

# Zika Virus

## Occupational Medicine Exposure Control Plan

### Background

The primary carrier of the Zika virus in the United States is the *Aedes* species of mosquito: *Aedes aegypti* and *Aedes albopictus*. Zika virus was first identified in a sentinel monkey in the Zika Forest, Uganda, in 1947.

Most Zika infections are mild or unapparent, but public health officials are concerned about the Zika virus's effects on fetal development, transmission through sexual contact, and establishment of the virus in the continental United States. To mitigate those concerns, Cornell Health Occupational Medicine has developed this plan to address various aspects of occupational exposure to the Zika virus.

### Transmission

Zika virus is usually transmitted through non-occupational exposure. The most common routes are mosquito bites and, to a much lesser extent, sexual contact and possibly blood transfusions. A woman infected with Zika can pass the virus on to her fetus.

Occupational exposure to Zika can occur through percutaneous injury (e.g. needle stick), non-intact skin or mucous membranes, or bites from experimentally infected mosquitoes.

### Signs and symptoms

The incubation period for Zika is 3-14 days.

Zika infections are usually mild and people are often asymptomatic. Only about 1 in 5 people develop symptoms, and hospitalization is rare. Symptoms usually last several days to 1 week. The most common symptoms are:

- Fever
- Rash
- Joint pains (arthralgia)
- Red eyes (conjunctivitis)

### Complications

Women infected with Zika virus while pregnant are at an increased risk of giving birth to children with birth defects, such as microcephaly.

Guillain-Barre syndrome—a rare condition in which the immune system attacks nerves, leading to tingling and muscle weakness and paralysis—has been reported in people with suspected Zika infections. This syndrome is typically temporary, but it may be life threatening and lead to persistent problems.

## Prevention

Cornell Environmental Health and Safety (EH&S) will provide biosafety training to researchers.

Anyone working with Zika should follow universal precautions. The risk of occupational transmission of the Zika virus can be minimized with the use of appropriate infection control practices and personal protective equipment (PPE). The suggestions below are generally applicable, though consultation with EH&S may provide alternative solutions:

- Follow universal precautions—for all human-derived materials or other potentially infectious material; as needed, use proper protection to include appropriate PPE such as lab coats, gloves and protective eyewear
- Follow BSL2 practices
- Use needleless or retractable needle systems
- Do not bend, break, or recap needles
- Dispose of sharps in puncture-resistant, leak-proof, specially marked containers
- Wash hands thoroughly
- Minimize aerosols

No vaccine or post-exposure prophylaxis is available at this time to those with an accidental exposure to Zika.

## Initial and Annual Medical Counseling

All staff whose work may bring them into contact with the Zika virus should schedule an appointment with Cornell Health Occupational Medicine. During that appointment, an occupational medicine provider will review:

- Personal medical history, including current health status, medications, allergies, and travel to Zika-endemic areas
- Current reproductive status and reproductive risks—Risks of exposure for women who are pregnant or expecting to be pregnant or men who are sexually active with women who are, or intend to become, pregnant
- Signs and symptoms of a Zika infection
- Diagnosis and treatment considerations
- Post-exposure measures
- Medical alert card, which should be shared with the treating medical provider. The card will have contact information for Cornell Health Occupational Medicine, Cornell Environmental Health and Safety, and the primary investigator

The above information will be reviewed annually during a follow-up appointment with Cornell Health Occupational Medicine.

## Exposure

In the event of an accidental exposure, perform first aid if needed, followed by washing, without harsh rubbing or scratching, the affected area with soap and lukewarm water for 15 minutes. The researcher should then report the exposure to Cornell Health Occupational Medicine, Cornell Environmental Health and Safety, and the primary investigator. An injury and illness report can be completed online at <http://ehs.cornell.edu>.

## Post-exposure Evaluation

The researcher should take the following steps after an occupational exposure to Zika virus:

- Monitor for infection signs and symptoms for 24 days
- Contact Cornell Health Occupational Medicine if signs or symptoms of Zika develop during the 24-day monitoring period

Sexual and mosquito precautions may be recommended during the 24-day monitoring period; in particular, limit travel to areas where *Aedes aegypti* and *Aedes albopictus* reside. If signs and symptoms suggestive of a Zika infection develop, Cornell Health Occupational Medicine will confer with an infectious disease specialist and the Tompkins County Health Department (TCHD) regarding possible treatment and testing.

## Treatment

Infection with the Zika virus is generally self-limiting. It is currently not treated with antiviral medications. Antibiotics are ineffective against Zika and all other viruses. If symptomatic, treatment may involve supportive care, such as rest, fluids, and use of analgesics and antipyretics (acetaminophen only).

Pregnant women are advised to consult with their obstetrician/gynecologist.

Occupational medicine staff will counsel the exposed staff member about testing options and sexual and mosquito precautions. Prevention of sexual transmission may entail abstinence; condom or barrier use for oral, anal and vaginal sex; and avoidance of unclean sex toys.

## Testing

Those with potential Zika virus exposure or with signs and symptoms of Zika virus illness should consider testing.

Zika can be detected in the blood during the first week of infection. Blood and urine testing in New York is done in conjunction with the TCHD under the direction of the NYS Department of Health.

The exposed individual's health care provider and/or Cornell Health Occupational Medicine must obtain approval from TCHD for testing. The healthcare provider will also need to provide the employee with a prescription for the lab tests and direct him/her to an approved laboratory for serum and urine tests. (Cayuga Medical Center is currently the only approved collection location in Tompkins County.)

Initial test results should be available within a few days; additional tests may be needed. Follow-up testing may be required three weeks after the initial sample.

## References

CDC. Interim Guidelines for Pregnant Women during a Zika Virus Outbreak—United States, 2016. Morbidity and Mortality Weekly Report. <https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6502e1.pdf>. Accessed February 2, 2017.

CDC Zika: The Basics of the Virus and How to Protect Against It. <http://www.cdc.gov/zika/pdfs/fs-zika-basics.pdf>

New York State Department of Health. Information on Zika Virus Testing (outside of New York City). [https://www.health.ny.gov/diseases/zika\\_virus/docs/testing\\_fact\\_sheet.pdf](https://www.health.ny.gov/diseases/zika_virus/docs/testing_fact_sheet.pdf). Accessed February 1, 2017.

NIOSH Zika: Protecting Healthcare and Laboratory Workers. [https://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/pdfs/zika\\_healthcareworker\\_factsheet.pdf](https://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/pdfs/zika_healthcareworker_factsheet.pdf)

OSHA Interim Guidance for Protecting Workers from Occupational Exposure to Zika Virus: <https://www.osha.gov/Publications/OSHA3855.pdf>

## Document History

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8February2017	Initial Document	E. Koppel, V. Hsiao, C. Smith, L. Schang, J. Turse