

EEE and Aerial Spraying
Frequently Asked Questions
Updated 10/09/2019

ABOUT EEE

What is Eastern Equine Encephalitis (EEE)?

EEE is a rare, but serious disease that is caused by a virus spread by infected mosquitoes. The EEE virus can cause inflammation of the brain (encephalitis). In the United States, approximately 5-10 EEE cases in humans are reported annually. It is one of the most severe mosquito-borne diseases in the United States. According to the Centers for Disease Control and Prevention (CDC), approximately one-third of the human cases of EEE are fatal.

How many total cases of EEE are there in Michigan?

As of October 9, 2019, there have been 10 human cases, 4 of which were fatal, and 39 animal cases. To see current updates on the number of human and animal cases of EEE and other arboviral diseases, visit: www.Michigan.gov/EEE. Look for the infographic posted at the “Weekly Summary: Arbovirus activity, including Eastern Equine Encephalitis in Michigan” section.

Why are we seeing EEE cases in Michigan?

Michigan has had outbreaks of EEE about every decade since 1980 when the first human case was reported in the state. This year, the number of EEE cases are significantly higher than in previous years. In fact, Michigan has seen the same number of EEE cases in this one year as the last ten years combined. It is unknown exactly why some years are more severe than others, although weather, including temperature and rainfall, is thought to play a role.

How do people get infected with EEE?

EEE is transmitted through the bite of an infected mosquito. You cannot get EEE directly from another person or from an animal such as a horse or deer.

Who is at risk for infection with EEE?

Anyone in an area where the virus is circulating in mosquitoes can get infected with EEE. The risk is highest for people who live in or visit woodland habitats, and people who work outside or participate in outdoor recreational activities, because of greater exposure to potentially infected mosquitoes. Those who are over 50 years old and under 15 years old are at increased risk of infection.

How soon do people get sick after getting bitten by an infected mosquito?

It takes 4 to 10 days after the bite of an infected mosquito to develop symptoms of EEE.

What are the symptoms of EEE disease?

Severe cases of EEE infection begin with the sudden onset of headache, high fever, chills and vomiting. The illness may then progress into disorientation, seizures and coma. Approximately a third of patients who develop EEE die, and many of those who survive have mild to severe brain damage.

How do I get tested for EEE?

People who have been bitten by mosquitoes can monitor their health and talk with their healthcare provider if they develop symptoms such as fever, malaise, headache and confusion. Testing for EEE is not indicated in a person who is not showing signs suggestive of EEE illness.

How is EEE diagnosed?

Diagnosis is based on tests of blood or spinal fluid. These tests typically look for antibodies that the body makes against the viral infection.

What is the treatment for EEE?

There is no specific treatment for EEE. Antibiotics are not effective against viruses, and no effective anti-viral drugs have been discovered. Severe illnesses are treated by supportive therapy which may include hospitalization, respiratory support, IV fluids and prevention of other infections.

How can people reduce the chance of getting infected with EEE?

- Avoid being outdoors between dusk and dawn when mosquitoes that carry EEE virus are most active.
- Apply insect repellents that contain the active ingredient DEET, or other U.S. Environmental Protection Agency-registered product to exposed skin or clothing, and always follow the manufacturer's directions for use.
- Wear long-sleeved shirts and long pants when outdoors. Apply insect repellent to clothing to help prevent bites.
- Maintain window and door screening to help keep mosquitoes outside.
- Empty water from mosquito breeding sites around the home, such as buckets, unused kiddie pools, old tires or similar sites where mosquitoes may lay eggs.
- Use nets and/or fans over outdoor eating areas.

Can I get sick from eating deer meat if it is infected with EEE?

If an animal appears ill, you should not consume the meat from that animal, as there are other illnesses that can be transmitted. To kill potential pathogens, wild game should always be thoroughly cooked to an internal temperature of 165 degrees F, measured with a meat thermometer.

Can my pet get EEE?

EEE is rare in dogs and cats, however, when cases have been identified in dogs, they're typically less than six months old. Horses are very susceptible to EEE and approximately 90 percent of horses that show signs of EEE die from the disease. A vaccine is available for horses.

How do I protect my pets from EEE?

Keep pets indoors as much as possible between dusk and dawn, when mosquitoes are most active. Mosquito repellents labeled for use on people should not be used on pets. There are some topical products that can be applied to dogs to protect them from mosquitoes; concerned pet owners should work with their veterinarian.

ABOUT SPRAYING FOR MOSQUITOS IN MICHIGAN

Why were parts of Michigan aerially sprayed with insecticide?

Aerial spraying can quickly reduce the number of mosquitoes in a large geographical area which in turn can reduce the risk of exposure to the EEE virus. When conducted according to strict regulations, aerial spraying is safe for people, animals, and the environment and has been successfully used in the United States for decades to reduce mosquito populations.

If the summer season is over, why spray for mosquitos?

Mosquito populations continue until there is a very hard frost. According to the National Weather Service, the warmer weather in Michigan is expected to continue well into the month of October. This means that mosquitoes that carry the EEE virus can still bite and infect people and animals. Because of how severe and deadly EEE can be, MDHHS and local health departments determined it was very important to take this extra step to protect the health of Michigan citizens in these areas.

How was the aerial insecticide applied?

Mosquito control professionals applied an approved insecticide as an ultra-low volume (ULV) spray from a twin-engine plane flying approximately 300 feet above the ground. The ULV sprayers dispensed very fine aerosol droplets. The droplets, which are smaller than the head of a pin, drift through the air to kill adult mosquitoes on contact.

Is aerial spraying still taking place?

No. All areas planned for treatment have been completed. No further areas are currently slated for treatment. Total treated acreage was more than 557,000 acres.

For information about what parts of Michigan were sprayed, refer to the “Aerial Treatment Zones Map” and “County-level Aerial Treatment Maps” at www.michigan.gov/EEE.

If I was outside when spraying occurred, would I have noticed it?

Not likely. A twin-engine plane flying at about 300 feet above ground applied a very small amount of product, approximately 1 tablespoon per acre (which is about the size of a football field). You might not have even seen or heard the plane, or felt the spray in the air, when it was applied.

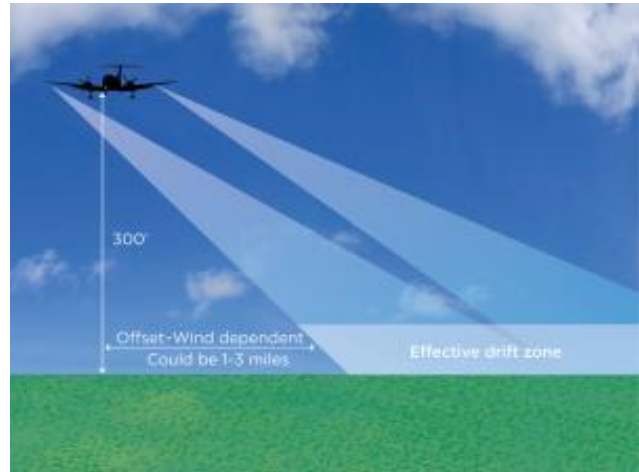
I saw a plane flying during the day, weren't they spraying at night?

Yes, the spraying began after dusk and into the night, weather permitting. During the day, planes conducted surveillance of the areas they anticipated spraying that evening. No insecticide was sprayed during daytime surveillance flights.

A plane flew over my property even though I opted out. Did I get sprayed?

Seeing a plane fly over your property does not mean your property was sprayed. All complete address opt outs received 48 hours before the treatment were excluded from spraying.

When the treatment is applied, the very fine insecticide spray is carried by the wind to the treatment area, it does not fall directly downward to the ground. Your opt out covered a 1,000 x 1,000 foot zone around your property to assure that no spray landed in your area. Calculating wind speed and direction tells the flight crews where they need to fly so that spray falls to the ground only within the approved treatment zones. Planes flying over your zone would be treating an area outside of your zone. In fact, they could be treating an area up to 3 miles away from your zone. Planes may also have flown over your property, with the spray turned off, while turning around or flying to another area to treat.



What insecticide was used?

The product is called Merus 3.0. It is an EPA-registered, organic botanical adult mosquito insecticide containing five percent pyrethrins which are naturally found in chrysanthemum flowers. Pyrethrins are commonly used to control mosquitoes, fleas, flies, moths, ants and many other pests and have been registered for use in insecticides since the 1950s. Pyrethrins are also commonly found in topical head lice products. Merus 3.0 is OMRI Listed and can be used around organic crops and gardens.

OMRI certificate: <https://www.omri.org/mfg/cmc/certificate/10513>

Will Merus 3.0 cause any adverse health effects in people?

Merus 3.0 is registered with the EPA and is labeled for public health use over residential areas. In general, no short-term or long-term risks to human health are expected during or after spraying.

What if I was outside when the spraying occurred, and I have concerns about exposure to the spray?

In general, no health effects are expected from being outside during or after the spraying occurred. Some actions to take **if you are concerned** include:

- Wash your skin and/or clothes with water and detergent soap.
- Rinse your eyes with water.
- Consult your health care provider if you are concerned about your health.

How long do these chemicals last in the environment?

Merus 3.0 will break down over time, ranging from hours in the air to days in the soil. No special action needs to be taken the morning after spraying; however, **if you are concerned** about contact with leftover chemical residue, you could:

- Rinse home-grown vegetables and fruits before cooking or eating.
- Wash outdoor surfaces and objects with soap and water to remove chemical residue.

Will the spray contaminate my drinking water source?

Merus 3.0 binds strongly to soil, so chances are low that it could get into the groundwater. Drinking water reservoirs were excluded from the spray area. Merus 3.0 breaks down quickly in the surface water. Because of these factors, Merus 3.0 is not expected in your drinking water.

What if I think that I am experiencing an adverse reaction to insecticide spraying?

If you believe you may be experiencing any health effects from insecticides, call your health care provider or the Michigan Poison Control Center (800) 222-1222. If symptoms are severe, call 911 for assistance.

Can Merus 3.0 harm my bees?

According to the label, Merus 3.0, a Pyrethrin, is toxic to bees exposed to direct treatment on blooming crops or weeds. Application conducted at night will minimize risk to daytime foragers such as bees. The product will dry quickly and should not pose long term risk.

Apiary officials in Massachusetts, which has been under a similar spray program for 2 months, monitored approximately 600 honeybee colonies since their spray program began and haven't observed problems from spraying. Massachusetts used a synthetic Pyrethroid product. Michigan is using a botanical Pyrethrin product. Massachusetts Apiarists did respond to bee loss complaints after the applications and found those losses to be typical of bee losses that happen this time of year - from queen losses, high parasitic mite populations, and/or other bee management concerns.

Can Merus 3.0 harm pets or livestock?

According to the label, there are no health effects listed for pets or farm animals which have direct contact with the sprayed chemical. Bringing animals indoors at dusk and dawn, when mosquitoes are most active, can help protect them from mosquitos that carry EEE. Pet and livestock owners should always work with their veterinarian regarding the overall health and wellness of their animals.

Will bats have enough to eat after adult mosquitoes are killed?

Yes. Mosquitoes are not an important part of the bat diet and do not serve as the main food source. Bats prefer other, larger insects and are not harmed by Merus 3.0.

I found dead bees outside – what killed them?

This time of year, it is normal for honey bee colonies to decline in population and prepare for winter. Drone bees (males) are kicked out of the colony because they are not needed during the winter and older foraging summer bees die in the fall. Bees that are still living in the colonies have been reared for winter survival (winter bees). As a result, you will always find some dead honey bees in the landscape. Similarly, you will find dead wasps, hornets and yellow jackets every fall. Colonies infected with mites, a common problem for beekeepers, often begin to die out in the fall.

Did aerial spraying take place on state lands?

To ensure the safety of protected species, MDHHS partnered with the Michigan Department of Natural Resources (MDNR) in this aerial spraying effort. MDNR granted MDHHS a permit to spray for mosquitoes on state lands. All spraying activity over state lands was done in accordance with state and federal laws and as permitted by the MDNR.

Can residents opt out of the aerial spraying?

Property address opt-out for the October EEE mosquito spraying aerial treatment is currently closed. At this time, there are no plans for further aerial treatment activities.

What are the results of post-treatment monitoring (surveillance) of hospital visits?

Among Emergency Departments and Urgent Care centers participating in the Michigan Syndromic Surveillance System, or the MSSS, we've identified no visits specifically reporting adverse effects from aerial spraying of the mosquito adulticide in the monitored zones. In addition, there have been no increase in the gastrointestinal, respiratory, rash, or neurological syndromic categories other than what would normally be expected at this time of the year due to seasonality and/or normal daily fluctuations.

These systems will be continued to be monitored for three days post-treatment.

FOR MORE INFORMATION

For the updated information on EEE in Michigan, including case count, visit www.Michigan.gov/EEE

For general health information related to EEE, visit: www.cdc.gov/EEE

For information on spraying in your county, visit: www.Michigan.gov/EEE and view the “County-level Aerial Treatment Maps”

For health-related questions, contact MDHHS: (517) 335-8165, 8:00am – 5:00pm Monday – Friday.