

## Safety Memorandum 16-01

### **Mosquito-Borne Infectious Disease Prevention and Response Plan**

#### **Purpose**

This document is to serve as a summary of information about, but not limited, to infectious mosquito-borne illnesses such as Malaria, West Nile and Zika viruses and how effective measures can be implemented for prevention and response situations on college property.

#### **General Background**

The warm and humid climates of Florida are an ideal habitat for many tropical insects which have been known to act as vectors (transporters) for the transmission of human diseases. While diseases such as Malaria, Yellow Fever, and Dengue Fever are well documented throughout history in South America, Africa, and Southeast Asia, the emergence of West Nile, Zika and recently Malaria viruses within the United States has prompted national concern over the potential for outbreaks to occur in North America. Vaccines are available however some vaccines can be limited, unavailable, or in the early stages of development. It should be noted that all mosquito borne disease share a common thread: They are transmitted from person-to-person through mosquitoes.

When a mosquito of a certain species bites a person who has been exposed to a pathogen, such as the Zika virus or the parasite which causes Malaria, the virus/parasite begins to develop and spread within the mosquito. Within 7-10 days the pathogen will be at infectious levels within the mosquito and can be passed on to people when the mosquito feeds again. Additionally, the eggs (and eventual larvae) of the mosquito will also contain the pathogen, and once hatched and fully developed as adults they too will be able to spread the pathogen to others when feeding. The CDC notes that following an infective bite from a mosquito the average incubation period from the bite to when the symptoms begin to show for Malaria is 7 to 30 days, Zika 3 to 14 days, and West Nile Virus 2 to 15 days.

Control of mosquito populations and exposure to mosquitoes remains the most effective way to prevent transmission of mosquito-borne diseases in humans and large-scale outbreaks in the community, maintaining the health and safety of people on College property.

## **Mosquitoes**

There are over 3,000 different species of mosquitoes in the world with roughly 176 recognized in the United States. Not all mosquitoes have the ability to transmit the pathogens which cause human disease. The two species most associated with transmission of mosquito-borne illnesses are the Yellow Fever Mosquito (*Aedes aegypti*) and the Asian Tiger Mosquito (*Aedes albopictus*), which are both found throughout parts of the Eastern, Southeastern and Central parts of the United States. These mosquitoes are more active at dawn/dusk, can breed in very small amounts of water, adults are commonly found indoors, and are known to remain within one block of their breeding area. While more active at dawn/dusk, these species prefer to bite during the day, so assumptions of being "safe" after dawn and before dusk should be avoided. Treatment for these species is most effective by the use of adulticides (pesticides designed to target and kill adult mosquitoes) which are sprayed at ground level, preferably by hand.

## **Control and Prevention**

Information from the Centers for Disease Control (CDC), the U.S. Environmental Protection Agency (U.S. EPA), and the American Mosquito Control Association was used to develop the following recommendations for control and prevention of potential outbreaks of mosquito-borne illnesses on College property:

1. The most significant way to control mosquito-borne diseases is to control standing water, which is a breeding site for mosquitoes. Facilities and Security staff at each campus/center should monitor and check all outside spaces for any containers or materials which could or do contain standing water, and remove or drain all such containers.

South Campus Fire Academy and North Campus Police Academy staff, which routinely use large tractor wheels for training, should drill holes in the tires to allow them to drain and not accumulate water, routinely monitor them (every 2-3 days) for water, and drain the water when found.

Daycare/preschool staff at each location, should monitor outdoor playground equipment areas daily for standing water, and drain any when discovered.

Groundskeeping staff should keep all vegetation well-trimmed and grass shortened, especially around bodies of water, to reduce mosquito resting spots.

2. All faculty, students, and staff should be encouraged to cover exposed skin when outside for extended periods by using long-sleeved shirts and pants, and light-colored/loose-fitting clothing. For exposed skin the use of an EPA approved

mosquito repellent (DEET® at 30% or Oil of Lemon-Eucalyptus) is recommended. For staff in trades or students in classes that involve outdoor activities, permethrin spray can be applied to clothing for added protection. Do not apply permethrin directly to the skin.

Parents of young children enrolled in daycare/preschool services should be asked to provide proper clothing to cover their child and mosquito repellent for outside activities. Daycare/preschool staff should evaluate daily conditions and forego outside activities if mosquito levels in outdoor playground areas appear high. Children under the age of three in daycare/preschool programs should not use Oil of Lemon-Eucalyptus, and no repellents of any kind should be used on children younger than 2-months.

3. Dissemination of information about mosquito-borne illnesses and protection from mosquitoes should be done at the College level. A College-wide email announcement should be developed and disseminated each year during the first week of May, informing staff, faculty, and students of potential illnesses that may be transmitted by mosquitoes, the need to report standing water locations on campus, as well as links to further information from the CDC, Florida Department of Health (FDOH), and U.S. EPA on proper methods for protecting themselves from mosquitoes. Informational flyers from the FDOH/CDC should be made available and posted on buildings (main entranceways, bathrooms, Student Life Center/Café, and Library) on each campus/center to enhance public awareness during mosquito season (roughly June-October). This information should also be made available through the College's website.
4. The Campus/Center maintenance supervisor should inquire with current vendors that provide other nuisance services on College campuses/centers regarding the development of a mosquito treatment plan, which can be amended into the College's current contract and implemented when necessary. The Florida Department of Agriculture and Consumer Services requires a certification for the application of pesticides, and if current contractors are not certified, investigations should be done by the Campus/Center maintenance supervisor to engage an outside company who is certified to develop such a plan, should it be necessary in the future.

### **Campus Outbreak Response**

Local cases of mosquito-borne illnesses are monitored by FDOH and CDC officials, and guidance disseminated from these entities should be followed by all staff, faculty, and students of the College. Additionally, the Safety Department recommends the following measures be taken to heighten College safety should a mosquito borne illness be documented at or near a campus/center.

1. Campus Facilities and Security at each campus/center should conduct rounding and surveillance activities for standing water locations on campus and ensure all locations of standing water are removed or remedied immediately. Staff participating in these activities should take every precaution via dress and repellent use to ensure their safety when responding.
2. Procurement and distribution of U.S. EPA approved mosquito repellent should be done for College staff at the campus/center where the case originated from, to include but not be limited to: Grounds Keeping, Facilities, Maintenance, Security, and any other departments with a justified need due to outside activities and enhanced exposure risk.
3. All business, academic and athletic activities which can be amended for inside-only participation on the campus/center should be done so, to reduce the risk of additional exposures. Daycare/preschool staff and the children should also remain indoors as much as possible for all activities, until further notified.
4. All staff, faculty, and students of the College should be notified of the situation through appropriate channels of communication, as decided by Executive Leadership. Reiteration and re-delivery of materials from "Prevention" Section should also accompany this message, along with information about the specific illness being monitored.
5. The Executive Director of Risk Management and other necessary administrators should communicate with DOH/CDC health officials to determine whether mosquito spraying is warranted on other campuses, outside of those identified with cases of the illness being monitored.
6. The use of adulticides to control adult mosquitoes may be recommended by the DOH/CDC, and the College should follow all guidance received from the proper authorities regarding mosquito control measures. If recommended and not facilitated by Local/State/Federal support services, the Campus/Center maintenance supervisor should activate the mosquito control plan agreement (if previously established from "Prevention", Section) or engage in the contractual assignment of pesticide professionals to spray U.S. EPA listed adulticides upon high-risk areas on the campus, as well as areas surrounding entranceways to buildings. Additionally, long-lasting U.S. EPA listed larvicides (designed to kill mosquito larvae) should be utilized, preferably by the same certified professionals, in all recreational sources of standing water (all fountains, retention ponds, etc.). Consultation with both DOH/CDC and pesticide contractors should be arranged to develop a best-practices approach to the application of all pesticides and the time frame for reapplication, in an attempt

to ensure proper control of the mosquito population carrying the pathogen while also limiting the negative effects upon non-target aquatic and terrestrial species utilizing these water resources.

### **Special Circumstance: Zika Virus and Pregnant Women**

In response to the 2016 outbreak of Zika in the State of Florida, the DOH has made free Zika testing available for pregnant women at all county health departments throughout the state. It is recommended that female staff, faculty, and students of the College who currently are, or are planning on becoming pregnant partake in this or other screening services for the Zika virus, even if they appear to be asymptomatic at the moment. For those currently pregnant, additional routine antibody testing can be done during the first and second trimesters as part of their obstetric care from their physician, and proper follow-up tests done if the test results come back positive or equivocal. Additional information and guidance can be obtained through the DOH website ([www.floridahealth.gov](http://www.floridahealth.gov)).

### **Additional Resources**

Florida Department of Health 2023 Malaria Advisory:

<https://www.floridahealth.gov/diseases-and-conditions/malaria/index.html> and

<https://www.floridahealth.gov/newsroom/2023/06/20230626-mosquito-borne-illnesses.pr.html>

Centers for Disease Control and Prevention:

(<http://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/default.html>)

U.S. Environmental Protection Agency: (<https://www.epa.gov/insect-repellents/using-repellent-products-protect-against-mosquito-borne-illnesses>)

American Mosquito Control Association: (<https://www.mosquito.org/default.aspx>)

University of Florida Mosquito Control:

<https://fmel.ifas.ufl.edu/florida-mosquito-control/>

Any questions on the information presented within this memorandum or regarding the recommendations made by the Safety Department please contact the Safety Department at: [Safety@fscj.edu](mailto:Safety@fscj.edu)