



## Wahta Mohawks

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### Notification

Mosquitoes from one of the mosquito trapping locations on the Wahta Mohawk Territory have tested positive for the Eastern Equine Encephalitis Virus (EEEV). Weekly monitoring and testing will continue.

### What Can I Do?

Prevent being bitten by mosquitoes!

- 1) Use insect repellent that contains DEET or other approved ingredients.
- 2) Wear long sleeves and pants when outside to protect yourself from mosquito bites.
- 3) Ensure screens on your windows and doors are in good repair to keep mosquitoes out.
- 4) Eliminate mosquito egg laying sites by emptying standing water from flower pots, buckets, barrels, and other containers. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

### Eastern Equine Encephalitis Virus (EEEV)

#### **What is EEEV and how do people become infected?**

EEEV is a rare disease that is spread to humans through the bite of an infected mosquito. Disease transmission does not occur directly from person to person.

#### **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 EEEV.

#### **How Common is EEEV in Humans?**

EEEV is very rare. No human cases have been identified in Ontario. Human disease has occurred in rare instances in several states bordering Ontario and Quebec and EEEV has occurred occasionally in horses in Ontario and Quebec.

#### **Transmission of EEEV?**

EEEV is transmitted through the bite of an infected mosquito. Mosquitoes become infected by feeding on infected birds. Infected mosquitoes are capable of passing the virus to horses, humans or other mammals during subsequent feedings. Several species of mosquitoes can become infected with EEEV.

#### **Symptoms of EEEV disease?**

Infection with EEEV can cause a range of illnesses. Most people infected with the virus will not show symptoms or become sick; others may develop a mild flu-like illness with fever, headache, and a sore throat. In rare cases (less than 5%), infection of the central nervous system occurs. In the severe cases of EEEV infection there can be a sudden onset of headache, high fever, chills and vomiting. The illness may then progress into disorientation, seizures and a coma. Approximately a third of patients who develop EEEV die.

#### **What should I do if I think a family member might have EEEV?**

Consult your healthcare provider for proper diagnosis.

**For additional information, please see our website, Facebook page, or our October Newsletter. Information packages will be available at the Harvest Festival on October 3<sup>rd</sup>.**

**If you have any questions, please contact Randell Sonmor at (705) 644-4228**

# **Frequently Asked Questions**

## **What is Eastern equine encephalitis (EEE)?**

EEE is a rare disease that is caused by a virus spread by infected mosquitoes. EEE virus (EEEV) is one of a group of mosquito-transmitted viruses that can cause inflammation of the brain (encephalitis). In the United States, approximately 5-10 EEE cases are reported annually.

## **How do people get infected with EEEV?**

EEEV is transmitted through the bite of an infected mosquito. Disease transmission does not occur directly from person to person.

## **Where and when have most cases of EEE occurred?**

Most cases of EEE have been reported from Atlantic and Gulf Coast states. Cases have also been reported from the Great Lakes region. EEE cases occur primarily from late spring through early fall, but in subtropical endemic areas (e.g., the Gulf States), rare cases can occur in winter.

## **Who is at risk for infection with EEEV?**

Anyone in an area where the virus is circulating can get infected with EEEV. 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.

## **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 EEEV disease?**

Severe cases of EEEV infection (EEE, involving encephalitis, an inflammation of the brain) 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 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 EEEV?**

Prevent mosquito bites. There is no vaccine or preventive drug.

- Use insect repellent containing DEET, picaridin, IR3535 or oil of lemon eucalyptus on exposed skin and/or clothing. The repellent/insecticide permethrin can be used on clothing to protect through several washes. Always follow the directions on the package.
- Wear long sleeves and pants when weather permits.
- Have secure, intact screens on windows and doors to keep mosquitoes out.
- Eliminate mosquito breeding sites by emptying standing water from flower pots, buckets, barrels, and other containers. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

## **What should I do if I think a family member might have EEE?**

Consult your healthcare provider for proper diagnosis.

Page last reviewed: December 17, 2018

Content source: [Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\), Division of Vector-Borne Diseases \(DVBD\)](#)

# Technical Fact Sheet: Eastern Equine Encephalitis

Related Pages

## Virus

Eastern equine encephalitis virus (EEEV) is a member of the genus *Alphavirus*, family *Togaviridae*. EEEV is closely related to western equine encephalitis virus and Venezuelan equine encephalitis virus.

## Transmission

EEEV is maintained in a cycle between *Culiseta melanura* mosquitoes and avian hosts in freshwater hardwood swamps. *Cs. melanura* is not an important vector of EEEV to humans because it feeds almost exclusively on birds. Transmission to humans requires mosquito species capable of creating a “bridge” between infected birds and uninfected mammals such as some *Aedes*, *Coquillettidia*, and *Culex* species.

## Geographic distribution

An average of 7 human cases of EEE are reported each year in the United States. Florida, Georgia, Massachusetts, and New Jersey typically have the largest number of cases. EEEV transmission is most common in and around freshwater hardwood swamps in the Atlantic and Gulf Coast states and the Great Lakes region.

## Risk factors

All residents of and visitors to areas where virus activity has been identified are at risk of infection with EEEV, particularly persons who engage in outdoor work and recreational activities in these areas. Persons over age 50 and younger than age 15 are at greatest risk of severe disease (encephalitis) following infection. EEEV infection is thought to confer life-long immunity against re-infection.

## Incubation period

Usually 4-10 days

## Symptoms

EEEV infection can result in one of two types of illness, systemic or encephalitic (EEE). Systemic infection has an abrupt onset and is characterized by chills, fever, malaise, arthralgia, and myalgia. The illness lasts 1 to 2 weeks; recovery is complete when there is no central nervous system involvement. In infants, the encephalitic form is characterized by abrupt onset; in older children and adults, encephalitis is manifested after a few days of systemic illness. Signs and symptoms in encephalitic patients are fever, headache, irritability, restlessness, drowsiness, anorexia, vomiting, diarrhea, cyanosis, convulsions, and coma.

## Treatment

No specific antiviral treatment for EEEV infections is available. Patients with suspected EEE should be hospitalized, appropriate serologic and other diagnostic tests ordered, and supportive treatment provided.

## Mortality rate

Approximately a third of those who develop EEE die. Many of those who survive will have mild to severe permanent neurologic damage. Many patients with severe sequelae die within a few years.

## Prevention

Prevent mosquito bites. There is no vaccine or preventive drug.

- Use insect repellent containing DEET, picaridin, IR3535 or oil of lemon eucalyptus on exposed skin and/or clothing. The repellent/insecticide permethrin can be used on clothing to protect through several washes. Always follow the directions on the package.
- Wear long sleeves and pants when weather permits.
- Have secure screens on windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets, barrels and other containers. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

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# Prevention

The most effective way to prevent infection from Eastern Equine Encephalitis virus is to prevent mosquito bites. Mosquitoes bite during the day and night. Use insect repellent, wear long-sleeved shirts and pants, treat clothing and gear, and take steps to control mosquitoes indoors and outdoors.

## Protect yourself and your family from mosquito bites

### Use Insect Repellent

Use [Environmental Protection Agency \(EPA\)-registered insect repellentsExternal](#) with one of the active ingredients below. When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breastfeeding women.

- DEET
- Picaridin (known as KBR 3023 and icaridin outside the US)
- IR3535
- Oil of lemon eucalyptus (OLE)
- Para-menthane-diol (PMD)
- 2-undecanone

Find the right insect repellent for you by using [EPA's search toolExternal](#).

### Tips for babies and children

- Always follow instructions when applying insect repellent to children.
- Do not use insect repellent on babies younger than 2 months old.
  - Instead, dress your child in clothing that covers arms and legs.
  - Cover strollers and baby carriers with mosquito netting.
- Do not use products containing oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD) on children under 3 years old.
- Do not apply insect repellent to a child's hands, eyes, mouth, cuts, or irritated skin.
  - Adults: Spray insect repellent onto your hands and then apply to a child's face.

### Tips for Everyone

- Always follow the product label instructions.
- Reapply insect repellent as directed.
  - Do not spray repellent on the skin under clothing.
  - If you are also using sunscreen, apply sunscreen first and insect repellent second.

## **Natural insect repellents (repellents not registered with EPA)**

- We do not know the effectiveness of non-EPA registered insect repellents, including some natural repellents.
- To protect yourself against diseases spread by mosquitoes, CDC and EPA recommend using an EPA-registered insect repellent.
- Choosing an EPA-registered repellent ensures the EPA has evaluated the product for effectiveness.
- [Visit the EPA website to learn more.External](#)

## **Wear long-sleeved shirts and long pants**

### **Treat clothing and gear**

- Use permethrin to treat clothing and gear (such as boots, pants, socks, and tents) or buy permethrin-treated clothing and gear.
  - Permethrin is an insecticide that kills or repels mosquitoes.
  - Permethrin-treated clothing provides protection after multiple washings.
  - Read product information to find out how long the protection will last.

If treating items yourself, follow the product instructions.

- Do not use permethrin products directly on skin.

### **Take steps to control mosquitoes indoors and outdoors**

- Use screens on windows and doors. Repair holes in screens to keep mosquitoes outdoors.
- Use air conditioning, if available.
- Stop mosquitoes from laying eggs in or near water.
  - Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, pools, birdbaths, flowerpots, or trash containers.
  - Check indoors and outdoors.

### **Prevent mosquito bites when traveling overseas**

- Choose a hotel or lodging with air conditioning or screens on windows and doors.
- Sleep under a mosquito bed net if you are outside or in a room that does not have screens.
  - Buy a bed net at your local outdoor store or online before traveling overseas.
  - Choose a WHOPEs-approved bed net: compact, white, rectangular, with 156 holes per square inch, and long enough to tuck under the mattress.
  - Permethrin-treated bed nets provide more protection than untreated nets.
    - Do not wash bed nets or expose them to sunlight. This will break down the insecticide more quickly.

- For more information on bed nets, visit CDC's page on [insecticide-treated bed nets](#).
- For more information on traveling overseas, visit [Travelers' Health](#).

## **For more information**

- [About insect repellent use and safety](#)External
- [About repellent protection times](#)External

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Content source: [Centers for Disease Control and Prevention](#), [National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\)](#), [Division of Vector-Borne Diseases \(DVBD\)](#)

## Fact Sheet for Animal Owners

# Eastern Equine Encephalitis Virus (EEEV)

This Fact Sheet is intended for owners, custodians and/or handlers of horses or other animals that have been diagnosed with EEEV infection by a veterinarian. For questions about your health, please contact your health care provider.

### What is Eastern equine encephalitis virus?

Eastern equine encephalitis virus (EEEV) is a virus spread by mosquitoes. Infection with the EEEV can result in a case of eastern equine encephalitis (EEE). The virus has been found in North and South America. In North America, EEEV is found mostly in areas east of the Mississippi River in the United States (although infected horses have occurred in Texas), and in southeastern Canada.

### How is EEEV spread? Can I get EEEV from my animal or someone who is infected?

EEEV is spread between birds by mosquitoes that mainly bite birds. Mosquitoes that become infected from biting birds can sometimes bite humans or horses and spread EEEV infection to them.

You cannot get EEEV from an infected animal or someone else who has EEEV. As well, a mosquito cannot become infected from biting a human or horse that has EEEV.

### What is the risk of EEEV in the area?

EEEV infection can occur in humans, mosquitoes and horses in Ontario, although this is very rare. Only one human case of EEE has ever been reported in Ontario. It is possible that more horses and people will become infected with EEEV in the future.

For more information on EEEV in Ontario, see Public Health Ontario's report at:  
<https://www.publichealthontario.ca/-/media/documents/eeev-report.pdf?la=en>

### Where is the greatest risk of acquiring EEEV?

The mosquito that carries EEEV (*Culiseta melanura*) prefers wild, forested areas, not cities. Therefore, the greatest risk to people would be around flooded/swampy hardwood forest areas during the mosquito season (summer and early fall).

### Is there a vaccine available for people and animals?

There is no vaccine available for people. There is a vaccine available for horses. If you are interested in having your horse vaccinated, contact your local veterinarian.

## **How can I protect myself from getting infected with EEEV?**

To protect yourself from getting EEEV:

- use insect repellent,
- wear long-sleeve light-colour clothing,
- avoid being outdoors during times of the day when mosquitoes are most active (usually dusk to dawn), and
- avoid areas where mosquitoes are known to occur.

For further information on personal protection against mosquitoes, see Ministry of Health and Long-Term Care resources at: <https://www.ontario.ca/page/west-nile-virus>

## **What are the symptoms that I need to look out for?**

Some people who are infected with EEEV will not develop symptoms. Symptoms may develop, within 4 to 10 days after the bite of an infected mosquito. Symptoms consist of fever, chills, and/or muscle and joint pain. Illness can progress to a severe form that affects the nervous system. About 1 in 3 people with the severe form of EEE die.

If you are concerned about your health, please contact your health care provider.

## **Is there treatment or medication that I can take for EEE?**

There is no specific treatment for EEE. People with EEE receive supportive treatment.

## **What is being done to track and control the possible spread of the virus?**

In Ontario, the mosquitoes that spread EEEV are captured and tested for EEEV. Cases of EEE in people are monitored. Cases of EEE in horses are reported to the Ontario Ministry of Agriculture Food and Rural Affairs. Public education on how to prevent mosquito bites and EEEV infection is provided.

## **Why are there more horse cases than human cases of EEEV infection?**

Horses are typically outside more than humans and would have a greater chance of exposure. EEE can be prevented in horses through vaccination.

## **Why is this information important to me?**

As there is evidence of local transmission of EEEV in the area, it is important to know what this virus is and what you can do to protect yourself and others.

## **Where can I get more information?**

Please contact your local public health unit:

<http://www.health.gov.on.ca/en/common/system/services/phu/locations.aspx>

For further information on EEEV in horses, please see:

<http://www.omafra.gov.on.ca/english/livestock/horses/westnile.htm>

This document was produced in collaboration with Public Health Ontario.