Overview

The Zika virus was first discovered in 1947 in Africa but was not considered a major threat until it spread to Brazil in May of 2015. Because people in the Americas lack immunity to Zika, it has spread to over 20 countries and is considered a pandemic. The two mosquitoes that spread Zika are the yellow fever mosquito, *Aedes aegypti*, and the Asian tiger mosquito, *A. albopictus*. Both mosquitoes are exotic species in North America, meaning they are not native to the Americas and have been accidentally introduced and now thrive in the subtropical regions of the US. The yellow fever mosquito has been here for hundreds of years while *A. albopictus* arrived just a few years ago, but it too is well established in Texas.

Zika virus is most commonly transmitted to humans through the bite of an infectious mosquito. Two mosquito species that transmit Zika are common in Texas. Zika has been linked to an increase in babies born with microcephaly, a rare neurological condition that can cause babies to have small skulls and incomplete brain development, sometime resulting in death. As a result, the CDC is urging pregnant women to avoid traveling to areas with outbreaks.

According to the World Health Organization, 80% of people infected with Zika have no symptoms and those who do, suffer from a low grade fever, rash, joint pain, headache, and pink eye. At this time, there are no treatments or vaccines for Zika.

State Exceptional Item

The 84th session of the Texas Legislature appropriated to Texas A&M AgriLife Research an Exceptional Item for Controlling Exotic and Invasive Insect-Transmitted Pathogens. This uniquely positions Texas A&M AgriLife Research to develop solutions and management strategies for an outbreak like this one. Funds will be used to investigate each of the three legs of the “disease triangle.” By understanding the entire pathogen life cycle, it makes it easier to focus on which point to disrupt. AgriLife Research recently hired two world class mosquito experts to join our team of biologists to work on Zika and other potential threats. Following the 2012 outbreak of West Nile Virus in Texas, AgriLife formed the West Nile Virus Task Force produced the “Texas Mosquito Management” guidelines. This manual is currently being updated to include Zika specific information.
Solutions

To date, there has not been a case of locally acquired Zika transmitted by mosquitoes reported in Texas or elsewhere in the U.S. However, this will likely change as we enter warmer months and mosquitoes become more active.

Immediate actions:

1. Eliminate mosquito habitat: Stagnant pools of water, trash with soft drink cans, a flower vase at a cemetery, a dripping outdoor faucet, a leaking sewer pipe and discarded tires are examples.

2. Institute mosquito control programs: Encourage municipal and regional government units to engage in mosquito surveillance and trapping programs and initiate mosquito control when traps and testing warrant such action. Monitoring for insecticide resistance is a critical part of mosquito management.

3. Protect yourself: Use repellents on exposed areas and wear light-colored clothing covering exposed parts of the body whenever outdoors.

Long term solutions:

1. Develop a vaccine against Zika that would help minimize the spread of the virus. There are no other animal hosts for Zika in North America. Only primates (rhesus monkeys) and humans can be infected by Zika.

2. Genetically modify mosquitoes to prevent them from acquiring Zika or allowing the virus to grow in the mosquito, reducing the wild populations below a threshold needed to sustain transmission.

3. Develop new methods of vector control (insecticides, repellents, biological control, improved trapping and testing procedures).