Plaque Reduction Neutralization Test (Wadsworth)

Maternal tissue testing (placenta/cord) is available at CDC for persons meeting testing criteria with pre-approval from CDS. The FDA has issued Emergency Use Authorization (EUA) for PCR and serologic testing at several commercial laboratories. Positive IgM test results are sent to CDC for PRNT.

LHDs and clinicians should refer to guidance for interpretation of laboratory results: <http://www.nj.gov/health/cd/documents/lab-table.pdf>

## 4 PURPOSE OF SURVEILLANCE AND REPORTING

- To identify imported cases and better understand the epidemiology of endemic and epidemic Zika virus disease and infection
- To identify Zika infections in pregnant women and to enroll them into the US Zika Pregnancy Registry (USZPR) for maternal and infant follow-up



- To identify Zika congenital infections to better understand clinical outcomes in this population and to enroll them into the USZPR
- To ensure that cases are appropriately contained and prevent the introduction of virus into native mosquito populations
- To identify locally acquired cases, if they occur, so that appropriate active surveillance and mosquito control interventions can be taken
- To provide travelers with appropriate preventive health information

## 5 CASE INVESTIGATION

### A. Investigation

It is important to investigate Zika cases in a timely manner to identify the source of exposure (travel, sexual, congenital, blood transfusion, suspected local mosquito transmission), to determine pregnancy status (and enroll into the USZPR), and to provide patient education. Key education messages include protecting against mosquito bites for 3 weeks after return from travel, preventing sexual transmission, practicing safe sex during pregnancy, and observing recommended timeframes before attempting conception. The NJDOH Mosquito-borne Disease “Track When You’re Back” flyer can assist LHDs with patient education ([http://www.nj.gov/health/cd/documents/topics/zika/mosquito\\_track\\_when\\_youre\\_back.pdf](http://www.nj.gov/health/cd/documents/topics/zika/mosquito_track_when_youre_back.pdf)). Case investigation should be initiated upon notification of a positive PCR or IgM laboratory test result. When only a positive IgM test result is available, it should be considered a presumptive positive result, that may not be confirmed by PRNT.

A [Zika Patient Information Worksheet](#) is available online to aid in the collection of required information needed to approve test requests and/or investigate a case of Zika. LHDs should contact the healthcare provider and obtain the information listed on the “NJDOH Zika Virus Patient Information Worksheet.” LHDs should also interview the patient to provide education and to ask about ill household members with Zika-compatible symptoms and whether they have a similar travel history or sexual exposure. Family members with Zika symptoms in the absence of travel or sexual exposure may indicate local mosquito transmission. Ill household members should be referred to their healthcare provider for Zika testing. LHDs should contact the case patient again 14-21 days after symptom onset (or after return from travel) to confirm symptom status of household members. LHDs should notify CDS if it is determined that household members have Zika compatible illness in the absence of travel/sexual exposure in an endemic area.

LHDs should notify CDS if the suspected route of exposure is through blood transfusion, organ transplant, laboratory exposure, suspected local transmission, or other novel route.

## B. Zika testing approvals

LHDs review physician requests for testing and provide approval for testing at PHEL. Persons tested at PHEL must meet current [NJDOH testing criteria](#). Physicians may fax a completed [Zika Patient Information Worksheet](#) to the LHD when requesting Zika testing. If the patient meets NJDOH testing criteria, LHDs should enter the case into CDRSS (selecting the appropriate subgroup) and complete an SRD-1 (Request for Immunological/Isolation Services-Viral Testing Unit) form (<http://healthapps.state.nj.us/forms/subforms.aspx?pro=pheI>). Notes on completing the SRD-1 form:

- CDS Case Number: “NJZ + CDRSS Case ID#”, for example NJZ1234567
- Symptom Onset Date: “N/A” if asymptomatic
- Pertinent Clinical Information (**specimens may not be tested if the following information is not provided**):
  - Pregnancy status (include EDD – estimated date of delivery and if fetal abnormalities are reported)
  - Asymptomatic or symptomatic (list symptoms if applicable)
  - Travel location and dates
  - If ongoing travel, note “daily/weekly travel to <country>, last travel dates <insert dates>
  - Sexual exposure and dates of first and last unprotected sexual contact (include sexual partner’s travel location and dates).
  - Previous arboviral infection (including Zika) and vaccination history
- Tests Requested: As described in the NJDOH Zika Testing Criteria, select “Zika Testing” under Molecular/PCR and write-in “Zika IgM Antibody”

## C. Zika Deliveries

Infants born to mothers with Zika infection or with a Zika exposure (but who weren’t tested) should be identified and screened at delivery. Guidelines for birthing facilities is available in the [“NJDOH Zika Delivery Packet”](#). If testing is indicated, once the required maternal and/or infant Zika Delivery Testing Forms are faxed by the healthcare facility to NJDOH, CDS will work with the hospital for specimen collection and shipping. CDS works closely with the NJDOH Family Health Services division for women/infants enrolled in the USZPR. If contacted by a pediatrician concerning an infant born to a mother exposed to Zika, but who is not in CDRSS, LHDs should notify CDS.

**D. Key CDRSS Fields Specific for Zika**

CDRSS Screen	Required Information
<b>Patient Info</b>	Based on presence of symptoms and whether case is congenital, select the appropriate subgroup: Zika virus disease, congenital; Zika virus infection, congenital; Zika virus disease, non-congenital; Zika virus infection, non-congenital
<b>Clinical Information</b>	<p>For pregnant women, enter the following information:</p> <ul style="list-style-type: none"> <li>• Pregnancy Status, including Estimated Delivery Date and a check in the “Current Pregnancy” box</li> <li>• Delivery Site – choose the medical facility name if known</li> </ul>
<b>Risk Factors</b>	<p>All risk factors are important, but <i>most importantly</i> –</p> <ul style="list-style-type: none"> <li>• Travel history <ul style="list-style-type: none"> <li>○ For persons who traveled to a Zika affected area, select “Is there a history of travel?” <ul style="list-style-type: none"> <li>▪ List country in “Attribute” column and travel dates in the “Effective Dates” column</li> </ul> </li> <li>○ If patient relocated from a Zika affected area to the US/NJ, select “Relocated to US from area with known disease transmission” <ul style="list-style-type: none"> <li>▪ List country in “Attribute” column and arrival date in the second “Effective Dates” field</li> </ul> </li> </ul> </li> <li>• Sexual exposure <ul style="list-style-type: none"> <li>○ For unprotected sexual exposures, select “Sexual Transmission” <ul style="list-style-type: none"> <li>▪ List date of earliest (if known) and latest unprotected sexual exposures in the “Effective Dates” column (“<b>ongoing</b>” is <b>not sufficient to assess testing eligibility</b>. Ask physician/patient to estimate date if necessary.</li> </ul> </li> <li>○ Also select “Sexual Partner’s Travel” and provide the country and dates of the sexual partner’s travel</li> </ul> </li> <li>• Prenatal exposure <ul style="list-style-type: none"> <li>○ If patient was exposed during pregnancy, also select “Exposed during pregnancy or 8 weeks preconception” and note country or “sexual exposure” in “Attribute” column</li> </ul> </li> <li>• Document if patient received a blood transfusion or organ transplant in 30 days prior to symptom onset – enter location and dates</li> </ul>

CDRSS Screen Required Information	
<b>Signs/ Symptoms</b>	Signs/symptoms are tailored to each subgroup. Check appropriate boxes for signs and symptoms and indicate their onset/resolution dates. Complete clinical symptoms are important for ensuring appropriate case classification. Add additional symptoms and laboratory findings if applicable.
<b>Contact Tracing</b>	<ul style="list-style-type: none"> <li>Used to link infants born to mothers with Zika exposure during pregnancy or if a household/community cluster of cases is identified</li> </ul>
<b>Case Comments</b>	<ul style="list-style-type: none"> <li>If patient has ongoing travel, note “daily/weekly travel to &lt;country&gt;”</li> <li>Document if patient has ongoing unprotected sexual contact with a Zika-exposed partner</li> <li>Document if the patient had a previous arboviral diagnosis (including Zika<sup>2</sup>) – if so, enter disease and approximate date</li> <li>Document if the patient was previously vaccinated against another flavivirus (e.g., YFV, JEV) and enter approximate date</li> <li>Document date (14-21 days after onset or last exposure) patient was asked if household members have compatible symptoms; list the symptoms; the household member’s travel/sexual exposures; and whether they have seen or will see a healthcare provider for Zika testing</li> </ul> <p><u>Additional indicators required by CDC:</u></p> <ul style="list-style-type: none"> <li>Note the date the LHD initiated the case investigation</li> <li>Note the date control measures were implemented and a description, for example: <ul style="list-style-type: none"> <li>Spoke with/ faxed healthcare provider to request that they inform patient to: 1) avoid getting mosquito bites for 3 weeks following return from travel; 2) take steps to reduce mosquitos in and around their home; 3) if pregnant and partner traveled to an area with known Zika transmission, to use condoms for the duration of pregnancy.</li> </ul> </li> </ul>
<b>Case Classification</b>	<ul style="list-style-type: none"> <li>When entering cases as part of Zika testing approval, the case status should be “REPORT UNDER INVESTIGATION”</li> <li>Once final laboratory results are received (e.g., PRNT results following a positive IgM) and household contacts have been assessed for symptoms of Zika, LHDs should close cases according to the case definition</li> </ul>

<sup>2</sup> Additional Zika testing is not indicated if the patient has a previous “confirmed” diagnosis of Zika

# 6 CONTROLLING FURTHER SPREAD

## A. Isolation and Quarantine Requirements

There are no isolation or quarantine requirements. However, to prevent transmission of Zika virus into the local mosquito population, persons with Zika should be advised to protect themselves from mosquito bites for 1 week after symptom onset. The local health department should instruct patients regarding this precaution. Additionally, because many infections are asymptomatic, it is recommended that anyone in New Jersey who has traveled from an area of widespread Zika transmission should avoid mosquito bites for 3 weeks after return.

## B. Protection of Contacts

There are no restrictions of contacts; however, because Zika is a sexually transmitted infection, the following precautions are recommended:

- Pregnant couples in which one or both partners live in or traveled to an area with risk of Zika should: 1) use condoms consistently and correctly every time they have sex (oral, vaginal or anal) or not have sex during pregnancy; 2) not share sex toys throughout the pregnancy.
- Anyone who is not pregnant or trying to get pregnant should consider taking precautions against sexual transmission because nearly half of pregnancies in the U.S. are unintended. Men and women traveling in an area with risk of Zika should consider using condoms every time they have sex or not having sex while traveling. If a couple has a male partner and only the male partner travels to an area with risk of Zika, the couple should consider using condoms or not having sex for at least 6 months. If a couple has a female partner and only the female partner traveled to an area with risk of Zika, the couple should consider using condoms or not having sex for at least 8 weeks.

## C. Managing Special Situations

### Locally-Acquired Case

A locally acquired case of Zika would be an unusual occurrence, as the *A. aegypti* mosquito is not well-established in New Jersey. If a local health officer determines during the course of an investigation that a patient does not have a travel or sexual exposure, s/he should notify NJDOH/CDS at 609-826-5964. Environmental and vector-control efforts, in collaboration with state and county mosquito control agencies, to locate the source of infection, and active surveillance for additional cases may be necessary. It is particularly important to ask about ill household members and their travel/sexual exposure history as part of routine case investigation.

### **Congenitally Acquired Case**

Healthcare providers who identify an infant or child with birth defects or abnormalities potentially associated with prenatal Zika virus exposure should contact NJDOH Special Child Health and Early Intervention Services at 609-292-5676.

## **D. Preventive Measures**

There is no vaccine to prevent Zika and there are no specific medications to treat a Zika infection. Preventing mosquito bites and taking precautions against sexual transmission is key to reducing risk.

### **Mosquito Transmission**

Key to prevention is avoiding mosquito bites if you live in or travel to an endemic area. Tips to prevent mosquito bites are available at <http://www.nj.gov/health/cd/topics/vectorborne.shtml>. If local mosquito transmission is suspected, CDS will partner with DEP on vector surveillance and control.

### **International Travel**

Because epidemics of Zika can be extensive and may affect a high percentage of the population, travelers should avoid areas with ongoing epidemics. CDC recommends that pregnant women avoid travel to any area with a risk of Zika infection. However, for those who do travel to endemic areas, it is recommended that –

- Travelers protect themselves from mosquitoes by using insect repellents, wearing protective clothing, and using mosquito nets when rooms are not screened. Unlike other vectors, the *A. aegypti* mosquitoes bite during daytime hours, and these mosquitoes like to bite inside as well as around homes.
- Recent travelers to endemic countries with acute onset of fever and other compatible symptoms should seek medical attention immediately.
- Travelers to countries with mosquito-borne diseases should take extra precautions to avoid mosquito bites for 3 weeks after return, to prevent transmission to mosquitoes in NJ, which might go on to bite others in the household or nearby area, possibly spreading the disease.

Additional information regarding international travel and Zika can be found at [the CDC's Traveler's Health Office \(https://wwwnc.cdc.gov/travel\)](https://wwwnc.cdc.gov/travel).

## Sexual Transmission

- Pregnant women should avoid unprotected sexual contact with a partner exposed to Zika by abstaining from sexual activity or using condoms for the duration of pregnancy.
- Non-pregnant persons wishing to prevent sexual transmission should consider abstaining from sexual activity or using condoms for 8 weeks (if exposed partner is female) or 6 months (if exposed partner is male).
- Couples considering conception should discuss their Zika exposure risk with a healthcare provider and consider waiting 8 weeks (if exposed partner is female) or 6 months (if exposed partner is male) after exposure before attempting conception.

## Additional Information

NJDOH: <http://nj.gov/health/cd/zika/>

CDC: [www.cdc.gov/zika](http://www.cdc.gov/zika)

## References

Centers for Disease Control and Prevention, Key Messages – Zika Virus Disease.

<https://www.cdc.gov/zika/pdfs/Zika-Key-Messages.pdf>.

Centers for Disease Control and Prevention, MMWR Vital Signs: Update on Zika Virus-Associated Birth Defects and Evaluation of All U.S. Infants with Congenital Zika Virus Exposure-U.S. Zika Pregnancy Registry, 2016.

April 7, 2017, [https://www.cdc.gov/mmwr/volumes/66/wr/mm6613e1.htm?s\\_cid=mm6613e1\\_w](https://www.cdc.gov/mmwr/volumes/66/wr/mm6613e1.htm?s_cid=mm6613e1_w)

Centers for Disease Control and Prevention, MMWR Interim Guidance for Interpretation of Zika Virus Antibody Test Results. May 31, 2016, <https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6521e1.pdf>.

Centers for Disease Control and Prevention, MMWR Zika Virus Transmission — Region of the Americas, May 15, 2015–December 15, 2016. March 31, 2017 / 66(12);329–334:

<https://www.cdc.gov/mmwr/volumes/66/wr/mm6612a4.htm>.

Duffy M et al. Zika Virus Outbreak on Yap Island, Federated States of Micronesia. *New England Journal of Medicine*, 2009; 36: 2536-2543.

Krow-Lucal ER, Biggerstaff BJ, Staples EJ. *Emerging Infectious Diseases*, Vol 23 No. 5., May 2017. Estimated Incubation Period for Zika Virus Disease. <https://wwwnc.cdc.gov/eid/article/23/5/pdfs/16-1715.pdf>