Zika Virus

http://www.cdc.gov/zika/about/overview.html

Current Assessment:
First responders should continue to avoid mosquito breeding around the worksite, eliminating mosquito bites while at home or work, and to prevent and manage contact with potentially infectious body fluids. Zika is now known to be transmitted not only by mosquitos and from mothers to babies during pregnancy or at birth, but also through sexual transmission and needle stick or other exposure to infectious bodily fluids. Transmissions will occur even if the infected person has no symptoms. The incubation period (the time from exposure to infection) appears to be a few days to a week. The infection period (and infectious period) through blood transmission lasts for one to two weeks, semen appearing to carry the virus the longest, lasting up to several months. Any sexual contact with those with true exposure to Zika should abstain from sex or practice safer sex with condoms used correctly every time for up to 6 months, based on gender. If a partner is pregnant or may become pregnant, the time frame is throughout the entire pregnancy,

There are currently three scenarios in which the Zika virus is spreading: areas where local mosquito transmission is occurring, areas that have the potential for having local mosquito transmission (have Aedes mosquitos & have or have had Zika infected people), and those areas where Zika transmission is very unlikely although travel-related infections may occur. The only states that do not have travel-related cases are Alaska, Idaho, Wyoming, and South Dakota. https://www.osha.gov/zika/index.html

This outbreak is more widespread than previous Zika outbreaks and there are many unanswered questions including whether other species of mosquitos can carry and transmit the virus, are there other methods of transmission not yet identified, what body fluids/tissues are infectious and/or able to transmit the virus. Research continues into these questions and more. Each department or agency should have a process for keeping up-to-date with the latest pertinent information.

Specifically for First Responders:
Much of the information for First Responders is not new, but does include reminders and resources for avoiding mosquito breeding around the worksite, eliminating mosquito bites while at home or work, and for preventing and managing contact with potentially infectious body fluids. For easy reference, the info is divided into sections for those in areas where local mosquito transmission is occurring, areas that have the potential for having local mosquito transmission (have Aedes mosquitos & have or have had Zika infected people), and those areas where Zika transmission is very unlikely although travel-related infections may occur. The only states that do not have travel-related cases are Alaska, Idaho, Wyoming, and South Dakota. https://www.osha.gov/zika/index.html

There is also a case in Utah that is being investigated because public health authorities are unsure how the transmission from one person to the other occurred. The older gentlemen, who died, contracted Zika while traveling; his caregiver became infected with the virus but had not traveled and did not have sexual contact with anyone who had traveled. Experts do not believe that there was mosquito transmission since the Aedes aegypti mosquito does not inhabit Salt Lake County and no else who has been tested has been positive for Zika. Investigation continues.

There are currently three different areas in which Zika transmission can occur:

1. **Local mosquito transmission unlikely although individuals may live or visit the area**
   - Consider reviewing policies & procedures for using appropriate PPE, based on Standard Precautions or Body Substance Isolation with all employees that may encounter blood or body fluids during work. http://www.cdc.gov/niosh/docs/wp-solutions/2010-139/pdfs/2010-139.pdf
   - Assure an adequate amount of appropriate PPE per CDC and OSHA recommendations & regulations.
   - Assure appropriate training in immediate management & reporting of exposure to potentially infectious blood and body fluids. This should include follow up with the health care system to identify the likelihood of Zika infection added to the other known BBPs. http://www.cdc.gov/niosh/topics/bbp/default.html
   - First Responders should know what the signs and symptoms of Zika infection are while still recognizing that 80% of those infected will not have any symptoms.
   - First Responders should ask about travel history or sexual contact with someone who did travel when evaluating patients with any of the signs or symptoms associated with Zika. It is important to keep in mind that other mosquito-vectored illnesses like Dengue and Chikungunya will have the same presentation and travel history. Co-infection with more than one of these diseases is occurring. Assure that any information collected is input into the PCR/ePCR and reported to the receiving hospital's personnel.
   - In the event of potential exposure (needlestick or other sharps injury, contact without appropriate barriers to body fluids known to carry Zika), a consult with a health care provider well-versed with the Zika virus should be provided. This is even more important if the 1st Responder is/might become pregnant or is in a sexual relationship with someone who is.

2. **Currently NO local mosquito transmission but Aedes mosquitos typically in the area** http://www.cdc.gov/zika/vector/index.html
   - All the above plus –
   - Seek partnership with local public health authorities to elicit support and to have a quick response resource to answer specific questions and to provide testing if needed.
   - Develop/review plans to prevent mosquito breeding in areas around stations, barracks, or other work areas by removing or emptying containers with standing water. Daily inspection of these areas will prevent mosquito larva development, particularly after rain or watering. For Aedes mosquitos, only a teaspoon or bottle cap full of water is needed to breed hundreds of mosquitos. For water that cannot be emptied, approved larvacides can be used. Ideally, this should be done in teams to prevent overlooking items. Plan to keep doors closed and screens in place and kept intact. There should be direction on who to notify and when to call for mosquito control. http://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/pdfs/osha-niosh_fs-3855_zika_virus_04-2016.pdf

- Develop/review procedures designed to decrease workers' likelihood of being bitten by mosquitos. This may include use of long pants, long sleeves and other body covering(s). Remind workers that Aedes mosquitos can bite at any time, day or night. https://www.osha.gov/Publications/OSHA3880.pdf
- Develop a list of EPA approved insect repellent(s) capable of killing Aedes mosquitos, for spraying clothes, and how to apply the repellent(s) appropriately. Consider how large amounts can be bought should transmission become localized. https://www.epa.gov/insect-repellents/find-insect-repellent-right-you
- Consider discussing the special handling of pregnant workers since the CDC will recommend that pregnant women not visit or live in the area.

3. **Local mosquito transmission occurring**
   - All the above plus –
   - Keep in contact with local public health authorities.
   - Implement policies, procedures and plans developed above.
   - Provide current information regarding specific areas where transmission is occurring.
   - Consider monitoring of policy and procedure adherence.
   - Remind crews to appropriately notify and document the possibility of Zika infection.

Background & Details:
The Zika outbreak continues to spread in other areas outside the US, in US Territories, and within the United States, although other than the area identified above, cases within the US are travel-related or sexually transmitted.

Although the US hoped to avoid an outbreak, it was thought likely to occur, particularly in places with populations of the mosquitos, typically Aedes aegypti that carry the virus, http://www.cdc.gov/zika/vector/index.html **AND** a population of people who have contracted Zika through travel to areas with locally occurring transmission by mosquitos.

Florida and Texas were considered the most likely places for this to first strike and South Florida has the index cases, with the Local & State Health Department and the CDC on the ground providing investigation and management. It is expected that the number of cases and areas with Zika infection in the US will expand over time where Aedes mosquitos live, although the hope is that each outbreak will be limited due to rapid identification & mitigation of the mosquitos & people's exposure to them. http://www.cdc.gov/zika/geo/index.html

In Miami, two cases of symptomatic Zika infection, without travel to a known area of Zika transmission or sex with someone who had traveled, led to surveillance and testing in the neighborhood which has resulted in more cases being identified. New cases have been announced each day. It is very difficult to know exactly how many people are infected since 80% of people that are infected with the Zika virus will NOT have symptoms of the illness. Door to door testing, education about Zika, as well as education & tools for mosquito control are ongoing. Most of these cases are a result of that contact and testing.

The Zika virus has been transmitted by local mosquitos to humans in the Miami area (an area just to the north of downtown Miami known as Wynwood). The CDC has issued Travel Advisories for the area, particularly for pregnant women or those that may become pregnant, and some countries and states have cautioned travelers to avoid the area. The first date of concern is June 15, 2016 and is ongoing for those that might have been in the area since that time. This is the first known mosquito-vectored outbreak of Zika within the Continental United States. http://www.cdc.gov/zika/intheus/what-to-do.html

Transmission:
Transmission of the Zika virus occurs in several different ways, with the first listed being the most common and responsible for the majority of outbreaks.

1. **Mosquito spread**. An infected person is bit by a mosquito, the mosquito then passes it along to another person. The more people that are infected in an area, the more likely there is to be greater spread. The same holds true if there are large numbers of mosquitos in the area of infected people.
2. **Sexual transmission**. Although more commonly given by the male to partners, female to partner transmission has also occurred. At this time, all types of activity involving male or female sexual fluid are considered potentially infectious.
3. **Mother to baby during the pregnancy or around the time of birth**. There is no evidence that Zika can be spread through breastfeeding but women should talk to their health care providers for up-to-date information.
4. **Blood product transfusion/Tissue Transplant**. Testing of blood/tissue donations will be done in any area/region with known mosquito transmission. Those with known exposure or infection will be excluded from donation.
5. **Needle stick or other exposure to infectious body fluids known to carry the Zika virus**. Guidelines have been written for health care workers (including EMS and other First Responders) with extra precautions and recommendations for exceptional PPE for those involved with large amounts of potentially infected body fluids (i.e. those attending the deliveries of babies and involved in the mother's or infant's care).
6. **Laboratory exposure** while working with Zika virus in research or testing of blood/body fluids or other tissue.

Special instructions are being given to those that are pregnant or may become so to avoid mosquito bites and discuss a plan of action with their health care provider.
http://www.cdc.gov/zika/pregnancy/question-answers.html

Special guidelines are in place for those health care practitioners caring for these patients. Some patients who are pregnant or become pregnant while infected with the Zika virus will transmit the virus to their fetuses. Some of these pregnancies may end prematurely due to brain-related defects or babies may be born with a wide range of brain or nervous tissues anomalies.

Although more research is needed to prove causation, **in rare cases**, Zika in children (not related to pregnancy or childbirth) and adults may result in other types of syndromes such as Gillian Barre (an auto immune response that leads to a level of weakness and paralysis); other nervous system related conditions may also be seen. **Deaths are even rarer** (there have been only two deaths in the US associated with Zika) and have been associated with very high viral

counts. Children and adults that become very sick with Zika may have a history of previous Dengue infection (another mosquito transmitted illness). Investigation in this continues. **Signs and symptoms of Zika**, when present, are most commonly fever (may be mild), rash, joint pain and/or conjunctivitis; there may also be headache or muscle pain. http://www.cdc.gov/zika/symptoms/index.html

Most people who are infected will NOT HAVE ANY SYMPTOMS but will be able to spread the infection to others. The incubation period (the time from exposure to infection) appears to be a few days to a week. The infection (and infectious period) lasts for one to two weeks except in certain body fluids, with semen appearing to be the longest, lasting up to several months); nervous center tissue may also have a prolonged infectious period. Those with true exposure to Zika and symptoms of infection should avoid sex or practice safer sex for six (6) months; if exposed but without any symptoms ever, abstinence or safer sex with condoms used correctly every time, should be practiced for two (2) months. This is essential when one of the individuals is pregnant or may become pregnant. Women who are pregnant or may become pregnant should avoid areas where there is mosquito transmission of the virus or avoid mosquito bites. http://www.cdc.gov/zika/transmission/index.html

This document is provided by FirstWatch as a service to prehospital and public health providers. This article is a compilation of information from the CDC, WHO, Florida State Department of Health and Miami-Dade Heath Department. It is copyrighted, but may be freely copied and distributed as long as it remains intact. www.firstwatch.net