

The Commonwealth of Massachusetts
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FOR IMMEDIATE RELEASE:
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**STATE HEALTH OFFICIALS ANNOUNCE PLANS TO CONDUCT AERIAL
SPRAYING IN SECTIONS OF SOUTHEASTERN MASSACHUSETTS**
Decision follows detection of additional EEE-positive mosquito pools in Easton

BOSTON – The Massachusetts Department of Public Health (DPH) today announced that aerial spraying for mosquitoes will take place in 11 cities and towns in southeastern Massachusetts including Bridgewater, Carver, Easton, Halifax, Lakeville, Middleborough, Norton, Plympton, Raynham, Taunton, and West Bridgewater. Residents are encouraged to check the DPH website at www.mass.gov/dph for updates.

Officials made the decision based on today's findings of numerous additional EEE-positive mosquito pools collected from a site in Easton where EEE-positive mosquito samples were also found last week.

The state is currently working to procure the insecticides and planes needed to conduct aerial spraying in these communities. Spraying will begin as soon as possible and will follow appropriate public notification and outreach. The final timeline will be determined by tomorrow.

"It's important to note that aerial spraying can only reduce but not eliminate the threat of mosquito-borne illness in the areas that are sprayed," said DPH Commissioner John Auerbach. "That's why it's so important for individuals in these communities to continue to take personal precautions against mosquito bites – both before and after aerial spraying is conducted."

Health officials will continue to conduct enhanced mosquito sampling in the coming days and have already increased ground spraying activities. Residents are encouraged to continue checking local media and the DPH website at www.mass.gov/dph for further details and updates.

There have been no human cases of West Nile virus (WNV) or EEE so far this year. There were two cases of EEE in August of last year acquired in Massachusetts; a fatal case in a Bristol

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County man and an infection in a tourist from out of state. EEE activity in both 2010 and 2011 raised public concern and prompted DPH to work with a panel of experts to evaluate and enhance the state's surveillance and response program. EEE is spread to humans through the bite of an infected mosquito. EEE is a serious disease in all ages and can even cause death.

People have an important role to play in protecting themselves and their loved ones from illnesses caused by mosquitoes.

Avoid Mosquito Bites

Apply Insect Repellent when Outdoors. Use a repellent with DEET (N, N-diethyl-m-toluamide), permethrin, picaridin (KBR 3023), oil of lemon eucalyptus [p-methane 3, 8-diol (PMD)] or IR3535 according to the instructions on the product label. DEET products should not be used on infants under two months of age and should be used in concentrations of 30% or less on older children. Oil of lemon eucalyptus should not be used on children under three years of age.

Be Aware of Peak Mosquito Hours. The hours from dusk to dawn are peak biting times for many mosquitoes. Consider rescheduling outdoor activities that occur during evening or early morning.

Clothing Can Help Reduce Mosquito Bites. Wearing long-sleeves, long pants and socks when outdoors will help keep mosquitoes away from your skin.

Mosquito-Proof Your Home

Drain Standing Water. Mosquitoes lay their eggs in standing water. Limit the number of places around your home for mosquitoes to breed by either draining or discarding items that hold water. Check rain gutters and drains. Empty any unused flowerpots and wading pools, and change water in birdbaths frequently.

Install or Repair Screens. Keep mosquitoes outside by having tightly-fitting screens on all of your windows and doors.

Protect Your Animals

Animal owners should reduce potential mosquito breeding sites on their property by eliminating standing water from containers such as buckets, tires, and wading pools – especially after heavy rains. Water troughs provide excellent mosquito breeding habitats and should be flushed out at least once a week during the summer months to reduce mosquitoes near paddock areas. Horse owners should keep horses in indoor stalls at night to reduce their risk of exposure to mosquitoes. If an animal is diagnosed with WNV or EEE, owners are required to report to DAR, Division of Animal Health by calling 617-626-1795 and to the Department of Public Health (DPH) by calling 617-983-6800.

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More information, including all WNV and EEE positive results from 2012, can be found on the Arbovirus Surveillance Information web page at www.mass.gov/dph/wnv or by calling the DPH Epidemiology Program at 617-983-6800. The findings of the DPH Eastern Equine Encephalitis Expert Panel can be found [here](#).

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PUBLIC HEALTH FACT SHEET

Mosquito Repellents

Massachusetts Department of Public Health (MDPH), 305 South Street, Jamaica Plain, MA 02130

What is a mosquito repellent?

A mosquito repellent is a substance put on skin, clothing, or other surfaces which discourages mosquitoes from landing or crawling on that surface.

Why should I use a mosquito repellent?

Mosquitoes can spread viruses that cause serious diseases. In Massachusetts, the diseases spread by mosquitoes are West Nile virus (WNV) and eastern equine encephalitis (EEE). Mosquito repellents can reduce your chances of being bitten by a mosquito and can reduce the risk that you will get one of these diseases.

When should I use a mosquito repellent?

Use a mosquito repellent when you are outside and exposed to mosquitoes. Mosquitoes are generally most active between dusk and dawn, though some types may also be out during the day. Mosquitoes usually start to become active during early or mid-spring and remain active until the first hard frost (when the ground freezes).



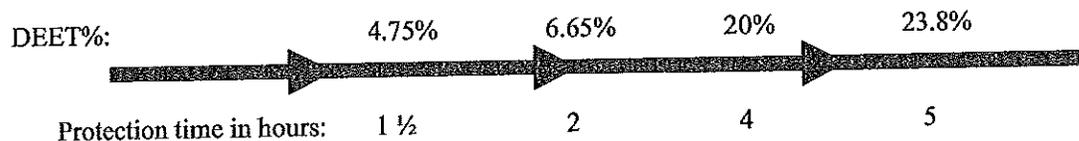
Did you know?

Every year from approximately late May until the first hard frost, mosquito samples are collected from various locations around the state and tested for WNV and EEE virus. Visit the MDPH website at www.mass.gov/dph/wnv during the mosquito season to see where positive mosquito samples have been found.

Which repellent should I use?

Different repellents work against different bugs. It is important to look at the active ingredient on the product label. Repellents that contain **DEET** (N, N-diethyl-m-toluamide), **permethrin**, **IR3535** (3-[N-butyl-N-acetyl]-aminopropionic acid) or **picaridin** (KBR 3023) provide protection against mosquitoes. In addition, **oil of lemon eucalyptus** [p-menthane 3, 8-diol (PMD)] has been found to provide as much protection as low concentrations of DEET when tested against mosquitoes found in the United States.

DEET products should not be used on infants under 2 months of age. Children older than two months should use products with DEET concentrations of 30% or less. DEET products are available in formulations up to 100% DEET, so always read the product label to determine the percentage of DEET included. Products with DEET concentrations higher than 30% do not confer much additional protection, but do last longer. In a study that looked at how long different concentrations of DEET worked against mosquitoes, the results ranged from 1½ to 5 hours. However, the length of protection time will vary widely depending on temperature, perspiration, and water exposure.



Permethrin products are intended for use on items such as clothing, shoes, bed nets and camping gear and should not be applied to skin. Apply the permethrin to your clothes before you put them on and follow the product's instructions.

Oil of lemon eucalyptus products should not be used on children under the age of three years.

Always Use Repellents Safely

- ❖ Follow the instructions given on the product label. If you have questions after reading the label, such as how many hours does the product work for, or if and how often it should be reapplied, contact the manufacturer.
- ❖ Don't use repellents under clothing.
- ❖ Don't use repellents on cuts or irritated skin.
- ❖ Don't use repellents near the mouth or eyes and use them sparingly around the ears. When using spray products, spray the product onto your hands first, and then apply it to your face.
- ❖ Use just enough product to lightly cover exposed skin and/or clothing. Putting on a larger amount does not make the product work any better.
- ❖ Don't let children handle the product. When using repellents on children, put some on your hands first, and then apply it to the child. Don't put repellents on a child's hands.
- ❖ When you come inside, wash your skin and the clothes that had repellent on them.
- ❖ **If you develop a rash or other symptoms you think were caused by using a repellent, stop using the product, wash the affected area with soap and water, and contact your doctor or local poison control center. If you go to the doctor, bring the product with you to show him or her.**

Do "natural" repellents work?

A number of plant-derived products are available for use as mosquito repellents, including oil of lemon eucalyptus and IR3535. Limited information is available regarding how well most of these products work and how safe they are. The information that is available shows that most of these products generally do not provide the same level or duration of protection as products like DEET or permethrin, except for oil of lemon eucalyptus and IR3535, which have been found to provide as much protection as low concentrations of DEET.

I'm concerned about using repellents on my infant. What else can I do to protect my infant from mosquitoes?

Mosquitoes are most active between dusk and dawn, so try to avoid outdoor activities with your infant during these times. When your infant is outside, use mosquito netting on baby carriages or playpens and consider going indoors if you notice a lot of mosquito activity.

Where can I get more information?

- The Massachusetts Department of Public Health (MDPH), Division of Epidemiology and Immunization at (617) 983-6800 or toll-free at (888) 658-2850, or on the MDPH Arbovirus website at www.mass.gov/dph/wny, or your local board of health (listed in the telephone directory under local government).
- **Health effects of pesticides**, MDPH, Center for Environmental Health at 617-624-5757
- **Mosquito control in your city or town:** Mosquito control in Massachusetts is conducted through nine mosquito control districts. The State Reclamation and Mosquito Control Board (SRMCB) oversees all nine districts. Contact information for each district can be found online at www.mass.gov/agr/mosquito/districts.htm. You may also contact the SRMCB within the Massachusetts Department of Agricultural Resources at 617-626-1777 or your local board of health.
- **Information on repellents** (such as choosing the right repellent, using repellents on children or pregnant women, or detailed toxicology information), National Pesticide Information Center (NPIC) toll free at 1-800-858-7378 or online at <http://npic.orst.edu/index.html>

Updated: March 2011

PUBLIC HEALTH FACT SHEET

Eastern Equine Encephalitis

Massachusetts Department of Public Health (MDPH), 305 South Street, Jamaica Plain, MA 02130

What is Eastern Equine Encephalitis?

Eastern equine encephalitis (EEE) is a rare but serious disease caused by a virus.

How is the EEE virus spread?

The virus that causes EEE is spread through the bite of an infected mosquito. In Massachusetts, the virus is most often identified in mosquitoes found in and around freshwater, hardwood swamps. More information about different types of mosquitoes that can spread the virus can be found on the MDPH website at www.mass.gov/dph/wny.

EEE virus particularly infects birds, often with no evidence of illness in the bird. Mosquitoes become infected when they bite infected birds. Although humans and several other types of mammals, particularly horses and llamas, can become infected, they do not spread disease.

How common is EEE in Massachusetts?

EEE is a very rare disease. Since the virus was first identified in Massachusetts in 1938, fewer than 100 cases have occurred. Over 60% of those cases have been from Plymouth and Norfolk counties.

Outbreaks of EEE usually occur in Massachusetts every 10-20 years. These outbreaks will typically last two to three years. The most recent outbreak of EEE in Massachusetts began in 2004 and included 13 cases with six fatalities through 2006.

What are the symptoms of EEE?

The first symptoms of EEE are fever (often 103° to 106°F), stiff neck, headache, and lack of energy. These symptoms show up three to ten days after a bite from an infected mosquito. Inflammation and swelling of the brain, called encephalitis, is the most dangerous and frequent serious complication. The disease gets worse quickly and some patients may go into a coma within a week.

What is the treatment for EEE?

There is no treatment for EEE. In Massachusetts, about half of the people identified with EEE died from the infection. People who survive this disease will often be permanently disabled. Few people recover completely.

What can you do to protect yourself from EEE?

Since the virus that causes EEE is spread by mosquitoes, here are some things you can do to reduce your chances of being bitten:

- Schedule outdoor events to avoid the hours between dusk and dawn, when mosquitoes are most active.
- When you are outdoors, wear long pants, a long-sleeved shirt and socks. This may be difficult to do when the weather is hot, but it will help keep mosquitoes away from your skin.
- Use a repellent with DEET (N, N-diethyl-m-toluamide), permethrin, picaridin (KBR 3023), IR3535 (3-[N-butyl-N-acetyl]-aminopropionic acid) or oil of lemon eucalyptus [p-menthane 3, 8-diol (PMD)] according to the instructions given on the product label. DEET products should not be used on infants under

two months of age and should be used in concentrations of 30% or less on older children. Oil of lemon eucalyptus should not be used on children under three years of age. Permethrin products are intended for use on items such as clothing, shoes, bed nets and camping gear and should not be applied to skin.

- Keep mosquitoes out of your house by repairing any holes in your screens and making sure they are tightly attached to all your doors and windows.
- Remove areas of standing water around your home. Here are some suggestions:
 - Look around outside your house for containers and other things that might collect water and turn them over, regularly empty them, or dispose of them.
 - Drill holes in the bottom of recycling containers that are left outdoors so that water can drain out.
 - Clean clogged roof gutters; remove leaves and debris that may prevent drainage of rainwater.
 - Turn over plastic wading pools and wheelbarrows when not in use.
 - Change the water in birdbaths every few days; aerate ornamental ponds or stock them with fish.
 - Keep swimming pools clean and properly chlorinated; remove standing water from pool covers.
 - Use landscaping to eliminate standing water that collects on your property.
- More information on choosing and using repellents safely is included in the MDPH Mosquito Repellents fact sheet which can be viewed online at www.mass.gov/dph/wmv. If you can't go online, contact the MDPH at (617) 983-6800 for a hard copy.



Did you know?

Mosquitoes can begin to multiply in any puddle or standing water that lasts for more than four days! Mosquito breeding sites can be anywhere. **Take action** to reduce the number of mosquitoes around your home and neighborhood. Organize a neighborhood clean up day to pick up containers from vacant lots and parks and to encourage people to keep their yards free of standing water. Mosquitoes don't care about fences, so it's important to remove areas of standing water throughout the neighborhood.

Where can I get more information?

- Your doctor, nurse, or health care clinic, or your local board of health (listed in the telephone directory under local government)
- The Massachusetts Department of Public Health (MDPH), Division of Epidemiology and Immunization at (617) 983-6800 or toll-free at (888) 658-2850, or on the MDPH Arbovirus website at www.mass.gov/dph/wmv
- **Health effects of pesticides**, MDPH, Center for Environmental Health at 617-624-5757
- **Mosquito control in your city or town:** Mosquito control in Massachusetts is conducted through nine mosquito control districts. The State Reclamation and Mosquito Control Board (SRMCB) oversees all nine districts. Contact information for each district can be found online at www.mass.gov/agr/mosquito/districts.htm. You may also contact the SRMCB within the Massachusetts Department of Agricultural Resources at 617-626-1777 or your local board of health.

PUBLIC HEALTH FACT SHEET

West Nile Virus

Massachusetts Department of Public Health (MDPH), 305 South Street, Jamaica Plain, MA 02130

What is West Nile Virus (WNV)?

West Nile virus (WNV) is a mosquito-carried virus that can cause illness ranging from a mild fever to more serious disease like encephalitis or meningitis. It was first identified in the United States in 1999.

How is WNV spread?

WNV is most commonly spread to people through the bite of an infected mosquito. More information about different types of mosquitoes that can spread WNV can be found on the MDPH website at www.mass.gov/dph/wnv.

WNV may also be spread through blood transfusion or organ transplant. In addition, there are rare reports of WNV being passed from pregnant or breastfeeding women, who are infected with WNV, to their babies. Since these reports are rare, the health effects on an unborn or breastfeeding baby are unclear and still being studied.

People do not become infected by having direct contact with other infected people, birds or animals.

Why don't I need to report dead birds anymore?

From 2000 to 2008, MDPH collected reports and ran tests for WNV on dead birds in Massachusetts as one of several ways to monitor WNV activity across the state. In recent years, this method has become less useful for finding the virus. Many other states have discontinued dead bird reporting and testing. Mosquito collection and testing gives the most reliable indication of current WNV activity and this is where monitoring activities will continue to be focused.

Dead birds are no longer being tested for WNV and do not need to be reported to MDPH. Dead birds can be safely disposed of in the trash. Using gloves, a shovel or plastic bags covering your hands, the dead bird should be double-bagged and placed in the trash. You should then wash your hands.

What are the symptoms of WNV?

The majority of people who are infected with WNV (approximately 80%) will have no symptoms.

A smaller number of people who become infected (~ 20%) will have symptoms such as fever, headache, body aches, nausea, vomiting, and sometimes swollen lymph glands. They may also develop a skin rash on the chest, stomach and back.

Less than 1% of people infected with WNV will develop severe illness, including encephalitis or meningitis. The symptoms of severe illness can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. Persons older than 50 years of age have a higher risk of developing severe illness.

How common is WNV in Massachusetts?

Because most people who are exposed to WNV have no symptoms, it is difficult to know exactly how many people have been infected. People who develop severe illness with WNV are most often reported. Between 2000 and 2010, 67 people were reported with WNV infection in Massachusetts. Six of these people died. Cases have been identified from around the state.

Is there any treatment for WNV?

There is no specific treatment for WNV infections. People with mild WNV infections usually recover on their own. People with severe WNV infections almost always require hospitalization. Their symptoms may last several weeks and neurological effects may be permanent. Approximately 10% of people who develop severe illness will die from the infection.

What can you do to protect yourself from WNV?

Since WNV is most commonly spread by mosquitoes, here are some things you can do to reduce your chances of being bitten:

- Schedule outdoor events to avoid the hours between dusk and dawn, when mosquitoes are most active.
- When you are outdoors, wear long pants, a long-sleeved shirt and socks. This may be difficult to do when the weather is hot, but it will help keep mosquitoes away from your skin.
- Use a repellent with **DEET** (N, N-diethyl-m-toluamide), **permethrin**, **picaridin** (KBR 3023), **IR3535** (3-[N-butyl-N-acetyl]-aminopropionic acid) or **oil of lemon eucalyptus** [p-menthane 3, 8-diol (PMD)] according to the instructions on the product label.
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Did you know?

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Updated: March 2011

Frequently Asked Questions about Mosquitoes in Massachusetts

Massachusetts Department of Public Health, 305 South Street, Jamaica Plain, MA 02130

Are there different kinds of mosquitoes?

Yes. About 3000 different kinds (also called "species") of mosquitoes have been identified worldwide, with more than 150 different kinds of mosquitoes found in North America. Fifty-one different kinds of mosquitoes have been found in Massachusetts.

Where are mosquitoes usually found?

Most adults spend the day in damp, shady areas where they can find protection from the sun; some of them will even hide in your house. Mosquitoes need water to lay their eggs in and plants to hide in so they are usually found around water and plants. Mosquito eggs are laid on water or damp soil where the young mosquitoes grow and develop.

Different mosquitoes prefer different kinds of water. Some like swamps or ponds and others prefer water in swimming and wading pools, old tires, watering cans, flower pots, trash cans, etc. When the young mosquito turns into an adult, it leaves the water and flies away.

How long do mosquitoes live?

Most female mosquitoes live for less than 2 weeks and most male mosquitoes live for less than a week. However, when the conditions are right, some mosquitoes will live up to 8 weeks. The life cycle of all mosquitoes includes four different stages: egg, larva, pupa, and adult. Adult mosquitoes are the only ones that fly.

Why do mosquitoes bite?

Only female mosquitoes bite to suck blood. The female uses the blood to make eggs. Male and female mosquitoes use plant nectars and fruit juices as their main source of food.

Do all female mosquitoes bite humans?

No. Different kinds of mosquitoes like different types of blood. Some mosquitoes feed on animals like frogs, turtles and birds. Other kinds bite mammals, including horses and humans. Some will bite both birds and mammals including humans. These mosquito species play an important role in spreading disease between birds and other mammals, including humans. *Diseases that are usually found in birds can be transmitted to humans (and some other mammals, like horses) by mosquitoes that bite both birds and mammals.*

When am I most likely to be bitten by a mosquito?

You can be bitten at any time. Different kinds of mosquitoes are active at different times of the day. Most mosquitoes are active from just before dusk, through the night until dawn.

Did you know?

Some kinds of mosquitoes can fly 1.5 miles per hour.

How does a mosquito find an animal or human to bite?

Female mosquitoes are attracted to the gas (carbon dioxide) that humans and other animals breathe out. Mosquitoes can follow a stream of carbon dioxide from as far as 50 feet away. Mosquitoes are also attracted to substances like lactic acid on your skin, which your body produces in greater amounts when exercising. Mosquitoes may also be attracted to certain scents or fragrances and are more attracted to dark colors than light colors.

Why are mosquito bites a concern?

Some mosquitoes carry germs that can make people and some animals sick. Mosquitoes can transmit germs when they bite. In Massachusetts, the diseases linked to mosquitoes are West Nile virus (WNV) and eastern equine encephalitis (EEE) virus.

Do all mosquitoes spread germs to people?

No. In fact, most mosquito bites will only cause itching or skin irritation. However, some species found in Massachusetts carry viruses that can cause illness.

Where can I get more information?

- **For information on diseases spread by mosquitoes and how to prevent them:** call the MDPH, Division of Epidemiology and Immunization at 617-983-6800 or visit the MDPH Arbovirus website at <http://www.mass.gov/dph/wnv>
- **For information on mosquito species found in Massachusetts** visit the MDPH Arbovirus website at <http://www.mass.gov/dph/wnv>
- **For information on mosquito repellents:** review the MDPH Public Health Fact Sheet on Mosquito Repellents online at <http://www.mass.gov/dph/factsheets/bid> If you can't go online, call the MDPH at (617) 983-6800 for a hard copy.
- **For information on mosquito control in your city or town:** The State Reclamation and Mosquito Control Board (SRMCB) within the Massachusetts Department of Agricultural Resources oversees mosquito control in Massachusetts (<http://www.mass.gov/agr/mosquito/>). The SRMCB can be contacted at 617-626-1777. There are nine established mosquito control districts in the state that provide service to many cities and towns. Information for each district can be found at www.mass.gov/agr/mosquito/districts.htm. Also, you can contact your local board of health concerning mosquito problems.

This document was developed in conjunction with the State Reclamation and Mosquito Control Board and the Massachusetts Mosquito Control Projects.

April 2009