



# Protecting Workers Against Zika

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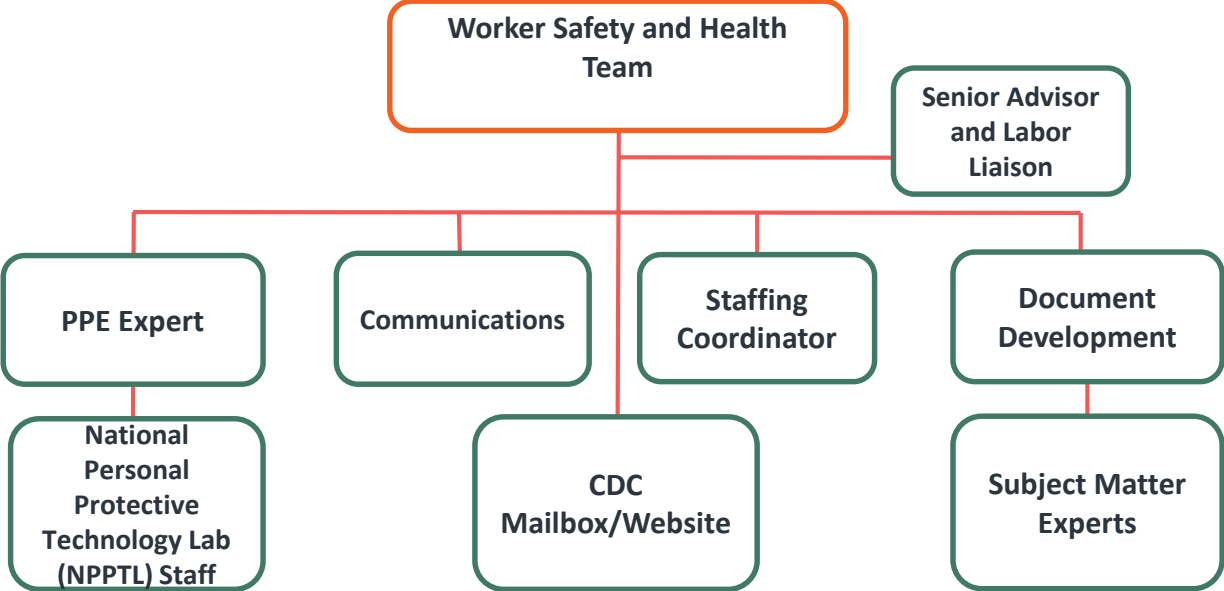


# NIOSH: Emergency Preparedness and Response Office (EPRO)

- Established in 2002
- Mission: To protect the health and safety of emergency response providers and recovery workers.
- Provide:
  - Pre-event preparedness and planning
  - Coordination of NIOSH technical expertise and on-site support during emergencies
  - Recommendations to protect responders



# CDC/NIOSH Worker Safety and Health Team



# INTRODUCTION

# What is Zika?

- Zika virus is spread to people primarily through the bite of an infected *Aedes* species mosquito (*Ae. aegypti* and *Ae. albopictus*).
- Many people infected with Zika virus won't have symptoms or will only have mild symptoms.
- Zika virus infection during pregnancy can cause microcephaly and other severe brain defects.



## Where has Zika been found?

- Before 2015, Zika outbreaks occurred in Africa, Southeast Asia, and the Pacific Islands.
- Currently outbreaks are occurring in many countries and territories.

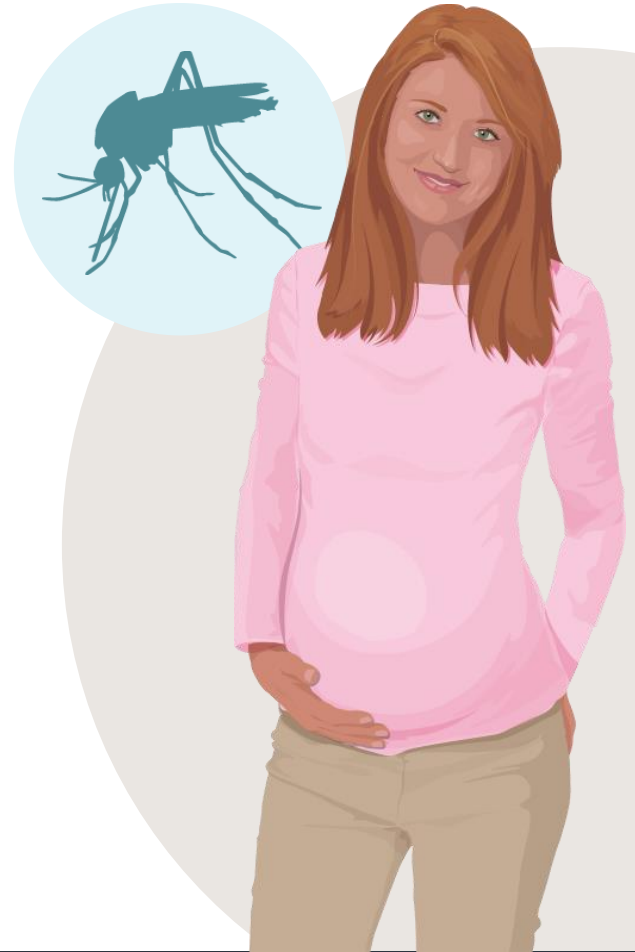


<http://www.cdc.gov/zika/geo/index.html>

# **SPREAD AND SYMPTOMS**

# How is Zika spread?

- Zika can be spread through
  - » Mosquito bites
  - » From a pregnant woman to her fetus
  - » Sex with an infected person
  - » Laboratory exposure
- Zika may be spread through blood transfusion.
- No reports of infants getting Zika through breastfeeding.





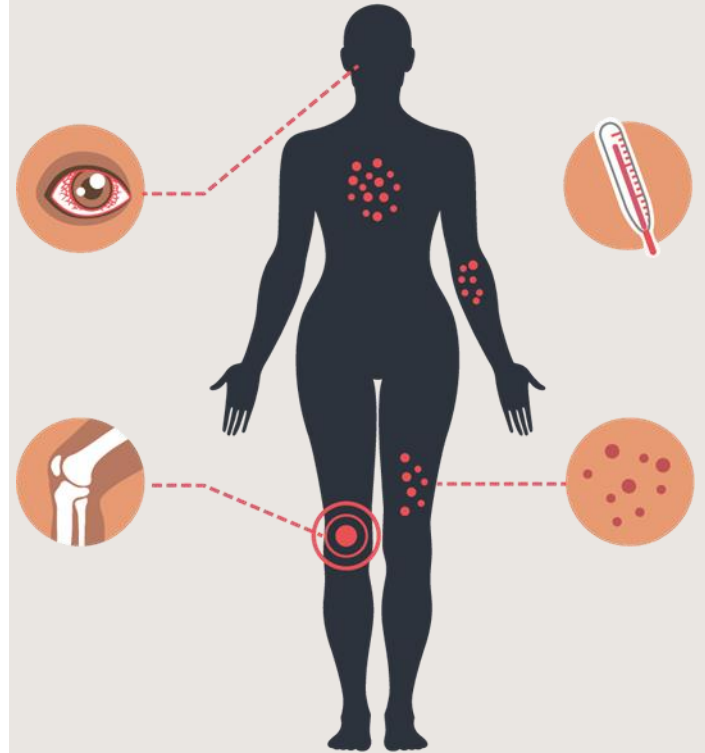
# How does Zika affect people?

- Many people with Zika will not have symptoms or will only have mild symptoms.
- Symptoms last several days to a week.
- People usually don't get sick enough to go to the hospital.
- People very rarely die of Zika.



# What are the symptoms?

- For people with symptoms, the most common symptoms of Zika are
  - » Fever
  - » Rash
  - » Joint pain
  - » Conjunctivitis (red eyes)
- Other symptoms include
  - » Muscle pain
  - » Headache



# **ZIKA AND PREGNANCY**

## How can Zika affect pregnancies?

- Zika virus can pass from a pregnant woman to her fetus during pregnancy or around the time of birth.
- It is not known how often this happens.



## How can Zika affect pregnancies?

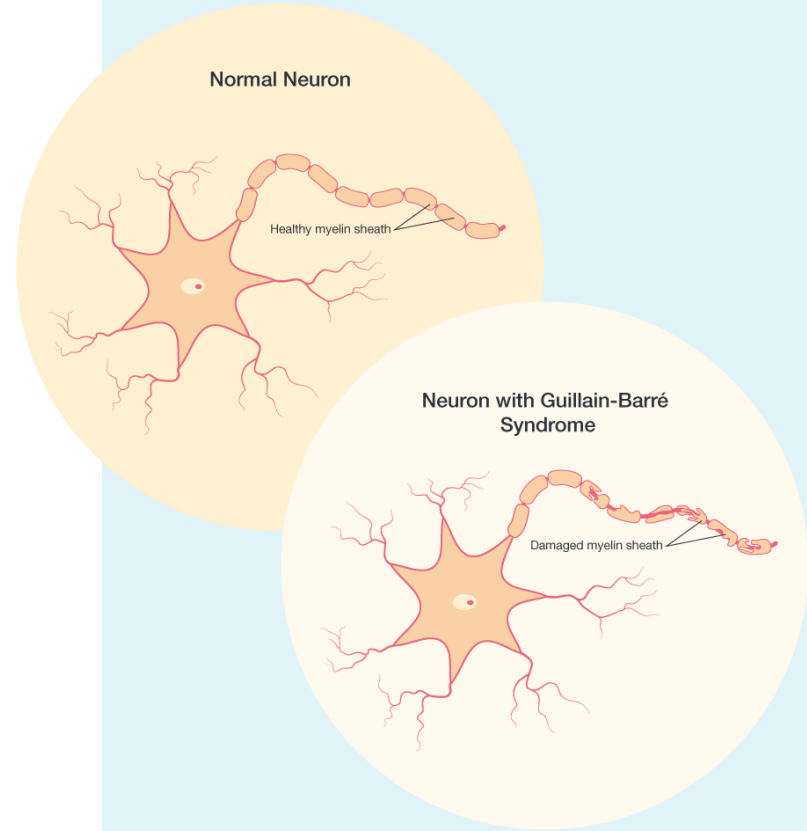
- Infection during pregnancy is a cause of microcephaly and other severe brain defects.
- Linked to other problems, such as miscarriage, stillbirth, and birth defects
- No evidence that past infection will affect future pregnancies once the virus has cleared the body



# **GUILLAIN- BARRÉ SYNDROME**

# Does Zika cause Guillain-Barré syndrome (GBS)?

- GBS is an uncommon sickness of the nervous system in which a person's own immune system damages the nerve cells, causing muscle weakness, and sometimes, paralysis.
- GBS is strongly associated with Zika but only a small proportion of people with recent Zika infection get GBS.
- CDC is continuing to investigate the link between GBS and Zika to learn more.



# TESTING



# Who should be tested for Zika?

- Anyone who has or recently had Zika symptoms
  - » And lives in or recently traveled to an area with Zika, or
  - » Had unprotected sex with a partner who lived in or traveled to an area with Zika
- All pregnant women who
  - » Live in or recently traveled to an area with Zika, or
  - » Had sex without a condom with a partner who lives in or recently traveled to an area with Zika, whether or not they have Zika symptoms.



## How is Zika diagnosed?

- A doctor or other healthcare provider may order tests to look for similar types of infections.
- A blood or urine test can confirm a Zika infection if specimens are collected early in a person's infection.



# WHAT TO DO IF YOU GET INFECTED

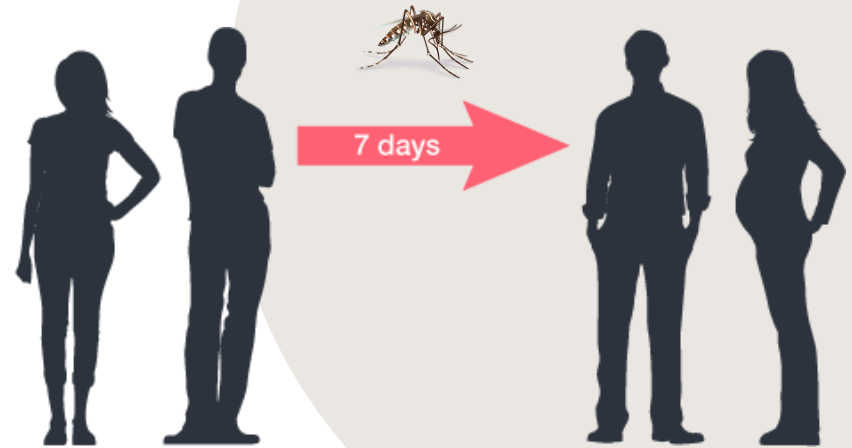
# How is Zika treated?

- There is no specific medicine or vaccine for Zika virus infection.
- Treat the symptoms
  - » Rest
  - » Drink fluids to prevent dehydration
  - » Do not take aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs)
  - » Take acetaminophen (Tylenol®) to reduce fever and pain



# What to do if you are sick with Zika

- Protect yourself from mosquito bites. During the first week of illness, Zika virus can be found in blood.
- The virus can be passed from an infected person to a mosquito through bites.
- An infected mosquito can spread the virus to other people.



# **SURVEILLANCE**

## Reporting of Zika in the United States

- Healthcare providers should report cases to their local, state, or territorial health department.
- State and territorial health departments are encouraged to report confirmed cases to CDC through ArboNET, the national surveillance system for arboviral diseases.
- Pregnant women with any lab evidence of possible Zika virus infection should be reported to the US Zika Pregnancy Registry.



For the most recent case counts, visit <https://www.cdc.gov/zika/geo/united-states.html>.

# Case Counts in the US (updated November 23, 2016)

## US States

- Locally transmitted: 182
- Travel-associated: 4,261
- Laboratory acquired: 1

## US Territories (PR, AS, USVI)

- Locally transmitted: 32,601
- Travel-associated: 123
- Laboratory acquired: 0



Zika is primarily spread through the bite of an infected *Aedes aegypti* or *Aedes albopictus* mosquito. Take steps to protect yourself and others.

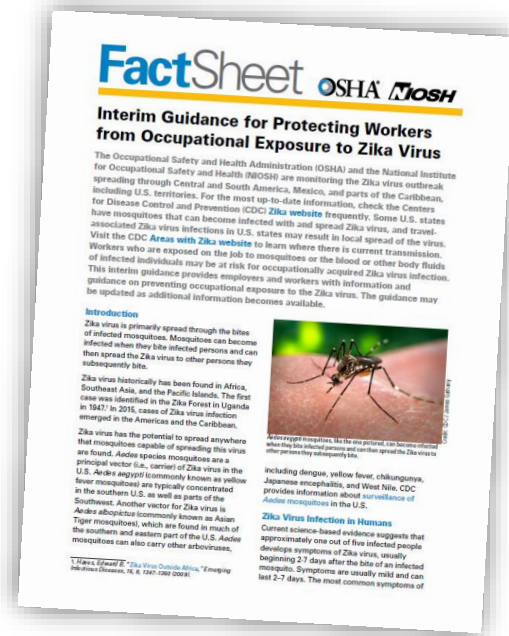


**WHAT DOES THIS MEAN  
FOR EMPLOYERS AND  
WORKERS?**

# OSHA/NIOSH Interim Guidance

Protect workers from occupational exposure to Zika virus:

- Outdoor workers
- Mosquito control workers
- Healthcare and laboratory workers
- Business travelers



[www.cdc.gov/niosh/topics/outdoor/mosquito-borne/pdfs/osha-niosh fs-3855 zika virus 04-2016.pdf](http://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/pdfs/osha-niosh_fs-3855_zika_virus_04-2016.pdf)

## Applicable OSHA Standards (29 CFR)

- 1910.132 – PPE General Requirements
- 1910.133 – Eye and Face Protection
- 1910.134 – Respiratory Protection
- 1910.138 – Hand Protection
- 1910.1030 – Bloodborne Pathogens
- 1910.1200 – Hazard Communication

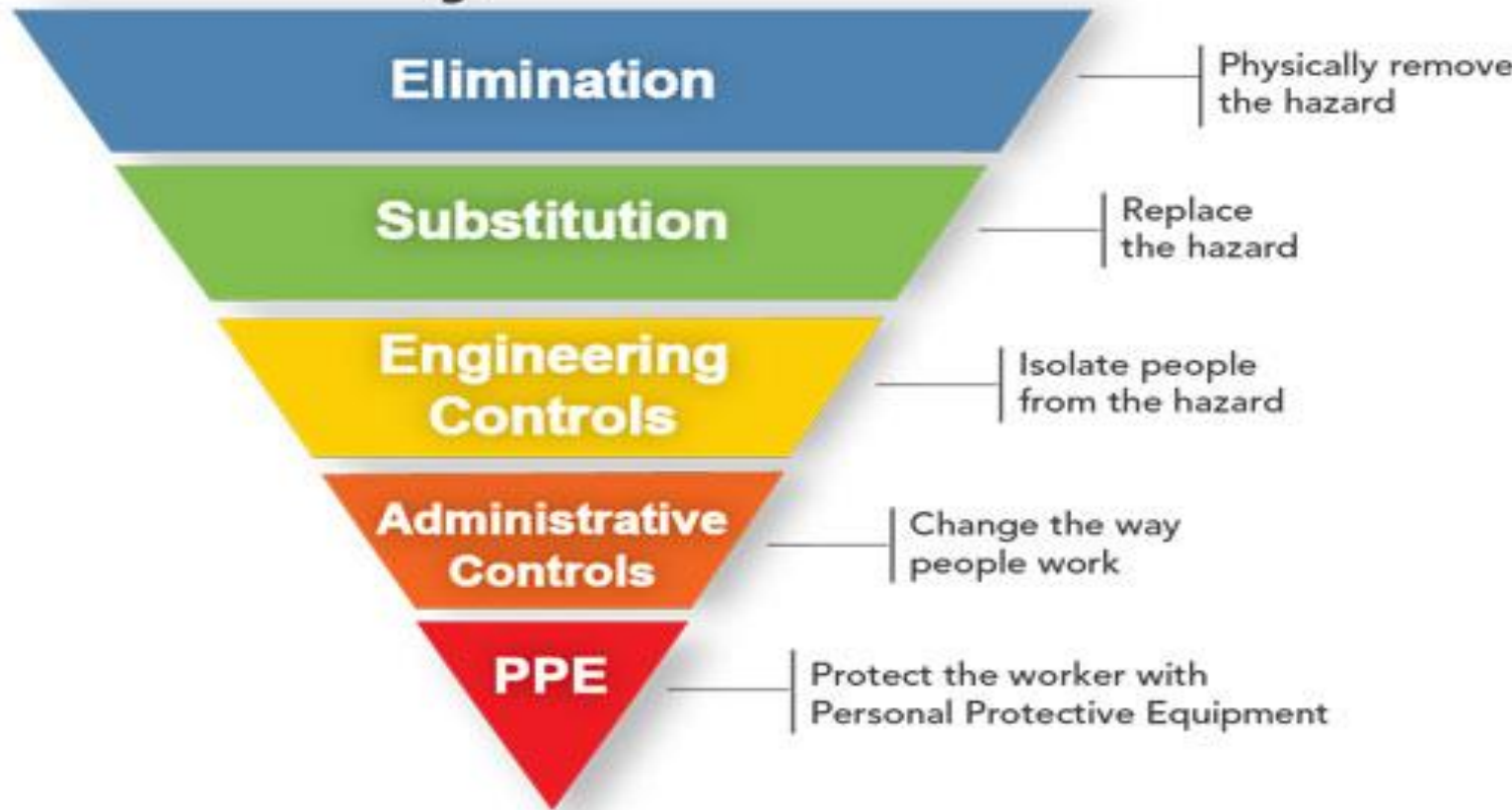
*Other requirements may apply in certain situations.*

# Hierarchy of Controls

Most effective



Least effective



# General employer recommendations

- Train workers about their risks of exposure to Zika virus.
- Discuss possibilities of reassignments or modified work practices with workers who are pregnant or may want to become pregnant or have partners who are pregnant or may want to become pregnant.
- Consider allowing flexibility in required travel to areas with active Zika transmission for concerned staff and flexibility for leave as needed.

## Protect outdoor workers

- Once a week, empty and scrub, turn over, cover, or throw out items that hold water where mosquitoes can lay eggs.
- Tightly cover water storage containers.
- Use larvicides to kill young mosquitoes in containers of water that cannot be emptied and will not be used for drinking.



## Wear insect repellent

- Use Environmental Protection Agency (EPA)-registered insect repellents.
  - » Use a repellent with DEET, picaridin, IR3535, or oil of lemon eucalyptus or para-menthane-diol, or 2-undecanone.
- Always follow the product label instructions.
- Do not spray repellent on the skin under clothing.
- If also using sunscreen, apply sunscreen before applying insect repellent.





# Create a barrier between you and mosquitoes

- Cover up exposed skin!
  - » Wear long-sleeved shirts and long pants (beware of heat stress)
- Treat clothing and gear
  - » Use permethrin\* to treat clothing and gear or buy pre-treated items.
  - » See product information to learn how long the protection will last.
  - » Do not use permethrin products directly on skin.

\* Permethrin is not effective in Puerto Rico.



## Keep mosquitoes outside

- Here's what you can do to control mosquitoes outside your hotel or work area.
  - » Use window or door screens.
  - » Use air conditioning when possible.
  - » Do not leave doors propped open.
  - » If you have mosquitoes inside, use an indoor fogger or insect spray



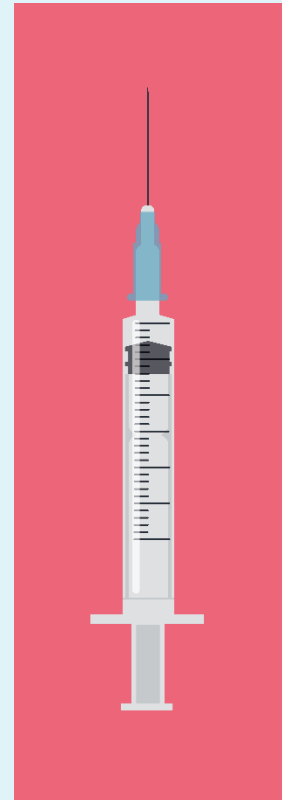
## Protect mosquito control workers

- Follow the same precautions recommended for general outdoor workers for protection against mosquito bites.
- May need additional protective clothing and enhanced skin protection.
- Workers who mix, load, apply, or perform other tasks involving insecticides may need additional protection to prevent or reduce exposure to hazardous chemicals.



## Protect healthcare and laboratory workers

- Use Standard Precautions in healthcare settings
  - » Suspected or confirmed cases
- Follow Biosafety Level 2 (BSL-2) lab requirements
- Do NOT bend, recap, or remove contaminated needles or other contaminated sharps
- Report all needlesticks, lacerations, and other exposure incidents to supervisors ASAP

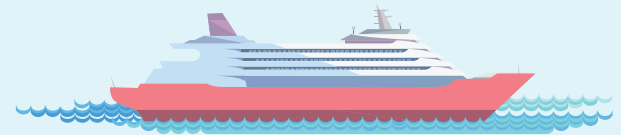
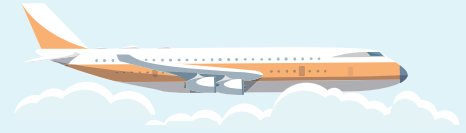


# Protect business travelers

If you choose to travel:

- » Strictly follow steps to prevent mosquito bites to protect yourself and your family.
- » Even if you do not feel sick, travelers from an area with Zika should take steps to prevent mosquito bites for 3 weeks so they do not spread Zika to uninfected mosquitoes.
- » Use condoms or do not have sex while traveling to areas with Zika.

[www.cdc.gov/zika/transmission/sexual-transmission](http://www.cdc.gov/zika/transmission/sexual-transmission)



# Do your homework before traveling

- See the latest travel notices at:

[wwwnc.cdc.gov/travel/page/zika-travel-information](http://wwwnc.cdc.gov/travel/page/zika-travel-information)



# Keep mosquitoes outside when traveling

- When traveling
  - » Stay in places with air conditioning and with window and door screens.
  - » Use a bed net if air conditioned or screened rooms are not available or if sleeping outdoors.



## Travel guidance for pregnant women

- If you are pregnant, do not travel to areas with Zika.
- Pregnant women should talk with their healthcare provider and consider postponing nonessential travel to countries in CDC's special travel considerations for Southeast Asia.
- If you must travel, talk to your doctor or other healthcare provider before your trip.





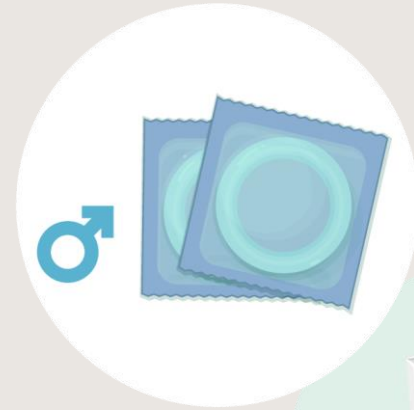
## About sexual transmission

- Zika can be passed through sex from a person who has Zika to his or her sex partners.
  - » Sex includes vaginal, anal, and oral sex and the sharing of sex toys.
  - » Zika can be passed through sex before symptoms start, during, and after symptoms end.
  - » It can be passed even if the infected person does not have symptoms at the time or never develops symptoms.
- Zika virus can stay in semen longer than in vaginal fluids, urine, and blood.



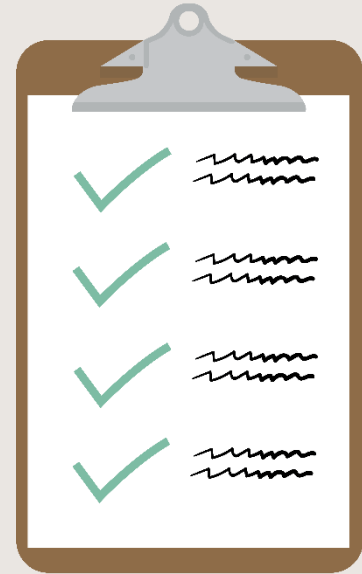
# Protect your partner

- Not having sex eliminates the risk of getting Zika from sex.
- Condoms can reduce the chance of getting Zika from sex.
  - » Includes male and female condoms.
  - » Condoms should be used from start to finish, every time during vaginal, anal, and oral sex and the sharing of sex toys.



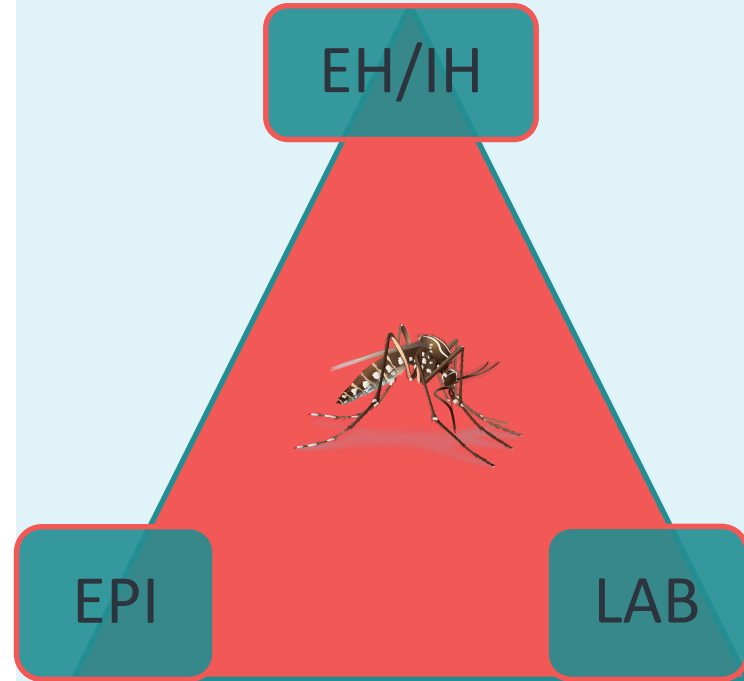
## Guidance for employers of workers with suspected or confirmed Zika

- Ensure that supervisors and all potentially exposed workers are aware of the symptoms of Zika.
- Train workers to seek medical evaluation if they develop symptoms of Zika.
- Ensure that workers receive prompt and appropriate medical evaluation and follow-up after a suspected exposure to Zika virus.
- Consider granting leave during the infectious period.



## Are you Prepared?

- Partnerships
- Surveillance
- Risk Assessment
- Applicable laws
- Meteorological conditions
- Elevation
- Socioeconomic factors
- Travelers from ongoing transmission areas



<http://currents.plos.org/outbreaks/article/on-the-seasonal-occurrence-and-abundance-of-the-zika-virus-vector-mosquito-aedes-aegypti-in-the-contiguous-united-states/>

# Example federal workforce guidance

- Joint effort with DOL, OPM, EEOC
- Job hazard analysis template for federal agencies
  - » Adaptable to many types of federal agency operations and job tasks

The image shows a screenshot of a 'Zika Job Hazard Analysis' form template. The form is titled 'Zika Job Hazard Analysis' and includes a header for the agency name and office location. The main body of the form contains several sections: 'Applies to' (Operations and activities in CDC-defined Zika transmission areas), 'Brief Description' (Analysis and risk reduction for all tasks associated with agency operations and activities in areas designated by the CDC or other lead health agency as Zika-affected areas), 'Field activities potentially expose employees to contracting the disease through the bites of infected mosquitoes. Zika may cause a range of symptoms, from mild, transient effects (e.g., fever, rash, joint pain, red/pink eyes, muscle pain, headache) to more serious health outcomes (e.g., neurological disorders) in an infected individual. Infections in pregnant women are also associated with significant birth defects, including microcephaly and other neurocognitive problems. Zika can be transmitted between sexual partners and, as a result, infected workers may infect their susceptible partner(s).', 'Date analysis completed: [date]', 'NEW' and 'REVISED' checkboxes, 'Approved by: [signature/date]', 'Additional notes: Consult the CDC web site for the latest information on Zika transmission areas in the U.S.: [www.cdc.gov/zika/nthaus/maps-zika-us.html](http://www.cdc.gov/zika/nthaus/maps-zika-us.html)', 'As of [date], mosquitoes carrying Zika virus have caused/are causing human infections in the following areas: [insert current list of CDC-defined Zika transmission areas.]', 'Use zip codes as a screening tool to identify addresses that may fall within the defined Zika transmission area, and use judgment in assignment of work. Where appropriate, use remote communication tools to prevent unnecessary entry and exposure of employees in defined Zika transmission areas.', 'For more information, consult the OSHA/NIOSH interim guidance at: [www.osha.gov/zika](http://www.osha.gov/zika)', and a table with two columns: 'Potential Hazard Description' and 'Controls to Eliminate/Reduce Exposure'. The table contains one row with the following text: 'Operations and activities in areas outside of CDC-defined Zika transmission areas.' and 'No special precautions required however application of mosquito repellent containing EPA-registered active ingredients with demonstrated repellency, such as 50% DEET, or at least 20% Picaridin, or Oil of Lemon eucalyptus (OLE), or para-methane-diol (PMD) is recommended for outdoor inspection and outreach activities.' Below the table, there is a note: '[Examples of agency-specific work tasks or jobs that fall into this category:]'.

# WHAT CDC IS DOING

# What is CDC doing?

- Activated Emergency Operations Center (EOC) to level 1
- Providing on-the-ground support in areas with Zika
- Educating healthcare providers and the public about Zika
- Providing travel guidance
- Developing lab tests and providing labs with diagnostic tests
- Conducting a study to evaluate the persistence of Zika virus in blood, semen, vaginal fluids, and urine



# CDC is working with partners to

- Monitor and report cases.
- Conduct studies to learn more about the potential link between Zika and Guillain-Barré syndrome.
- Create action plans for state and local health officials to improve Zika preparedness.
- Publish and disseminate guidelines to inform testing and treatment of people with suspected or confirmed Zika.
- Working with partners to better understand the risk and spectrum of birth defects from Zika infection during pregnancy and risks for sexual transmission.





# CDC's response to Zika in South Florida

- CDC continues to work with Florida health officials to investigate new cases of locally transmitted Zika virus infection in Miami-Dade County, FL.
- CDC sent a CDC Emergency Response Team (CERT) with experts in Zika virus, pregnancy and birth defects, vector control, laboratory science, and risk communication to assist in the response.
- CDC's Atlanta, GA, and Fort Collins, CO, laboratories are testing specimens from pregnant women and are working with Florida on other possible support for Zika laboratory testing.

# The National Institute for Occupational Safety and Health (NIOSH)

Workplace Safety and Health Topics

Mosquito-Borne Diseases

West Nile Virus

**Zika Virus**

Insect Repellent Safety

Other Mosquito-Borne Diseases

Hazards to Outdoor Workers

*Physical Hazards*

Heat Stress

Cold Stress

Providing National and World L  
to Prevent Workplace Illnesses a

[NIOSH](#) > [Workplace Safety and Health Topics](#) > [Mosquito-Borne Diseases](#)

## Zika Virus



### Key Worker Resources

[OSHA/NIOSH Interim Guidance for Protecting Workers from Occupational Exposure to Zika Virus](#) ↗

[NIOSH Zika: Protecting Outdoor Workers](#) 📄

[NIOSH Zika: Protecting US Businesses and Business Travelers](#) 📄

[NIOSH Zika: Protecting Healthcare and Laboratory Workers](#) 📄

[Reminder about Preventing Sharps Injuries and the Zika Virus](#)

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

# CDC'S Response to Zika



For the most current information: [www.cdc.gov/zika](http://www.cdc.gov/zika)

[jshugart@cdc.gov](mailto:jshugart@cdc.gov)

404-498-2559

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention