Zika Fever - Information for Obstetricians

Zika fever has been identified in South and Central America as well as Mexico and the Caribbean including Puerto Rico. The Ministry of Health of Brazil has reported an increase in the numbers of babies born with microcephaly in areas experiencing Zika virus outbreaks. Further studies are being conducted to investigate this concern. In response to this concern and out of an abundance of caution, the Centers for Disease Control and Prevention (CDC) has issued a travel alert recommending:

- Pregnant women in any trimester should consider postponing travel to areas where Zika virus transmission is ongoing. Pregnant women who must travel to one of these areas should talk to their doctor or other health care provider first and strictly follow steps to avoid mosquito bites during the trip.
- Women trying to become pregnant should consult with their health care provider before traveling to these areas and strictly follow steps to prevent mosquito bites during the trip.
- Fetuses and infants of women infected with Zika virus during pregnancy should be evaluated for possible congenital infection and neurologic abnormalities, including microcephaly or intracranial calcifications.

Transmission occurs through the bite of an infected mosquito. Perinatal and in utero transmission has been reported but, to date, transmission through breastfeeding has not been reported.

Pregnant women or women trying to become pregnant who decide to travel to areas with Zika virus activity should take appropriate precautions to avoid mosquito bites.

- Bring EPA registered insect repellant with any of the following active ingredients
  - DEET
  - Oil of lemon eucalyptus
  - Picaridin
  - IR3535
  - It is safe for pregnant or nursing women to use EPA-approved repellants if applied according to package label instructions.

- Cover skin with long-sleeved shirts and long pants
  - Apply a permethrin repellent directly to clothing or purchase pre-treated clothing. Follow the manufacturer’s directions and do not apply directly to skin.

- Keep mosquitoes out of hotel rooms
  - Choose a hotel or lodging with air conditioning or screens on windows and doors.

- Other mosquito-borne diseases such as dengue fever, chikungunya fever, and malaria may also impact the fetus or newborn and pose a risk in many of the same areas Zika virus is present, emphasizing the need to strictly follow steps to prevent mosquito bites.

- Travelers returning home should be advised to avoid being bitten by mosquitoes for three weeks following travel, especially while ill, to prevent infection of local mosquitoes.

- While at home, draining standing water near residences and businesses at least weekly is recommended to keep local mosquito populations low and prevent local introductions.

Guidance will be updated as additional information becomes available.

Resources:
Florida Department of Health in XXXX County: phone number
CDC microcephaly: http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html

Version 1.0 1/20/2016
Zika Fever - Information for Clinicians

Please contact your county health department by the next business day if you suspect a patient has Zika fever to ensure prompt mosquito control efforts.

Zika fever, a dengue-like illness caused by a mosquito-borne flavivirus, has been identified in several countries in Central and South America, Mexico and the Caribbean including Puerto Rico. Outbreaks have previously been reported in Africa, Southeast Asia and the Pacific Islands. 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.

Transmission occurs through the bite of an infected mosquito, including the same mosquitoes that can transmit dengue and chikungunya. Perinatal, in utero, and possible sexual and transfusion transmission has also been reported. Suspect cases should be advised to avoid mosquito bites while ill to prevent infection of local mosquitoes.

Incubation period is approximately 2 to 14 days.

Clinical Presentation: Only about 1 in 5 people infected with Zika virus are symptomatic. Zika fever is a mild illness with symptoms similar to those of mild dengue fever. Severe disease requiring hospitalization is uncommon. Treatment is symptomatic and illness typically resolves within a week. Co-infections with dengue or chikungunya are possible and should be considered. Aspirin and other non-steroidal anti-inflammatory drugs are not advised in case of co-infection with dengue. Pregnant women with fever should be treated with acetaminophen. Signs/symptoms of Zika fever may include:

- Acute fever (often low grade)
- Maculopapular rash
- Arthralgia
- Conjunctivitis
- Myalgia
- Headache
- Retro-orbital pain
- Vomiting

Laboratory testing: Polymerase chain reaction (PCR) at Florida Department of Health can be used to detect viral RNA in serum samples collected during the first week post-symptom onset. PCR may also detect virus in urine, possibly longer than serum. Serum antibody tests are also available, however, cross-reaction with related flaviviruses (e.g. dengue and West Nile viruses) is common and results may be difficult to interpret. Commercial testing for Zika virus is currently not available.

Please contact your county health department to request Zika virus testing for patients meeting the following criteria:

- Currently pregnant women who (while pregnant) experienced two or more of the following signs/symptoms: fever, maculopapular rash, arthralgia, or conjunctivitis within two weeks of travel to an area reporting Zika virus activity regardless of the length of time since the travel/illness occurred

OR

- Mothers of an infant or fetus with microcephaly or intracranial calcifications and with history of travel to an area with Zika virus activity during pregnancy

OR

- If not pregnant, persons with two or more of the following signs/symptoms: fever, maculopapular rash, arthralgia or conjunctivitis and a history of travel to an area reporting Zika virus activity in the two weeks prior to illness onset or is a suspect local case

Guidance will be updated as additional information becomes available.

Resources:
Florida Department of Health in XXXX County: phone number
CDC Zika virus and pregnancy MMWR: http://www.cdc.gov/mmwr/volumes/65/wr/mm6502e1er.htm

Version 1.0 1/20/2016
CDC has issued a travel alert (Level 2-Practice Enhanced Precautions) for people traveling to regions and certain countries where Zika virus transmission is ongoing: Brazil, Colombia, El Salvador, French Guiana, Guatemala, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Suriname, Venezuela, and the Commonwealth of Puerto Rico.

This alert follows reports in Brazil of microcephaly and other poor pregnancy outcomes in babies of mothers who were infected with Zika virus while pregnant. However, additional studies are needed to further characterize this relationship. More studies are planned to learn more about the risks of Zika virus infection during pregnancy.

Until more is known, and out of an abundance of caution, CDC recommends special precautions for pregnant women and women trying to become pregnant:

- Pregnant women in any trimester should consider postponing travel to the areas where Zika virus transmission is ongoing. Pregnant women who must travel to one of these areas should talk to their doctor or other healthcare provider first and strictly follow steps to avoid mosquito bites during the trip.
- Women trying to become pregnant who are thinking about becoming pregnant should consult with their healthcare provider before traveling to these areas and strictly follow steps to prevent mosquito bites during the trip.

Because specific areas where Zika virus transmission is ongoing are difficult to determine and likely to change over time, CDC will update this travel notice as information becomes available. Check the CDC travel website frequently for the most up-to-date recommendations.
Currently, there is no vaccine to prevent or medicine to treat Zika. Four in five people who acquire Zika infection may have no symptoms. Illness from Zika is usually mild and does not require hospitalization. Travelers are strongly urged to protect themselves by preventing mosquito bites:

- Wear long-sleeved shirts and long pants
- Use EPA-registered insect repellents containing DEET, picaridin, oil of lemon eucalyptus (OLE), or IR3535. Always use as directed.
  - Insect repellents containing DEET, picaridin, and IR3535 are safe for pregnant and nursing women and children older than 2 months when used according to the product label. Oil of lemon eucalyptus products should not be used on children under 3 years of age.
- Use permethrin-treated clothing and gear (such as boots, pants, socks, and tents).
- Stay and sleep in screened-in or air-conditioned rooms.

In addition to the steps announced today, CDC is working with public health experts across the U.S. Department of Health and Human Services (HHS) to take additional steps related to Zika. CDC is developing interim guidance for pregnant women as well as sharing additional information about Zika with public health officials, clinicians and the public. In addition, efforts are underway across HHS to develop vaccines, improved diagnostics and other countermeasures for Zika.

**Background:**

CDC scientists tested samples provided by Brazilian health authorities from two pregnancies that ended in miscarriage and from two infants with diagnosed microcephaly who died shortly after birth. For the two full-term infants, tests showed that Zika virus was present in the brain. Genetic sequence analysis showed that the virus in the four cases was the same as the Zika virus strain currently circulating in Brazil. All four mothers reported having experienced a fever and rash illness consistent with Zika virus disease (Zika) during their pregnancies.

Locally acquired Zika was reported for the first time in Brazil in May 2015, and the virus has since been reported in 14 countries and territories in Latin America and the Caribbean: Brazil, Colombia, El Salvador, French Guiana, Guatemala, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Suriname, Venezuela, and Commonwealth of Puerto Rico.

According to Brazilian health authorities, more than 3,500 microcephaly cases were reported in Brazil between October 2015 and January 2016. Some of the affected infants have had a severe type of microcephaly and some have died. The full spectrum of outcomes that might be associated
with infection during pregnancy and the factors that might increase risk to the fetus are not yet fully understood. Health authorities in Brazil, with assistance from the Pan American Health Organization, CDC, and other agencies, have been investigating the possible association between Zika virus infection and microcephaly in infants. However, additional studies are needed to further characterize this relationship. More studies are planned to learn more about the risks of Zika virus infection during pregnancy.

In the past, outbreaks of Zika virus infection have occurred in Africa, Southeast Asia, and the Pacific Islands. Zika virus is transmitted to people primarily through the bite of an infected *Aedes* species mosquito. About one in five people infected with Zika virus will develop symptoms, which include fever, rash, joint pain, and conjunctivitis (pink eye). Other commonly reported symptoms include myalgia, headache, and pain behind the eyes. The illness is usually mild with symptoms lasting from several days to a week. Severe disease requiring hospitalization is uncommon and case fatality is low. Guillain-Barré syndrome (GBS) has been reported in patients with probable Zika virus infection in French Polynesia and Brazil. Research efforts will also examine the link between Zika and GBS.

For more information about Zika:

- [CDC Zika website](#)
- [Brazilian Ministry of Health](#)

Information about [microcephaly](#)

Information for travelers:

- [CDC Travel Notices](#)
- [Avoid Bug Bites](#)
- [Insect Repellent Use and Safety](#)

Information for health care providers:

- [Zika: Information for Health Care Providers](#)
- [Protection against Mosquitoes, Ticks, & Other Insects & Arthropods](#)

###

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CDC has developed interim guidelines for health care providers in the United States caring for pregnant women during a Zika virus outbreak. These guidelines include recommendations for pregnant women considering travel to an area with Zika virus transmission and recommendations for screening, testing, and management of pregnant returning travelers.

Updates on areas with ongoing Zika virus transmission are available online (http://wwwnc.cdc.gov/travel/notices/). Health care providers should ask all pregnant women about recent travel. Pregnant women with a history of travel to an area with Zika virus transmission and who report two or more symptoms consistent with Zika virus disease (acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis) during or within 2 weeks of travel, or who have ultrasound findings of fetal microcephaly or intracranial calcifications, should be tested for Zika virus infection in consultation with their state or local health department. Testing is not indicated for women without a travel history to an area with Zika virus transmission. In pregnant women with laboratory evidence of Zika virus infection, serial ultrasound examination should be considered to monitor fetal growth and anatomy and referral to a maternal-fetal medicine or infectious disease specialist with expertise in pregnancy management is recommended. There is no specific antiviral treatment for Zika virus; supportive care is recommended.

Zika virus is a mosquito-borne flavivirus transmitted primarily by Aedes aegypti mosquitoes (1,2). These vectors also transmit dengue and chikungunya virus and are found throughout much of the Americas, including parts of the United States. An estimated 80% of persons infected with Zika virus are asymptomatic (2,3). Symptomatic disease is generally mild and characterized by acute onset of fever, maculopapular rash, arthralgia, or nonpurulent conjunctivitis. Symptoms usually last from several days to 1 week. Severe disease requiring hospitalization is uncommon, and fatalities are rare. Guillain-Barré syndrome has been reported in patients following suspected Zika virus infection (4–6).

Pregnant women can be infected with Zika virus in any trimester (4,7,8). The incidence of Zika virus infection in pregnant women is not currently known, and data on pregnant women infected with Zika virus are limited. No evidence exists to suggest that pregnant women are more susceptible to Zika virus infection or experience more severe disease during pregnancy.

Maternal-fetal transmission of Zika virus has been documented throughout pregnancy (4,7,8). Although Zika virus RNA has been detected in the pathologic specimens of fetal losses (4), it is not known if Zika virus caused the fetal losses. Zika virus infections have been confirmed in infants with microcephaly (4), and in the current outbreak in Brazil, a marked increase in the number of infants born with microcephaly has been reported (9). However, it is not known how many of the microcephaly cases are associated with Zika virus infection. Studies are under way to investigate the association of Zika virus infection and microcephaly, including the role of other contributory factors (e.g., prior or concurrent infection with other organisms, nutrition, and environment). The full spectrum of outcomes that might be associated with Zika virus infections during pregnancy is unknown and requires further investigation.

**Recommendations for Pregnant Women Considering Travel to an Area of Zika Virus Transmission**

Because there is neither a vaccine nor prophylactic medications available to prevent Zika virus infection, CDC recommends that all pregnant women consider postponing travel to areas with ongoing Zika virus transmission.
to areas where Zika virus transmission is ongoing (10). If a pregnant woman travels to an area with Zika virus transmission, she should be advised to strictly follow steps to avoid mosquito bites (11,12). Mosquitoes that spread Zika virus bite both indoors and outdoors, mostly during the daytime; therefore, it is important to ensure protection from mosquitoes throughout the entire day (13). Mosquito prevention strategies include wearing long-sleeved shirts and long pants, using U.S. Environmental Protection Agency (EPA)–registered insect repellents, using permethrin-treated clothing and gear, and staying and sleeping in screen-in or air-conditioned rooms. When used as directed on the product label, insect repellents containing DEET, picaridin, and IR3535 are safe for pregnant women (14,15). Further guidelines for using insect repellents are available online (http://wwwnc.cdc.gov/travel/page/avoid-bug-bites) (11,15).

**Recommendations for Pregnant Women with History of Travel to an Area of Zika Virus Transmission**

Health care providers should ask all pregnant women about recent travel. Women who traveled to an area with ongoing Zika virus transmission during pregnancy should be evaluated for Zika virus infection and tested in accordance with CDC Interim Guidance (Figure). Because of the similar geographic distribution and clinical presentation of Zika, dengue, and chikungunya virus infection, patients with symptoms consistent with Zika virus disease should also be evaluated for dengue and chikungunya virus infection, in accordance with existing guidelines (16,17).

Zika virus testing of maternal serum includes reverse transcription-polymerase chain reaction (RT-PCR) testing for symptomatic patients with onset of symptoms within the

---

**FIGURE. Interim guidance: testing algorithm* † ‡ § for a pregnant woman with history of travel to an area¶ with Zika virus transmission, with or without clinical illness** ** consistent with Zika virus disease**

* Availability of Zika virus testing is limited; consult your state or local health department to facilitate testing. Tests include Zika virus reverse transcription–polymerase chain reaction (RT-PCR) and Zika virus immunoglobulin M (IgM) and neutralizing antibodies on serum specimens. Given the overlap of symptoms and endemic areas with other viral illnesses, evaluate for possible dengue or chikungunya virus infection.
† Laboratory evidence of maternal Zika virus infection: 1) Zika virus RNA detected by RT-PCR in any clinical specimen; or 2) positive Zika virus IgM with confirmatory neutralizing antibody titers that are ≥4-fold higher than dengue virus neutralizing antibody titers in serum. Testing would be considered inconclusive if Zika virus neutralizing antibody titers are <4-fold higher than dengue virus neutralizing antibody titers.
‡ Amniocentesis is not recommended until after 15 weeks of gestation. Amniotic fluid should be tested for Zika virus RNA by RT-PCR.
§ updates on areas with ongoing Zika virus transmission are available online (http://wwwnc.cdc.gov/travel/notices/).
** Clinical illness is consistent with Zika virus disease if two or more symptoms (acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis) are present.
previous week. Immunoglobulin M (IgM) and neutralizing antibody testing should be performed on specimens collected ≥4 days after onset of symptoms. Cross-reaction with related flaviviruses (e.g., dengue or yellow fever) is common with antibody testing, and thus it might be difficult to distinguish Zika virus infection from other flavivirus infections. Consultation with state or local health departments might be necessary to assist with interpretation of results (18). Testing of asymptomatic pregnant women is not recommended in the absence of fetal microcephaly or intracranial calcifications.

Zika virus RT-PCR testing can be performed on amniotic fluid (7,9). Currently, it is unknown how sensitive or specific this test is for congenital infection. Also, it is unknown if a positive result is predictive of a subsequent fetal abnormality, and if so, what proportion of infants born after infection will have abnormalities. Amniocentesis is associated with an overall 0.1% risk of pregnancy loss when performed at less than 24 weeks of gestation (19). Amniocentesis performed ≥15 weeks of gestation is associated with lower rates of complications than those performed at earlier gestational ages, and early amniocentesis (≤14 weeks of gestation) is not recommended (20). Health care providers should discuss the risks and benefits of amniocentesis with their patients. A positive RT-PCR result on amniotic fluid would be suggestive of intrauterine infection and potentially useful to pregnant women and their health care providers (20).

For a live birth with evidence of maternal or fetal Zika virus infection, the following tests are recommended: histopathologic examination of the placenta and umbilical cord; testing of frozen placental tissue and cord tissue for Zika virus RNA; and testing of cord serum for Zika and dengue virus IgM and neutralizing antibodies. CDC is developing guidelines for infants infected by Zika virus. If a pregnancy results in a fetal loss in a woman with history of travel to an area of Zika virus transmission with symptoms consistent with Zika virus disease during or within 2 weeks of travel or findings of fetal microcephaly, Zika virus RT-PCR and immunohistochemical staining should be performed on fetal tissues, including umbilical cord and placenta.

There is no commercially available test for Zika virus. Testing for Zika virus infection is performed at CDC and several state health departments. Health care providers should contact their state or local health department to facilitate testing and for assistance with interpreting results (4).

How to Treat Pregnant Women with Diagnoses of Zika Virus Disease

No specific antiviral treatment is available for Zika virus disease. Treatment is generally supportive and can include rest, fluids, and use of analgesics and antipyretics (4). Fever should be treated with acetaminophen (21). Although aspirin and other nonsteroidal anti-inflammatory drugs are not typically used in pregnancy, these medications should specifically be avoided until dengue can be ruled out to reduce the risk for hemorrhage (4,9,17).

In pregnant a woman with laboratory evidence of Zika virus in serum or amniotic fluid, serial ultrasounds should be considered to monitor fetal anatomy and growth every 3–4 weeks. Referral to a maternal-fetal medicine or infectious disease specialist with expertise in pregnancy management is recommended.

References


Readers who have difficulty accessing this PDF file may access the HTML file at http://www.cdc.gov/mmwr/volumes/65/wr/mm6502e1er.htm. Address all inquiries about the MMWR Series, including material to be considered for publication, to Editor, MMWR Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30329-4027 or to mmwrq@cdc.gov.
Mosquito Bite Protection for Overseas Travelers

Mosquitoes spread viruses and parasites that cause diseases like chikungunya, dengue, Zika and malaria. Before you travel to areas where these diseases are found, talk to your health care provider about your health concerns, and ask about malaria prevention medicine.

Bring Environmental Protection Agency (EPA)-registered insect repellents

When you travel to areas with mosquitoes, bring an EPA-registered insect repellent. Use products with active ingredients that are safe and effective.

- Always follow the product label instructions.
- Do not spray repellent on skin under clothing.
- If you use sunscreen, put sunscreen on first and insect repellent second.
- It is safe for pregnant or nursing women to use EPA-approved repellants if applied according to package label instructions.
- Learn more: www2.epa.gov/insect-repellents.

USE INSECT REPELLENT WITH ONE OF THESE ACTIVE INGREDIENTS

<table>
<thead>
<tr>
<th>BRAND EXAMPLES* Overseas brand names may vary.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEET ➜➜</td>
</tr>
<tr>
<td>Off!, Cutter, Sawyer, Ultrathon</td>
</tr>
<tr>
<td>Picaridin (KBR 3023), Bayrepel and icaridin ➜</td>
</tr>
<tr>
<td>Skin So Soft Bug Guard Plus, Autan (outside the U.S.)</td>
</tr>
<tr>
<td>Oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD) ➜</td>
</tr>
<tr>
<td>Repel</td>
</tr>
<tr>
<td>IR3535 ➜</td>
</tr>
<tr>
<td>Skin So Soft Bug Guard Plus Expedition, Skin Smart</td>
</tr>
</tbody>
</table>

Higher percentages of active ingredient = longer protection

Cover up with clothing

- Wear long-sleeved shirts and long pants.
- Mosquitoes can bite through thin clothing. Treat clothes with permethrin or another EPA-registered insecticide for extra protection.

Use permethrin-treated clothing and gear.

- Permethrin is an insecticide that kills mosquitoes and other insects.
- Buy permethrin-treated clothing and gear (boots, pants, socks, tents), or use permethrin to treat clothing and gear—follow product instructions closely.
- Read product information to find out how long the permethrin will last.
- Do not use permethrin products directly on skin.

Keep mosquitoes out of hotels rooms & other lodging

- Choose a hotel or lodging with air conditioning and screened windows and doors.

If you will be sleeping outside or in a room that is not well screened, buy a bed net BEFORE traveling overseas.

- Buy bed nets from an outdoor store, and choose a WHOPES-approved bed net (like Pramax®): compact, white, rectangular, with 156 holes per square inch and long enough to tuck under a mattress.
- Permethrin-treated bed nets provide more protection than untreated nets.
- Do not wash bed nets or expose them to sunlight—this will break down permethrin more quickly.
- Learn more: www.cdc.gov/malaria/malaria_worldwide/education/itn.html.

www.cdc.gov/features/StopMosquitoes

* The use of commercial names is to provide information about products; it does not represent an endorsement of these products by the Centers for Disease Control and Prevention or the U.S. Department of Health and Human Services.
When you return home:

- Avoid being bitten by mosquitoes for three weeks—especially if you feel sick. This will help prevent infection of local mosquitoes.

- Drain standing water near homes and businesses at least weekly. This will keep local mosquito populations low and prevent local introduction of disease.

If you are travelling with a baby or child:

- Always follow product instructions when applying insect repellent to children.

- Spray insect repellent onto your hands and then apply to a child’s face.

- Do not apply insect repellent to a child’s hands, mouth, cut or irritated skin.

- Do not use insect repellent on babies younger than 2 months.

- Use permethrin-treated clothing and gear (such as boots, pants, socks, tents) or purchase permethrin-treated clothing and gear. Read product information to find out how long the protection will last.

- Do not use permethrin products directly on skin.

- Dress babies or small children in clothing that covers arms and legs.

- Cover cribs, strollers or baby carriers with mosquito netting.
Recognizing, Managing, and Reporting Zika Virus Infections in Travelers Returning from Central America, South America, the Caribbean, and Mexico

Summary
In May 2015, the World Health Organization reported the first local transmission of Zika virus in the Western Hemisphere, with autochthonous (locally acquired) cases identified in Brazil. As of January 15, 2016, local transmission had been identified in at least 14 countries or territories in the Americas, including Puerto Rico (See Pan American Health Organization [PAHO] link below for countries and territories in the Americas with Zika virus transmission). Further spread to other countries in the region is likely.

Local transmission of Zika virus has not been documented in the continental United States. However, Zika virus infections have been reported in travelers returning to the United States. With the recent outbreaks in the Americas, the number of Zika virus disease cases among travelers visiting or returning to the United States likely will increase. These imported cases may result in local spread of the virus in some areas of the continental United States, meaning these imported cases may result in human-to-mosquito-to-human spread of the virus.

Zika virus infection should be considered in patients with acute onset of fever, maculopapular rash, arthralgia or conjunctivitis, who traveled to areas with ongoing transmission in the two weeks prior to illness onset. Clinical disease usually is mild. However, during the current outbreak, Zika virus infections have been confirmed in several infants with microcephaly and in fetal losses in women infected during pregnancy. We do not yet understand the full spectrum of outcomes that might be associated with infection during pregnancy, nor the factors that might increase risk to the fetus. Additional studies are planned to learn more about the risks of Zika virus infection during pregnancy.

Healthcare providers are encouraged to report suspected Zika virus disease cases to their state health department to facilitate diagnosis and to mitigate the risk of local transmission. State health departments are requested to report laboratory-confirmed cases to CDC. CDC is working with states to expand Zika virus laboratory testing capacity, using existing RT-PCR protocols.

This CDC Health Advisory includes information and recommendations about Zika virus clinical disease, diagnosis, and prevention, and provides travel guidance for pregnant women and women who are trying to become pregnant. Until more is known and out of an abundance of caution, pregnant women should consider postponing travel to any area where Zika virus transmission is ongoing. Pregnant women who do travel to these areas should talk to their doctors or other healthcare providers first and strictly follow steps to avoid mosquito bites during the trip. Women trying to become pregnant should consult with their healthcare providers before traveling to these areas and strictly follow steps to avoid mosquito bites during the trip.
Background
Zika virus is a mosquito-borne flavivirus transmitted primarily by Aedes aegypti. Aedes albopictus mosquitoes might also transmit the virus. Outbreaks of Zika virus disease have been reported previously in Africa, Asia, and islands in the Pacific.

Clinical Disease
About one in five people infected with Zika virus become symptomatic. Characteristic clinical findings include acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis. Clinical illness usually is mild with symptoms lasting for several days to a week. Severe disease requiring hospitalization is uncommon and fatalities are rare. During the current outbreak in Brazil, Zika virus RNA has been identified in tissues from several infants with microcephaly and from fetal losses in women infected during pregnancy. The Brazil Ministry of Health has reported a marked increase in the number of babies born with microcephaly. However, it is not known how many of the microcephaly cases are associated with Zika virus infection and what factors increase risk to the fetus. Guillain-Barré syndrome also has been reported in patients following suspected Zika virus infection.

Diagnosis
Zika virus infection should be considered in patients with acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis who recently returned from affected areas. To confirm evidence of Zika virus infection, RT-PCR should be performed on serum specimens collected within the first week of illness. Immunoglobulin M and neutralizing antibody testing should be performed on specimens collected ≥4 days after onset of illness. Zika virus IgM antibody assays can be positive due to antibodies against related flaviviruses (e.g., dengue and yellow fever viruses). Virus-specific neutralization testing provides added specificity but might not discriminate between cross-reacting antibodies in people who have been previously infected with or vaccinated against a related flavivirus.

There is no commercially available test for Zika virus. Zika virus testing is performed at the CDC Arbovirus Diagnostic Laboratory and a few state health departments. CDC is working to expand laboratory diagnostic testing in states, using existing RT-PCR protocols. Healthcare providers should contact their state or local health department to facilitate testing.

Treatment
No specific antiviral treatment is available for Zika virus disease. Treatment is generally supportive and can include rest, fluids, and use of analgesics and antipyretics. Because of similar geographic distribution and symptoms, patients with suspected Zika virus infections also should be evaluated and managed for possible dengue or chikungunya virus infection. Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue can be ruled out to reduce the risk of hemorrhage. In particular, pregnant women who have a fever should be treated with acetaminophen. People infected with Zika, chikungunya, or dengue virus should be protected from further mosquito exposure during the first few days of illness to reduce the risk of local transmission.

Prevention
No vaccine or preventive drug is available. The best way to prevent Zika virus infection is to:
- Avoid mosquito bites.
- Use air conditioning or window and door screens when indoors.
- Wear long sleeves and pants, and use insect repellents when outdoors. Most repellents, including DEET, can be used on children older than two months. Pregnant and lactating women can use all Environmental Protection Agency (EPA)-registered insect repellents, including DEET, according to the product label.

Recommendations for Health Care Providers and Public Health Practitioners
- Zika virus infection should be considered in patients with acute fever, rash, arthralgia, or conjunctivitis, who traveled to areas with ongoing transmission in the two weeks prior to onset of illness.
- All travelers should take steps to avoid mosquito bites to prevent Zika virus infection and other mosquito-borne diseases.
Until more is known and out of an abundance of caution, pregnant women should consider postponing travel to any area where Zika virus transmission is ongoing. Pregnant women who do travel to one of these areas should talk to their doctors or other healthcare providers first and strictly follow steps to avoid mosquito bites during the trip. Women trying to become pregnant should consult with their healthcare providers before traveling to these areas and strictly follow steps to avoid mosquito bites during the trip.

Fetuses and infants of women infected with Zika virus during pregnancy should be evaluated for possible congenital infection and neurologic abnormalities.

Healthcare providers are encouraged to report suspected Zika virus disease cases to their state or local health department to facilitate diagnosis and to mitigate the risk of local transmission.

Health departments should perform surveillance for Zika virus disease in returning travelers and be aware of the risk of possible local transmission in areas where Aedes species mosquitoes are active.

State health departments are requested to report laboratory-confirmed Zika virus infections to CDC.

For More Information

- Travel notices related to Zika virus: http://wwwnc.cdc.gov/travel/notices
- Information on microcephaly: http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html

The Centers for Disease Control and Prevention (CDC) protects people’s health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.