Zika Virus Information for Healthcare Providers

This document is current as of June 9, 2017. New information regarding the CDC's July 24, 2017 guidance update will be added soon.

Contents

A. Zika Fundamentals for Health Care Providers

I. Identifying Patients at Risk

- All pregnant women and patients who have symptoms consistent with Zika virus disease (ZVD) should be assessed for potential Zika virus exposures.
- Potential exposure includes recent travel to an area with risk of Zika or having sex with a person who has potentially been exposed to Zika.
- California Department of Public Health (CDPH) Zika Screening Algorithm

II. Clinical and Epidemiologic Features:

- Symptoms compatible with Zika virus disease (ZVD) include maculopapular rash, fever over 100.4F/38C, arthralgia and conjunctivitis.
- Criteria for possible exposure to Zika virus include:
  - Recent travel to an area with risk of Zika or
  - Recent unprotected sexual contact with a male who has traveled within the prior 6 months to an area with risk of Zika or with a female who has traveled within the prior 8 weeks to an area with risk of Zika.
- See additional epidemiologic factors that may influence individual risk under **C. Laboratory Testing**, below.

III. Testing for Zika Infection

- During the first 14 days of illness or within 14 days following last exposure, an rRT-PCR test for viral RNA is conducted on serum and whole blood and/or urine.
  - Whole blood (EDTA) may provide greater sensitivity than serum for PCR testing, but a whole blood specimen must be accompanied by a tube of serum for subsequent serology in case IgM testing becomes necessary.
  - Urine rRT-PCR is more sensitive than serum and may be conducted during the first 21 days following onset of illness or last exposure.
- A serum Zika IgM is conducted from 2–12 weeks following onset of illness.
- A positive IgM result for Zika virus requires confirmatory testing by plaque reduction neutralization test (PRNT).

IV. Reported Zika Cases and *Aedes* Mosquitoes in California

- The CDPH Zika website is updated weekly with the number of confirmed and probable Zika cases by County. See CDPH Weekly Update on Number of Laboratory Zika-Positive Cases in California.
- To date, there has been no local mosquito-borne transmission of Zika virus in California. Thus far, Zika virus infections have been documented only in persons exposed through travel to a Zika affected area or sexual contact with a traveler.
- For an updated map of counties where *Aedes* vector mosquitoes are present, view the CDPH *Aedes* Distribution Map
- For an interactive map with more detailed information about the distribution of *Aedes* vector mosquitoes in California, view the CDPH Invasive *Aedes* in California Map.

V. General Patient Education and Prevention Messaging

- Pregnant women in any trimester of pregnancy should not travel to any area with risk of Zika.
- Countries and locations with risk of Zika are identified on the CDC Areas with Zika webpage (http://www.cdc.gov/zika/geo/index.html).
- If patients are planning travel to areas with risk of Zika, they should be advised to protect themselves from mosquito bites and sexual transmission.
  - Apply EPA-registered mosquito repellents; wear long-sleeved shirts and long pants; and use air conditioning or window/door screens to keep mosquitoes outside or use a mosquito bed net.
  - Use condoms/barriers correctly every time they have sex or abstain from sex.
- After returning from an area with risk of Zika, use mosquito repellent for 3 weeks to prevent spreading Zika to California mosquitoes and the community.
- People who have Zika infection or have been potentially exposed to Zika infection (through travel or sexual contact) should abstain from sex or use condoms/barriers to prevent transmitting the virus to their sexual partner, as follows:
  - Pregnant women should abstain from sexual contact or use barrier protection for the duration of the pregnancy.
  - Non-pregnant women should abstain from sexual contact or use barrier protection for 8 weeks after last exposure or symptom onset.
  - Males should abstain from sexual contact or use barrier protection for 6 months after last exposure or symptom onset.
- Zika tools and Communication and Resources Toolkits for Healthcare Professionals are available. Toolkits address Zika and -Pregnancy, -Travel, -Sex, and -Family Planning and contain posters (in English and Spanish), discussion points, and social media posts. They are available on the CDPH Zika website.

B. Guidance by Patient Population

I. General Population

- Zika virus testing is indicated for individuals who have been exposed to Zika (through travel or sexual contact) **and** who have symptoms of Zika infection within 2 weeks of last exposure.
- Symptoms compatible with Zika virus disease (ZVD) include maculopapular rash, fever over 100.4F/38C, arthralgia and conjunctivitis.
- Screening of the **non-pregnant** population for Zika virus infection could be considered for two primary reasons:
  - To determine if an exposed and symptomatic patient is actively infected and/or capable of transmitting disease to others
  - To determine if a potentially infected patient represents a first case for a local transmission event
- See the CDPH Zika Screening Algorithm.

II. Pregnant Patients and Their Sexual Partners

Zika causes microcephaly and other serious brain anomalies in infants. Risk of microcephaly is in the range from 1-13% for first trimester exposures; first trimester exposures appear to be at higher risk than later exposures. Among infants with prenatal exposure to Zika virus, absence of microcephaly at birth does not exclude congenital Zika virus infection or the presence of Zika-related brain and other abnormalities.

Many unknowns related to Zika virus infection in pregnancy remain. The full spectrum of defects caused by prenatal Zika virus infection may continue to evolve. Factors that contribute to a woman's risk of adverse pregnancy or birth outcomes have yet to be specified, including the time of exposure during pregnancy.

- **Prevention**
  - Pregnant women in any trimester or within 8 weeks of anticipated pregnancy should not travel to areas with risk of Zika.
  - Pregnant women or their sexual partners who have lived in or traveled to an area with Zika should use condoms from start to finish every time they have sex (oral, vaginal, or anal) or not have sex during the pregnancy. This includes same sex couples, and applies even if the pregnant woman's partner does not have symptoms of Zika or feel sick. Pregnant women should not share sex toys throughout the entire pregnancy.
  - Women should avoid exposure to Zika virus within 8 weeks prior to conception (6 weeks prior to last menstrual period). If exposure occurs, follow the testing recommendations for women exposed during pregnancy.

- **Reporting to Public Health**:
  - Pregnant patients with possible exposure to Zika virus, whether they are symptomatic or asymptomatic, should be tested for Zika virus and **reported immediately to the local Health Department**.
  - Providers who are using the CalREDIE Provider Portal may enter the information directly into CalREDIE. Otherwise, providers should check with their local health department on how to report cases.
  - Reporting of these patients will enable patient tracking and expedite testing and reporting of results.
  - See contact information for local health department communicable disease reporting.

- **Lab Testing of Pregnant Patients:**
  - Testing is recommended for all pregnant women, regardless of symptoms, with possible exposure to Zika virus.
  - Exposure is defined as travel to an area with risk of Zika or sexual contact with a male who has traveled within the prior 6 months to an area with risk of Zika or with a female who has traveled within the prior 8 weeks to an area with risk of Zika.
  - See **C. Laboratory Testing**, below, and CDPH VRDL Zika Laboratory Testing Guidance.
  - See the CDC testing and interpretation algorithm for pregnant patients.

- **Management and Monitoring Recommendations for Pregnant Patients:**
  - Pregnant women with laboratory evidence of recent flavivirus infection are considered to have confirmed or probable/possible Zika virus infection and should be monitored frequently. At this time, there are no specific recommendations for the timing of ultrasound with regard to gestational age.
    - Pregnant women with confirmed or probable/possible Zika virus infection should be counseled and monitored with serial fetal ultrasounds every 3–4 weeks to assess fetal anatomy, particularly neuroanatomy, and to monitor growth.
    - Pregnant women with preliminary/presumptive positive Zika virus infection should also be counseled and monitored with serial ultrasounds pending final Zika test results.
  - Pregnant women who have ongoing risk for Zika virus exposure, such as residence in or frequent travel to an area with risk of Zika, should have IgM antibody testing for Zika virus as part of routine obstetric care during the first and second trimester.
  - Ultrasound findings that have been associated with congenital Zika virus syndrome include microcephaly, intracranial calcifications, ventriculomegaly, arthrogryposis, and abnormalities of the corpus callosum, cerebrum, cerebellum, and eyes.
  - Amniocentesis:
    - Amniocentesis should be individualized for each clinical circumstance, similar to evaluation of other congenital infections.
    - It is unknown how sensitive or specific RT-PCR testing of amniotic fluid is for congenital Zika virus infection or whether a positive test is predictive of subsequent fetal abnormalities.
  - See the CDC algorithm for clinical management of pregnant patients with suspected Zika virus infection.

- **The U.S. Zika Pregnancy Registry (USZPR):**
  The USZPR includes both asymptomatic and symptomatic pregnant women with laboratory evidence of possible Zika virus infection and their infants up to 1 year of age. The USZPR will provide data to further elucidate the full range of potential outcomes for fetuses and infants of mothers with Zika virus infection during pregnancy and will also be used to anticipate and plan to meet the needs of pregnant women and their families for clinical and public health services.
  - CDPH is the point of contact for USZPR data submission for California to CDC. Providers and local health departments should submit data forms to CDPH for compilation and submission to CDC. Instructions for data submission area available on the CDPH website.
  - Local health departments or CDPH may be in contact with health care providers to assist with data collection.
  - Potential data points included in the USZPR include: the time of maternal diagnosis; second trimester; third trimester; at delivery; and infant follow-up at 2, 6, and 12 months.
  - Data collection for the Zika Pregnancy Registry is intended to capture existing information in the medical record at the above milestones.

- For questions about enrolling affected pregnant patients and their infants with the USZPR, contact us at ZikaOutcomes@cdph.ca.gov or call (510) 620-3151.

- **Counseling Recommendations:**
  - Free and confidential counselors speaking English and Spanish are available at **MotherToBaby** to talk to families about Zika virus infection or diagnosis during pregnancy. Contact information includes: Phone 1-866-626-6847, Text 1-855-999-3525, or MotherToBaby website.
  - Health care providers should ask pregnant women about their travel history to areas with risk of Zika virus transmission and the travel history of their sex partners. The CDPH Zika Patient Self-Assessment Form can assist providers in gathering such history.

III. Patients who traveled to Areas with Risk of Zika Prior to Conception

- For women or men **with or without symptoms of Zika virus disease** (fever over 100.4F/38C, rash, joint pain, or conjunctivitis) **who meet criteria for Zika exposure (recent travel to an area with risk of Zika or sex with a person who has potentially been exposed) or have been diagnosed with Zika virus disease**, CDC recommends that healthcare providers:
  - Advise women to wait **at least 8 weeks** after return from travel or symptom onset before trying to get pregnant.
  - Advise men to wait **at least 6 months** after return from travel or symptom onset before trying to get their partner pregnant.
  - People with possible Zika exposure should not have sex during this time period or should use condoms or other barriers to avoid infecting their partners. To be effective, condoms must be used every time, from start to finish during vaginal, anal and oral sex and there should be no sharing of sex toys.
- The relationship between the time of conception and maternal Zika virus viremia and the ultimate effects of disease on the fetus remains under study.
- Zika virus testing for the purpose of assessing the risk of sexual transmission is of uncertain value, because the current understanding of the duration and pattern of shedding in the male and female genitourinary tract is limited. Therefore, testing of specimens to assess risk for sexual transmission is currently not recommended.

IV. Patients who are Not Pregnant but Planning Pregnancy

- CDC recommends that women trying to get pregnant and their male partners talk to their healthcare provider before traveling to areas where there is Zika virus transmission.
- Healthcare providers should discuss pregnancy intention and reproductive options with women of reproductive age. For women traveling to a country or area in the US with local transmission of Zika virus, preconception care should include a discussion (ideally before travel) about mosquito bite prevention, signs and symptoms of Zika virus infection, and the potential risks associated with travel and Zika virus infection.

- Health care providers should assist patients to access effective contraceptive methods if they would like to delay pregnancy until a safe time to conceive.
- Patients could consider several factors regarding risk:
  - Risk of acquiring vector-borne Zika depends on the duration and extent of exposure to infected mosquitoes and the steps taken to prevent mosquito bites.
  - Most Zika virus infections are asymptomatic when they occur.
- If patients do travel, because sexual transmission is possible, both men and women should strictly follow steps to prevent mosquito bites during the trip.
- Patients can monitor for symptoms of fever, maculopapular rash, conjunctivitis, or arthralgia. The timing from exposure to development of symptoms is thought to be a few days to two weeks, but up to 80% of infected persons may be asymptomatic.

V. Patients Undergoing Fertility Treatment

- Zika virus transmission through assisted reproductive technology has not been reported; however, transmission through gametes or embryos is theoretically possible.
- Fertility treatment for sexually active couples using their own gametes and embryos should follow the timing recommendations for persons attempting conception; although recommendations may need to be adjusted depending on individual circumstances (see above recommended wait periods).
- The Food and Drug Administration has developed guidance for donated tissues in the context of a Zika virus outbreak, including donated sperm, oocytes, and embryos. The guidance states that living donors will be deemed ineligible for anonymous donation if they have any of the following risk factors:
  - Medical diagnosis of Zika virus infection in the past 6 months
  - Residence in or travel to an area with risk of Zika within the past 6 months
  - Within the past 6 months, had sex with a male partner who, during the 6 months before sexual contact, either 1) received a diagnosis of or experienced an illness consistent with Zika virus disease or 2) had traveled to an area with risk of Zika

VI. Infants

- Zika virus infection during pregnancy has been linked to problems such as miscarriage, stillbirth, and birth defects. A distinct pattern of birth defects, called congenital Zika syndrome, has emerged and is associated with cognitive, sensory, and motor disabilities as well as five types of birth defects that are either not seen or occur rarely with other infections during pregnancy:
  - Severe microcephaly (small head size) resulting in a partially collapsed skull
  - Decreased brain tissue with brain damage (as indicated by a specific pattern of calcium deposits)
  - Damage to the back of the eye with a specific pattern of scarring and increased pigment
  - Limited range of joint motion, such as clubfoot
  - Too much muscle tone restricting body movement soon after birth.

- View the CDPH guidance for the evaluation of suspected cases of Congenital Zika Syndrome (CZS).

- **Lab Testing of Newborns with Possible Congenital Zika Virus Infection**
  - See the CDC Interim guidance: Evaluation and testing of infants with possible congenital Zika virus infection.
  - CDC recommends infants born to women with possible Zika virus infection while pregnant be evaluated for congenital Zika virus infection and sequelae in the following situations:

    1) Infants born to mothers with laboratory evidence of Zika virus infection during pregnancy (or with tests that were inconclusive), and
    2) Infants who have abnormal clinical or neuroimaging findings suggestive of congenital Zika syndrome **and** possible maternal exposure to Zika virus through travel or sexual contact **regardless** of maternal Zika virus test results.

    In addition, CDPH recommends evaluation for congenital Zika virus infection in the following situation:

    3) In the case of normal appearing infants born to mothers with risk factors for maternal Zika virus infection and for whom maternal testing was not performed or test results are not available before delivery. Infant specimens should be collected within 2 days of delivery and tested for Zika virus in parallel with maternal testing.

- **Specimen collection for a newborn:**
  - Serum or whole blood and/or urine specimens should be obtained **within the first 2 days of life**. If testing is performed later, distinguishing between congenital, perinatal, and postnatal infection is difficult**.** If timing of infection cannot be determined, infants should be managed as if they have congenital Zika virus infection. Testing cord blood is not recommended because of issues with precision and accuracy. Although Zika virus infection in infants is not a clinical emergency, **urgent communication with the pregnant patient's obstetric and neonatal providers might be necessary**.
  - Recommended infant laboratory evaluation includes:
    - Zika virus rRT-PCR testing should be performed on both infant serum and whole blood and/or urine. (A whole blood specimen must be accompanied by a tube of serum for subsequent serology in case IgM testing becomes necessary. Urine may or may not accompany serum, but may increase sensitivity of the test.)
    - Zika virus IgM enzyme-linked immunosorbent assay (ELISA) should concurrently be performed on infant serum
    - If cerebrospinal fluid is obtained for other studies, rRT-PCR testing for Zika virus RNA and Zika virus IgM should be performed on CSF
    - Collecting placental specimens should be considered.
    - See specimen preparation guidance in CDPH Evaluation and Follow-Up Procedures for Suspected Congenital Zika Virus Infection – Fetus, Newborn and Infant.

- **Newborn Evaluation and Management for Possible Congenital Zika Virus Infection**
  - See the CDC algorithm for initial evaluation and outpatient management for infants for possible congenital Zika virus infection.
  - Infants with normal exams born to mothers testing negative for Zika virus should receive routine care.
  - Infants with normal exams who are born to exposed mothers who have not undergone Zika testing should receive Zika testing within 2 days in parallel with maternal testing, consideration for Zika virus testing of the placenta, a comprehensive physical exam including standardized measurement of head circumference, newborn hearing screening, and a head ultrasound. If there are concerns about infant follow-up, additional testing that may be indicated if Zika testing is positive (such as ophthalmologic assessment) should be performed before discharge.
  - Infants born to mothers with laboratory evidence of Zika virus infection or unspecified flavivirus should undergo Zika virus testing within 2 days, a thorough physical examination, a head ultrasound, hearing assessment and specific follow-up.
  - In the case of a **fetal loss***:* Zika virus RT-PCR and immunohistochemical staining of fetal tissues, umbilical cord and placental and fetal membranes, as available, is recommended for confirmed maternal Zika/flavivirus cases and should be considered for presumptive/preliminary positives. Fixed tissue specimens are optimal. (CDC MMWR, July 2016)

- **Neonatal Evaluation for Acute Perinatal Zika Virus Infection**:
  - Maternal-infant transmission of Zika virus is possible during delivery. Acute Zika virus disease should be suspected in an infant symptomatic within the first 2 weeks of life whose mother traveled to or resided in a Zika affected area within 2 weeks of delivery. Infant symptoms in acute infection include ≥2 of the following: fever, rash, conjunctivitis, or arthralgia. (CDC MMWR, August 2016)
  - If an infant shows signs and symptoms of acute Zika virus disease within the first 2 weeks of life, CDC recommends that both the mother and infant be tested for Zika virus infection.
  - If symptoms have been present for <14 days, test serum and whole blood and/or urine (and, if obtained for other reasons, cerebrospinal fluid) for Zika virus RNA by RT-PCR. If sending whole blood, also send serum for possible subsequent IgM testing.
  - If Zika virus RNA is not detected and symptoms have been present for ≥4 days, test serum (and, if obtained for other reasons, cerebrospinal fluid) for Zika and dengue virus IgM and, if positive, test for neutralizing antibodies (PRNT).

VII. Postpartum Patients and Breastfeeding

- Although Zika virus RNA has been detected in breast milk, transmission of Zika infection through breastfeeding has not been documented.

- Mothers are encouraged to breastfeed infants even in areas where Zika virus is found, as available evidence indicates the benefits of breastfeeding outweigh any theoretical risks associated with Zika virus infection transmission through breast milk. (CDC MMWR, August 2016)
- There are no current recommendations to test breast milk.
- There is no current evidence that Zika virus infection in one pregnancy poses a risk of infection or birth defects in future pregnancies.

VIII. Patients with Guillain-Barré Syndrome

- Patients who have **both** a diagnosis of Guillain-Barré Syndrome and meet criteria for exposure to Zika virus (either travel or sexual exposure or other significant exposure) should undergo testing for Zika virus according to **C. Laboratory Testing**, below.

C. Laboratory Testing

See VRDL Zika Laboratory Testing Guidance.

Appropriate Clinical Specimens for Laboratory Testing of Suspected Cases

	Symptomatic Suspect Cases					Asymptomatic Pregnant Women
	Serum	Whole Blood*	Urine§	CSF	Other¶	Serum, Whole blood* and Urine
RT-PCR§	YES	YES	YES	YES	YES	YES
Serology: IgM with PRNT Confirmation†	YES			YES	YES	YES

***** Whole blood (EDTA) may provide greater sensitivity than serum for PCR testing, but a whole blood specimen must be accompanied by a tube of serum for subsequent serology in case IgM testing becomes necessary.

¶ CDC will consider testing other specimen types (e.g., saliva, placental tissue, umbilical cord, fetal and other tissues) on a case by case basis.

§ RT-PCR is the preferred method and urine is the preferred specimen for confirming an acute case.

† PRNT (plaque-reduction neutralization test) may confirm cross-reactive IgM tests by measuring virus-specific neutralizing antibodies.

I. During the first 14 days of illness or following last exposure, an rRT-PCR test for viral RNA is conducted on serum. A whole blood (EDTA) or urine specimen should also be submitted with serum during this period. Recent evidence suggests that Zika virus RNA can be detected for a longer period of time in whole blood versus serum of infected persons.

II. A urine specimen rRT-PCR may be conducted during the first 21 days following onset of illness or last exposure and appears to have greater sensitivity than RT-PCR done on serum specimens.

III. A serum Zika IgM is conducted from 2–12 weeks following onset of illness. It may also be positive as early as 4 days following onset of illness or last exposure, but if run between 4 days and 14 days following onset of illness or last exposure the sensitivity of this test is less than ideal, so a repeat IgM should be conducted if the first IgM test is done prior to 2 weeks.

IV. A positive or equivocal IgM result for Zika virus requires confirmatory testing by plaque reduction neutralization test (PRNT)

- Confirmatory testing is needed because IgM testing for Zika virus may give false positive results**.** Because testing for Zika virus is new, we don't

yet know the percentage of expected false positive results. The main reason for false positive results is that there is serologic cross reactivity between viruses in the flavivirus family including dengue, West Nile, yellow fever, and Japanese encephalitis viruses. Previous exposure to or vaccination against a flavivirus could result in a false positive Zika virus IgM. Some false positives may be due to other non-specific reactions without prior virus exposure.

- Information that may help to interpret a potentially false positive IgM result include:
  - History of other virus infection or vaccination
  - Symptoms of acute infection and timing related to exposure
  - Confirmed Zika infection in a sexual partner
  - Other evidence of congenital Zika infection or complication, such as fetal microcephaly or intracranial calcifications
- Confirmatory PRNT testing results could come back as:
  - Evidence of a recent infection with Zika virus
  - Evidence of a recent infection with another virus (such as dengue)
  - Evidence of infection with a flavivirus of undetermined type (positive for more than one virus)
  - No evidence of infection (preliminary IgM test is false positive)

V. Test Reliability

- Zika RT-PCR testing can detect Zika virus in serum or whole blood during for the first two weeks following onset of symptoms or infection and in urine for the first three weeks following onset of infection.
- Zika IgM tests have detected Zika antibody as early as 4 days following onset of infection but a reliable IgM test result requires that it be performed on specimens collected between 2 weeks and 12 weeks following onset of infection.
- For symptomatic and asymptomatic pregnant women with possible Zika virus exposure who seek care >12 weeks after symptom onset or possible exposure, IgM antibody testing might still be considered and if fetal abnormalities are present, rRT-PCR testing should also be performed on maternal serum and whole blood and/or urine, if submitted.
- Because IgM antibody and viral RNA levels decline over time, negative testing conducted greater than 12 weeks after symptom onset or possible exposure may be a false negative result and does not rule out recent Zika virus infection. Therefore, when testing beyond 12 weeks after symptom onset or possible exposure, serial fetal ultrasounds should be considered during prenatal care.

VI. Specimen management and transport is described in the VRDL Zika Laboratory Testing Guidance.

- Amniotic fluid, if collected, should be collected in a CSF collection tube. The sample should be frozen (-70C) and shipped on dry ice.

VII. The time required for results of testing to be reported varies depending upon sample type submitted, timing of sample collection from onset, the number of commercial and local public health labs performing testing, improvements in testing technology and the number of specimens submitted to the lab for testing at any point in time. Some tests are rapid while others take up to 7 days to complete**.**

VIII. A variety of clinical variables is likely to influence the level of risk of disease in any given setting, and therefore will influence the positive and negative predictive value of testing. Questions in such situations may be directed to local health departments. Some of these clinical settings include:

- Other household members with diagnosed Zika virus disease
- Patient occupation in a healthcare setting, with or without possible needle-stick exposure
- Patient recipient of transfusions or transplants, even though testing of blood supply is currently being conducted
- Classic presentation of Zika viral disease in a region with known *Aedes* vector mosquitoes

IX. For further information regarding lab management, see CDPH Zika Virus Testing FAQs for Healthcare Providers.

D. Prevention of Transmission

I. Protection against mosquito vector transmission

- The best way to prevent the spread of Zika through mosquito bites is by:
  - Wearing long sleeve shirts and long pants
  - Covering the crib, stroller, and baby carrier with mosquito netting
  - Treating your clothing and gear with permethrin or buying pre-treated items
  - Using Environmental Protection Agency (EPA)-registered insect repellents
  - Staying in places with air conditioning and window and door screens to keep mosquitoes outside
  - Sleeping under a mosquito bed net if air conditioned or screened rooms are not available or if sleeping outdoors
  - For more information, see CDPH Mosquito Control FAQs. (http://www.cdph.ca.gov/HealthInfo/discond/Documents/MosquitoControlFAQs.pdf)
- Special precautions for infants and children younger than 3 years old:
  - Do not use insect repellent on babies younger than 2 months old
  - Caregivers/adults should spray insect repellent onto their own hands and then apply to a child's face
  - Do not apply insect repellent onto a child's hands, eyes, mouth or cut or irritated skin
  - Do not use products containing oil of lemon eucalyptus or para-menthane-diol on children younger than 3 years old
- California residents exposed to Zika Virus through travel to a region with active transmission or through sexual contact with a person with exposure should apply mosquito repellent and avoid mosquito exposure for three weeks after return to California to prevent potentially transmitting the virus to local mosquitoes. This is especially important for residents of California counties known to be habitat for the vector mosquitoes, *Aedes aegypti* and *Aedes albopictus*. For a map of counties where these mosquitoes are present, see the CDPH *Aedes* Distribution Map.
- Mosquito control information is available in CDPH Mosquito Control FAQs.

II. Protection against sexual transmission

- If patients are planning travel to areas where Zika is present, they should be advised to abstain from sex or use condoms/barriers correctly every time they have sex during travel.
- People who have Zika infection or have been potentially exposed to Zika infection (through travel or sexual contact) should abstain from sex or use condoms/barriers to prevent transmitting the virus to their sexual partner, as follows:
  - Pregnant Women should abstain from sexual contact or use barrier protection for the duration of the pregnancy
  - Non-pregnant Females should abstain from sexual contact or use barrier protection for 8 weeks after last exposure or symptom onset.
  - Males should abstain from sexual contact or use barrier protection for 6 months after last exposure or symptom onset.

III. Protection against transmission in healthcare settings

- Standard precautions are recommended to prevent the spread of Zika virus in

healthcare settings.

- The U.S. Food and Drug Administration posted new guidance for the screening of donated blood for Zika virus on August 26, 2016 under Title 21 of the Code of Federal Regulations (CFR) 630.3(h)(2).
- The potential for transmission of Zika virus to the recipient of transplanted tissue is possible, but the magnitude of the risk of Zika transmission by solid organ transplantation is unknown at this time. It is recommended by organ procurement organizations that donor deferral should be considered for recipients who are women of childbearing age or pregnant if there is history of donor travel to Zika-endemic areas in the 28 days prior to donation. In the case of potential living donors with Zika infection, donation should be deferred where possible. See Organ Procurement and Transplantation Network guidance (https://optn.transplant.hrsa.gov/news/guidance-on-zika-virus/).

E. Useful Resources

I. Patient Education Toolkits

- CDPH has created various educational materials that you can use for patient outreach. These materials are organized into three toolkits for Zika and Pregnancy, Zika and Travel, and Zika and Sexual transmission.
- Each toolkit contains educational posters in English and Spanish, talking points for healthcare providers, and social media posts that you can use on your social media sites.
- All of these materials are available for free download and instructions for printed posters on the CDPH Zika webpage and printed posters are available for order.

II. CDPH Zika Website

- http://www.cdph.ca.gov/Zika

III. Public Q & A

- See the CDPH Zika Questions and Answers resource for the public.

F. Quick References and Tools

CDPH Zika Screening Algorithm:
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaAlgorithmPoster.pdf

CDC Updated Interim Pregnancy Guidance Algorithm:
http://www.cdc.gov/zika/pdfs/testing_algorithm.pdf

CDC Interim guidance: Evaluation and testing of infants with possible congenital Zika virus infection: http://www.cdc.gov/zika/pdfs/zika_peds.pdf

CDC Initial Evaluation and Outpatient Management During the First 12 Months of Life for Infants with Possible Congenital Zika Virus Infection:
http://www.cdc.gov/zika/pdfs/pediatric-evaluation-follow-up-tool.pdf

CDPH Evaluation and Follow-Up Procedures for Suspected Congenital Zika Virus Infection – Fetus, Newborn and Infant:
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/GuidanceforCongenitalZikaInfectionEvaluation.pdf

CDPH Patient Self-Assessment Form - A self-administered screening tool for clinics to use to screen patients for potential exposure:
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaVirusExposureSelfAssesmentForm.pdf

Spanish Self- Assessment Form:
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaVirusExposureSelfAsssementFormSpanish.pdf

CDPH Weekly Updated on Number of Zika Virus Infections in California
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/TravelAssociatedCasesofZikaVirusinCA.pdf

CDPH Zika Virus Testing FAQs for Healthcare Providers:
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaVirusTestingFAQsforHCPs.pdf

VRDL Zika Laboratory Testing Guidance:
https://archive.cdph.ca.gov/programs/vrdl/Documents/Zika_Testing_VRDL_Quicksheet.pdf

CDC Interactive Program to Assess Your Pregnant Patient for Zika Testing: https://www.cdc.gov/zika/hc-providers/index.html

G. Literature References

CDC Health Advisory. Update: Interim Guidelines for Prevention of Sexual Transmission of Zika Virus — United States, 2016. (February 23, 2016) http://emergency.cdc.gov/han/han00388.asp

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