

Technical Data Bulletin

#240 – Zika Virus

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Background

The Zika virus is spread primarily through the *Aedes* species of mosquito. This is the same species of mosquito that spreads the [dengue](#) and [chikungunya](#) viruses. The mosquito bites an infected person and subsequently spreads the virus to other people by biting them. Transmission is also possible through contact with infected blood (transfusions) or body fluids (sexual transmission). There does not appear to be airborne transmission. There are current outbreaks of Zika virus in parts of South and Central America as well as the Caribbean. Zika virus transmission has also been confirmed in the continental United States. Dengue virus is widely found throughout the world's warmer climates.

Symptoms

The most common symptoms of Zika virus infection are fever, rash, joint pain, and conjunctivitis (red eyes). The illness is usually mild with symptoms lasting from two to seven days. Severe disease requiring hospitalization is uncommon. Pregnant women however, should be aware that infection with Zika virus can cause birth defects in unborn children – particularly microcephaly [Per the US Centers for Disease Control (CDC) a birth defect where a baby's head is smaller than expected compared to babies of the same sex and age.] Other problems have been detected among fetuses and infants infected with Zika virus before birth, such as defects of the eye, hearing deficits, and impaired growth.

Diagnosis

Consult your physician if you have traveled to an area with Zika infection and are showing signs and symptoms of infection. Suspected Zika virus infection can only be confirmed through blood or urine tests. Testing is recommended for people who may have been exposed to Zika and are exhibiting Zika symptoms. Pregnant women who may have been exposed to Zika through bodily fluids should be tested if either she or her partner are exhibiting Zika symptoms.

Treatment

As of this document date, there are no Zika specific treatment recommendations. The US CDC recommends rest, maintaining hydration and using acetaminophen to relieve fever and pain. CDC recommends not using aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen until dengue can be ruled out to reduce the risk of bleeding.

Prevention

Aedes mosquitos bite most aggressively during the daytime. Mosquito avoidance practices should be practiced at all times including when at work. Currently there is no vaccine for Zika virus. The US OSHA, CDC and WHO suggest a number of preventive measures which include:

- If traveling internationally, monitor the US CDC and WHO websites (listed below) to determine if Zika virus is present in areas of intended travel. US CDC travel notices can change quickly and local areas may declare their own emergencies, so check the website often for travel and information updates.
- Eliminate or avoid obvious mosquito breeding areas (e.g. standing, stagnant pools of water) where you work or live.
- Use window and door screens to prevent mosquito entry into buildings and homes or stay in air-conditioned facilities with the windows closed,
- Reduce the risk of mosquito bites through use of insect repellents and long-sleeved, light colored clothing. In their *Interim Guidance for Protecting Workers from Occupational Exposure to Zika Virus*, OSHA recommends that outdoor workers use an insect replant containing and EPA-registered active ingredient on skin that is not covered by clothing. If possible use clothing treatments containing permethrin. Permethrin is a synthetic insect repellent which has been commonly used in the past to help control insect pests. It appears to have low mammalian toxicity. Permethrin is intended for application on clothing or other gear and

should not be applied directly to the skin. Always follow manufacturer's recommendations for proper use and application of insect repellents

- Pregnant women should NOT travel to areas where Zika virus has been found. If travel to one of these areas is unavoidable, they should consult first with their physician prior to travel and practice strict mosquito avoidance and/or take precautions to prevent mosquito bites once in those areas.
- Protect yourself from blood and bodily fluids if you or your partner lives in or has traveled to an area where Zika virus is prevalent

It is just as important that infected persons avoid mosquitos to help disrupt the transmission cycle.

Please refer to the websites below, from OSHA, the US CDC and WHO for the most current information and prevention recommendations for these viruses.

3M Solutions – Insect Repellent for Personal Application

There are many insect repellents available on the market that may be of use. 3M offers Ultrathon™ Insect Repellent containing DEET in a time-release formulation that is slower to evaporate and provides protection after other products have dissipated. DEET is an active repellent ingredient specifically recommended by the US OSHA and the CDC for use against the *Aedes* mosquito. While all of the EPA-registered active ingredients have shown repellency, research has suggested that products containing DEET may provide longer lasting protection. Ultrathon™ is a US EPA registered insect repellent. Always follow the manufacturer's instructions, US EPA and US CDC recommendations for proper application of insect repellent.

Note: 3M has also sold an Ultrathon™ version for clothing and gear application. Users should ensure they use the proper Ultrathon™ for either personal or clothing application.

3M Solution - Clothing

In the United States, the US CDC recommends treating clothing with permethrin spray as one of several methods for reducing the chances of mosquito bites. Other countries may have different recommendations or prohibitions. In some instances, utilizing disposable coveralls treated with permethrin may be preferable to treating personal clothing as this eliminates laundering complications. Coveralls may also provide more complete body coverage.

3M coverall models 4500, 4515 and 4520 are suitable for field treatment with permethrin and are more breathable and often more comfortable in warm climates than typical

laminate coveralls. Note: that no testing has been conducted to determine how these treatments may affect the fabric's resistance to degradation or permeation by other chemicals. Users who also need chemical protection must perform their own assessment based on their specific repellent treatment, chemical hazards and applicable regulations. The impact of heat stress should also be considered whenever selecting garments for warm climates.

As noted above, all repellent applications must be in accordance with the repellent's label instructions.

For more information, refer to guidelines published by the US CDC or other authorities having jurisdiction.

Resources

Information from OSHA, the CDC and WHO:

<http://www.cdc.gov/zika/>

<http://www.who.int/mediacentre/factsheets/zika/en/>

<http://www.cdc.gov/Chikungunya/index.html>

<http://www.cdc.gov/dengue/>

http://www.cdc.gov/zika/pdfs/protect_yourself_from_mosquito_bites.pdf

www.osha.gov/zika

US EPA Insect Repellent Information:

<http://www.epa.gov/insect-repellents/using-insect-repellents-safely-and-effectively>

3M Ultrathon™ Insect Repellent:

http://solutions.3m.com/wps/portal/3M/en_US/Ultrathon/Products/

3M Protective Apparel Solutions:

http://solutions.3m.com/wps/portal/3M/en_US/3M-PPE-Safety-Solutions/Personal-Protective-Equipment/Products/Product-Catalog/~/_/Protective-Apparel?N=5022681+8690968+3294529207&rt=r3

