



Frequently Asked Questions: Aerial Spraying to Reduce the Risk of Eastern Equine Encephalitis July 2012

What is Eastern equine encephalitis (EEE)?

Eastern equine encephalitis (EEE) is a rare but serious disease caused by a virus. The virus infects birds that live in freshwater swamps and is spread from bird to bird by infected mosquitoes. If a mosquito infected with the virus bites a horse or human, the animal or person can become sick. The risk of getting EEE is typically highest from late July through early September.

Is EEE a serious health problem?

EEE can cause severe illness in any age group; however people under the age of 15 are at particular risk. The death rate for humans who get EEE is high, and survivors often suffer severe neurological damage.

What does the state do to protect people from EEE?

Public health workers collect and test mosquitoes for EEE through the season. When EEE is found in mosquitoes, public health officials then issue warnings to the public. Regional mosquito control workers drain or otherwise modify sites where mosquitoes develop, and they treat yet other sites to kill immature mosquitoes (larvae) developing in wetlands or adults that are on the wing.

When EEE risk becomes too great, state agencies carefully consider treating entire towns or regions with insecticides applied by airplane.

MDPH also offers tips on how residents can reduce mosquito problems around their own homes. These include:

- 1) drain water-holding containers where mosquitoes can breed, such as garbage cans, flower pots, bird baths, discarded auto-tires and other items;
- 2) install and repair window screens to keep mosquitoes out;
- 3) stay indoors when mosquitoes are at peak activity, between dusk and dawn;

- 4) use FDA-approved insect repellents wisely (follow the instructions of the product); and
- 5) wear clothing to cover and protect skin.

What is the process for making the decision to conduct aerial spraying in Massachusetts and who is responsible for making that decision?

Officials from the state Department of Public Health, the Department of Agricultural Resources and other agencies carefully consider the level of risks from EEE as well as risks from the spraying. Spraying is performed only when it is considered necessary and practical. .

How is aerial spraying conducted?

Specialized aircraft and pilots are hired to spray only where and when necessary. The spraying generally occurs at night, from dusk to midnight, when mosquitoes are most active. The insecticides are applied as a fine mist to the air. These droplets tend to hang in the air where they'll contact flying mosquitoes.

What are the goals of an aerial spray program?

The spray program is designed to quickly and effectively reduce the overall mosquito population in the affected area. This DOES NOT eliminate the risk of being bitten by an infected mosquito. Even after the aerial spraying has been completed, it is vitally important that people continue to take personal precautions to avoid getting bitten by mosquitoes: use insect repellent, cover up when outdoors, and avoid outdoor activities between dusk and dawn – when mosquitoes are most active.

Why is it sometimes necessary to delay or cancel aerial spraying that have been scheduled?

Aerial spraying is not effective if it's too cold, too windy, or raining. Aerial spraying is postponed when these conditions are present.

What areas are not sprayed?

The sprays are not applied to surface drinking water supplies, certified organic farms, fish hatcheries, and certain endangered species habitats. Maps of areas to be sprayed (and not sprayed) are made by computer and are posted online. These maps also guide the flight paths of the airplanes and the areas to be treated. The spray equipment is automatically controlled by computer to better ensure that insecticides are applied only where desired.

What pesticide products are sprayed?

The State currently uses the product Anvil, containing sumithrin as an active ingredient, for spraying by airplane. This is a man-made relative of a product that is naturally made by chrysanthemum flowers. Sumithrin can also be found in other products used indoors to kill insects, and is contained in some pet tick and flea shampoos and lice treatments. Piperonyl butoxide is another active ingredient in the product, acting to increase the ability of sumithrin to kill mosquitoes.

Does aerial spraying use a stronger solution of the product?

No. Whether sprayed from trucks or airplanes, the concentration and amount used (per acre) of the product is the same. At most, only slightly more than one half- ounce of the sumithrin is applied per acre.

What products are applied against mosquitoes in other States?

Mosquito control agencies in many other states routinely apply these same products, including New York, New Jersey, Illinois, Delaware, North Carolina, Arkansas, Florida, Alabama, Louisiana, and Texas.

Aren't these products dangerous to people or pets?

No. The very low concentration used is not expected to cause health problems in people or pets.

How do we know that aerial spraying for mosquito control should not cause a danger to people or pets?

The U.S. Centers for Disease Control and Prevention (CDC) reported that when applied properly in a mosquito-control program, these insecticides pose only a low and temporary risk for health effects among persons in areas that are being sprayed and among workers handling and applying insecticides.

Does aerial spraying pose a risk to a person with a pre-existing condition?

Yes, for some people, short-term exposure at low levels may exacerbate existing respiratory conditions (e.g., asthma) or cause irritation of the eyes, skin, nose, throat or lungs. For these reasons, individuals should consider taking steps to minimize their exposure risk to sumithrin if it is applied to control mosquitoes. You should call your doctor, call the Massachusetts Poison Control Center at (800) 222-1222, or go to your local emergency room if you believe that you are experiencing any symptoms that may be related to pesticide exposure.

Could there be health concerns to a pregnant woman or her developing child?

Pregnant women should always take care to avoid any unnecessary chemical exposure. Sumithrin, as applied for mosquito control, is unlikely to cause measurable risk to a pregnant woman or her child.

Could the aerial spraying result in long-term health effects?

Studies done to date do not suggest that these products, as applied, will result in any measurable long-term health effects.

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

You should call your doctor, call the Massachusetts Poison Control Center at (800) 222-1222, or go to your local emergency room if you believe that you are experiencing any symptoms that may be related to pesticide exposure.

Does sumithrin harm the environment?

When used for mosquito control, sumithrin is applied to the air, not to the ground or vegetation. Most of the tiny droplets simply evaporate or waft away before they hit the ground. Of the few that do settle to the ground, these are rapidly destroyed by sunlight. Because this insecticide is

harmful to other kinds of insects and to fish, the product is applied when it is most likely to contact mosquitoes, and it is not applied to water bodies.

What kinds of precautions are recommended if aerial spraying is scheduled in my area?

You can reduce/eliminate your exposure risk to the insecticide by staying indoors during spraying. Otherwise, no special precautions are recommended. The active ingredients of the pesticide product as it is used for aerial application for mosquito control generally break down quickly and do not leave a toxic residue.

If individuals want to take extra steps to minimize or avoid exposure, what steps can be taken?

Keep your windows closed and turn off window fans during the time spraying occurs. If your air conditioner has a fresh air intake feature, you may want to shut off the intake during the time of spraying. In very hot weather, make sure you open the windows or turn fans and air conditioners back on soon after the aerial spraying is completed in your immediate area.

Keep pets indoors when spraying is occurring in your immediate area to minimize their risk of exposure. Pets that remain outdoors could be exposed to small amounts of pesticide, but would not be expected to experience adverse health effects from the spraying. Again, there are many pesticide products (e.g., flea collars, pet shampoo, dips) containing sumithrin that are used directly on pets to control ticks and insects.

If skin or clothes or other items are exposed to the sprayed pesticide, wash with soap and water.

If the spray gets in your eyes, immediately rinse them with water or eye drops, and call your doctor.

Because sumithrin breaks down quickly in sunlight and water, and considering dilution factors, no special precaution or waiting periods are recommended for outdoor swimming pools or beaches.

Sumithrin and similar-type pesticides are toxic to fish. If you have a small ornamental fish pond, you may want to cover it during the night of spraying

Following the aerial spray, rinse any homegrown fruits and vegetables with water.

Should beekeepers, take special precautions to protect their bees or hives prior to or following aerial spraying?

No. The products are applied at night. Because most honey bees are in the hive at night, they will not be exposed. In general, the pesticides used by Massachusetts state agencies to control mosquitoes break down quickly in sunlight and should not pose unacceptable risk to bees.

Whom should I contact to find out whether or when aerial spraying will be conducted in my area?

Maps that show the planned aerial spray areas will be posted at www.mass.gov/dph and www.mass.gov/agr. Your local health department will also be aware of any plans for aerial spraying, and announcements will be made through local media outlets in the affected spray areas

For more information, please contact:

- **For general information about mosquito control:** visit the following webpage www.mass.gov/agr/mosquito/index.htm or contact the State Reclamation and Mosquito Control Board within the Massachusetts Department of Agricultural Resources at (617) 626-1777.
- **For questions about mosquito control in your city or town:** Contact your local board of health (listed in the telephone directory under “government”)
- **For questions about aerial spraying and health effects of pesticides or to report any concerns about adverse reactions to pesticides:** MDPH Bureau of Environmental Health at (617) 624-5757
- **For general questions about EEE:** MDPH, Division of Epidemiology and Immunization at 617-983-6800 or toll free at 1-888-658-2850 or online at www.mass.gov/dph/mosquito. You may also contact your local board of health (listed in the telephone directory under “government”).

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