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Infection Control: Zika Virus

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After reading the newsletter, the home health aide should be able to:

1. Describe the history and spread of the Zika virus.
2. Discuss transmission, signs, and treatment of Zika virus infection.
3. Discuss complications of Zika virus and infection control measures.

Zika virus recently came to major public attention in 2015, when an outbreak of the disease occurred in Brazil. After a slow spread across other continents, this was Zika's first appearance in the Americas. This virus is a member of the viral family that also includes yellow fever virus, Dengue virus and West Nile virus.

This newsletter will discuss the Zika virus, including its history, transmission, signs of infection, and treatment methods. Complications associated with Zika virus will also be covered, as well as preventive measures.

The History of Zika Virus

Zika virus was first identified in 1947, in monkeys living in the Ziika forest in Uganda. The first human Zika infection was confirmed in 1952. There were very few cases after that until 2007, when an outbreak occurred on a small island in the Philippine Sea. Since then, 75 countries have reported Zika virus infections in humans. A large outbreak in Brazil occurred in 2015, after which an increase in birth defects was noted. Due to its rapid spread and increase in birth defects, the World Health Organization (WHO) declared Zika an international public health emergency in February, 2016.

Since Zika's appearance in Brazil, the virus has made its way into the US. Zika infection has been present in every US state, but in the vast

majority of cases, these have occurred as a result of infected travelers bringing the virus with them from another country. Only two states, Texas and Florida, have reported locally-transmitted Zika virus infections. The first of these occurred in Texas in early 2016, when a female became infected by her male sexual partner, who contracted the virus in another country. The first local transmission of the virus by mosquitoes in the US occurred in July, 2016 in a small area of Miami, FL. As of January 18, 2017, there have been 4,900 cases of Zika infection reported in the US, with 217 of these being locally acquired mosquito-borne cases. The WHO has recently declared that the Zika outbreak is no longer a public health emergency, but remains a "significant enduring public health challenge requiring intense action."



Transmission and Disease Process

Zika virus is most commonly transmitted by mosquitoes. If the mosquito feeds from a person infected with Zika, the virus can reproduce in the mosquito and be passed on to other persons when the mosquito feeds from them.



The virus can also be transmitted to sexual partners by infected males and females, even if no symptoms are present. Sexual transmission has

been documented from males to females, females to males and males to males. The virus remains active in semen longer than in other body fluids, possibly for six months. Two cases resulting from blood transfusion have also been reported in Brazil. There is no evidence that Zika virus can be transmitted by casual contact with infected persons, or to humans from pets or other animals.

A pregnant woman may also transmit the infection to her unborn baby. Developing fetuses are at greatest risk for the effects of Zika infection, which may include brain damage, small head size (microcephaly), blindness and joint deformities. Poor fetal growth, placental problems and fetal death have also been reported. The US Centers for Disease Control and Prevention (CDC) recommend that pregnant women avoid travel to areas with Zika. There is no evidence that Zika is passed from mother to infant by breastfeeding. The WHO and CDC recommend breastfeeding for women who travel to Zika-prone areas, as well as those who have current Zika infection.

When Zika infection occurs, 80% of people have no symptoms. For the remaining 20%, symptoms usually begin 3 to 14 days after exposure. Most people have only mild symptoms, including fever, headache, rash, eye inflammation (conjunctivitis) and joint or muscle pain, lasting several days to a week. Rarely, Guillain-Barre syndrome may also occur, which is a neurologic disorder causing temporary muscle weakness and paralysis. Zika infection is usually a mild disorder, and serious illness or the need for hospitalization are rare in children and adults who contract Zika virus.

Diagnosis of Zika infection can be confirmed by a blood or urine test. Zika infection often occurs without symptoms, and the fetal effects can be very serious. Therefore, the CDC recommends testing for all pregnant women who have been in an area with Zika, or whose sexual partners have been in an area with Zika.

Because Zika is a viral disease, there is no specific treatment or cure for it. Like most viruses, it must simply run its course. Viral symptoms are managed with acetaminophen for reducing fever and discomfort, increasing oral fluids to prevent dehydration, and extra rest. Aspirin and ibuprofen should not be used until Dengue fever has been ruled out, since hemorrhage may occur if the illness is caused by the Dengue virus.



The virus remains infective in the blood for about a week, therefore people with Zika infection should take precautions to prevent mosquito bites, which can spread the infection to others. They should also take precautions to avoid sexual transmission for six months, such as abstaining from sex or consistently using a condom. Once a person has had Zika infection, he or she is normally immune from future Zika infections.

Prevention of Zika Infection

There is currently no vaccine to prevent Zika infection. The best way to prevent the illness is to avoid mosquito bites and reduce mosquito populations, by taking the following precautions:



- use an insect repellent registered with the Environmental Protection Agency, such as DEET or picaridin; apply to clothing and areas of exposed skin, according to label directions
- wear light-colored long pants and long-sleeved shirt, shoes and socks for maximum protection
- drain water from any collection sites, such as plant pots/saucers and swimming pool covers
- fill in holes in the ground and correct drainage problems that cause water to pool
- remove and discard old tires, debris, leaves or other items that collect water
- change water in bird baths and outside pet dishes at least twice a week
- keep screens over rain barrels or other water-collection devices
- keep rain gutters clear of debris to avoid standing water
- drill holes in the bottom of items that collect water, such as recycling bins or children's swings
- mow long grass, tall weeds, and other settings that provide adult mosquitoes a place to live
- make sure window and door screens are properly installed and in good repair, without holes
- take notice of possible hazards in the community, such as stagnant drainage ditches on public roadways, and report them to the local health department.

While the risk of serious illness due to Zika virus is generally low, an infection contracted during pregnancy is associated with serious birth defects, and even death, in the fetus and newborn. A sensible approach to mosquito control, bite prevention and community surveillance helps to reduce this risk.



Infection Control: Zika Virus

NAME: _____ DATE: _____

Directions: Place the letter of the one best answer in the space provided.

- _____ 1. The Zika virus is most closely related to which of the following viruses?
 - A. rubella
 - B. West Nile
 - C. influenza
 - D. Ebola

- _____ 2. Zika infection has been present in every US state.
 - A. True
 - B. False

- _____ 3. Which of the following is true regarding cases of Zika infection reported in the US?
 - A. the majority have been locally-transmitted by mosquitoes
 - B. the majority have been travel-related, brought from another country
 - C. there are equal numbers of locally-transmitted and travel-related cases
 - D. none of the above, there have been no cases yet reported in the US

- _____ 4. Transmission of Zika virus to humans has been known to occur through all of the following EXCEPT:
 - A. blood transfusion
 - B. sexual contact
 - C. breastfeeding
 - D. mosquito bites

- _____ 5. Most people who become infected with Zika virus experience which of the following?
 - A. no signs of illness
 - B. mild symptoms
 - C. severe illness requiring hospitalization
 - D. Guillain-Barre syndrome

- _____ 6. Which of the following groups is at greatest risk for the harmful effects of Zika virus?
- A. developing fetuses
 - B. persons with chronic illness
 - C. young infants
 - D. elderly persons
- _____ 7. The CDC recommends Zika testing for all:
- A. adult males and females who have been in an area with Zika
 - B. women of childbearing age who have been in an area with Zika
 - C. pregnant women
 - D. pregnant women who have been in an area with Zika
- _____ 8. Antibiotics are useful in the treatment of Zika infection, as they can eliminate the virus and relieve symptoms.
- A. True
 - B. False
- _____ 9. The most effective way to reduce the possibility of Zika infection is by:
- A. thorough and frequent hand washing
 - B. taking the vaccine
 - C. avoiding mosquito bites
 - D. avoiding people who have symptoms of infection
- _____ 10. Risk of Zika transmission by mosquitoes can be reduced by all of the following EXCEPT:
- A. wear long pants and long sleeves
 - B. install and repair window and door screens properly
 - C. apply an insect repellent containing DEET according to label directions
 - D. wear dark-colored clothing

