

WEST NILE VIRUS QUESTIONS ABOUT SPRAYING AND MOSQUITO CONTROL

Q1: What is West Nile virus (WNV)?

A: WNV is a virus carried by certain species of mosquitoes that pick it up after biting infected birds. The virus is mainly transmitted between birds by mosquitoes. Occasionally, mosquitoes may also transmit the virus by biting humans and other mammals. Most human WNV infections are not associated with any symptoms or are associated with only mild, flu-like symptoms. Occasionally, however, severe human infection may occur, which in some cases can be fatal. The elderly, in particular, are at risk.

Q2: How is West Nile virus spread?

A: WNV is spread to humans by the bite of an infected mosquito. A mosquito becomes infected by biting a bird that carries the virus. The virus cannot be passed from person to person. WNV is not spread by contact with an infected person.

Q3: Where did West Nile virus come from?

A: WNV has caused outbreaks in many areas of the world including countries in Africa, Eastern Europe, and Asia. WNV was first identified in the United States in 1999 during an outbreak of 62 cases of encephalitis in New York City. We do not know for certain, but the virus most likely came into the United States carried by an infected bird, mosquito or person.

Q4: How can the risk of West Nile virus be reduced?

A: The risk of West Nile virus can be reduced by controlling mosquito populations and by reducing their opportunities to feed on people. A comprehensive mosquito control program will involve a number of activities that include the following:

- a) Surveillance – regular testing of mosquitoes and birds for the virus
- b) Source reduction - removal of potential breeding sites such as containers that hold water (garbage cans, flower pots, birdbaths, etc.), discarded auto tires, etc.
- c) Larviciding - the application of chemicals or special bacterial agents (or larvicides) to known mosquito breeding areas such as sewer catch basins. These agents inhibit the growth of mosquito larvae (the early stage of the mosquito) from developing into the adult form. They come in various formulations such as briquettes and pellets that are dropped directly into catch basins.
- d) Outreach - educating the public about what steps they can take to prevent mosquitoes from breeding around their home (e.g., source reduction), and how to avoid being bitten by mosquitoes (e.g., repair window screens in your home, wear clothing that covers your skin when outside, use effective mosquito repellent, etc.)
- e) Adulticiding - the application of pesticide chemicals that kill the adult form of the mosquito by truck-mounted sprayers or aurally in areas where mosquitoes breed.

Q5: How effective is adulticiding at reducing the number of adult mosquitoes?

A: The effectiveness of adulticiding depends on a number of variables that include: which species of mosquitoes are present; what chemicals are used; when and how often they are applied; weather conditions; and the density of homes and streets in a community. It is generally considered an effective means of temporarily reducing adult mosquito populations and has been done in the U.S. and other countries for many years for nuisance reasons and more importantly, as a means of reducing and preventing mosquito-borne disease. *Adulticiding may or may not be done in a given year and if it is implemented, is not the sole or even predominant activity of any mosquito control program in Massachusetts.* The other activities listed above – elimination of breeding sites, outreach, and larviciding – ideally should precede adulticide spraying in that they help to prevent the appearance of adult mosquitoes in the first place, thereby reducing the need to adulticide.

Q6: Is all pesticide spraying in Massachusetts due to West Nile virus?

A: No. Spraying to control adult mosquitoes has been done for many years in Massachusetts communities primarily to reduce nuisance mosquitoes and to prevent human cases of Eastern Equine Encephalitis (EEE), a rare but life-threatening illness. EEE is of concern mainly in the southeastern part of Massachusetts, in Plymouth, Bristol, and some portions of Norfolk Counties. Adulticide spraying for nuisance reasons and to prevent human cases of West Nile virus can occur in any part of the Commonwealth.

Q7: What pesticides are used for adulticide spraying in Massachusetts? Have they ever been used in the Commonwealth before?

A: Typically, synthetic pyrethroid pesticides are used in ground spraying operations for adult mosquito control in Massachusetts. These pesticides (or adulticides) have been used in Massachusetts for many years. They are chemically similar to pyrethrums, a natural pesticide produced by chrysanthemum flowers. For ground spraying operations, usually resmethrin is used. The product name is “Scourge” and it contains in addition to resmethrin, another active ingredient called piperonyl butoxide (PBO), which increases the ability of resmethrin to kill mosquitoes upon contact. Other pesticide products sold in Massachusetts contain pyrethroid ingredients and are generally used to treat head lice on children and fleas and ticks on pets.

Q8: How are the pesticide products typically applied?

A: Adulticides are typically applied from truck-mounted sprayers as a fine mist. Most of each droplet is composed of the soybean or mineral oil carrier used to dilute the pesticide product. Mosquitoes die after they come in contact with the tiny droplets of the pesticide. Pesticide products that deposit on surfaces as part of a mosquito control program (e.g., grass, outdoor toys and furniture, etc.) degrade quickly, particularly once exposed to sunlight. Adulticiding for West Nile virus is generally performed late at night to target the particular species of mosquitoes that are known to carry the virus.

Q9: Why do I see mosquitoes on my street the day after adulticide spraying was done?

A: There are several reasons why you might see mosquitoes the day after adulticide spraying. The mist of pesticide cannot reach all mosquitoes, so you could be seeing ones that were active at the time of spraying, but did not come in contact with the droplets of pesticide. During hot weather, new mosquito larvae mature to adult form each day. Thus, the mosquitoes you are seeing may also represent a new population of adults. Also, different species of mosquitoes are active at different times of the day. Since adulticide spraying for West Nile virus is usually done late in the evening, those species of mosquitoes not active at that time would not be affected by the spraying. (If you notice trucks doing ground spraying early in the evening, you may want to contact your local health department or board of health. It is possible, however, that routine mosquito control efforts may include early evening or early morning spraying activities).

Q10: Who decides where to spray adulticides and when? How is this decision made?

A: Decisions about whether to spray to reduce WNV risk are made at the city or town level. Decisions about where and when to spray are usually made by the local health department or board of health.

Q11: Does the State recommend spraying to communities?

MDPH convened meetings of local officials, academic experts, and other interested people to develop a plan for reducing the risk of West Nile virus infections. This plan emphasizes prevention and methods of reducing mosquito numbers that avoid the use of adulticides. In situations of high risk of an outbreak of human disease, the MDPH plan recommends consideration of the use of adulticide spraying to reduce mosquito numbers in those specific areas of high risk.

Q12: Who does the spraying of adulticides?

Most pesticide application for mosquito control is done by Regional Mosquito Control Projects under the management of the State Reclamation and Mosquito Control Board. The Projects have full-time staff to advise and assist member cities and towns on mosquito control strategies. Most types of larvicides and adulticides can only be applied in Massachusetts by the Projects. Cities and towns that do not belong to a Project and wish to begin mosquito control activities can either join or contract with a Project or hire commercially licensed pesticide applicators.

Q13: Are pesticide applicators licensed?

A: Pesticide applicators must be licensed or certified by the Massachusetts Department of Food and Agriculture Pesticide Bureau. The certification process includes training on the proper use of pesticides.

Q14: Can some people experience health effects from adulticide spraying?

A: While most people are not expected to experience any adverse health effects after pesticide spraying for adult mosquito control near their home, some individuals are particularly sensitive to some of the pesticide product ingredients and may experience some short-term adverse health effects such as eye, skin, nose and/or throat irritation, breathing problems, and nausea. **You should call your doctor if you believe that you are experiencing any symptoms that may be related to pesticide exposure.**

Q15: What about health effects related to exposure for pregnant women?

A: A number of laboratory studies have been conducted that have specifically addressed the question of whether or not these pesticides are linked to any developmental or health effects in unborn children. From these studies, it has been determined that unless a unique and unpredicted exposure occurred, the spraying of these pesticides for mosquito control should pose no added risk to pregnant women and unborn children.

Q16: Can these targeted ground sprays with adulticides harm other insects or wildlife?

A: The US EPA has evaluated these pesticides for their safety and has determined that they do not pose an unreasonable risk to birds or mammals if used according to the product label directions. However, the pyrethroid adulticides are considered highly toxic to fish and bees. Therefore, these products are not permitted to be applied to or near open water bodies or in sensitive environments such as wetlands.

Q17: What kinds of precautions should I take when adulticide spraying is scheduled for my street?

A: You can reduce your exposure to the spray by staying indoors during spraying. There are otherwise no special precautions that should be taken. The active ingredients of the pesticide product generally break down quickly and do not leave a toxic residue.

Q18: If individuals want to take extra steps to minimize or avoid exposure, what steps can be taken?

A: Common sense steps that can be followed in areas where adulticide spraying is scheduled to take place include:

- ~~☞~~ People with asthma and/or other respiratory conditions may wish to stay indoors, since it is possible that if exposure to pesticide spray actually occurred, it could aggravate those conditions. These individuals may want to consult their physician or local health department or board of health for further advice.
- ~~☞~~ If the immediate area of your home is being sprayed, keep windows closed and fans off. Shut off air conditioners unless they have a setting for recirculating indoor air. If it is very hot

weather, make sure you open the windows and/or turn fans and air conditioners back on after the truck passes your home.

- ~~/~~ Rinse any homegrown fruits and vegetables with water as is typically done before cooking or eating them.
- ~~/~~ Keep pets indoors during spraying to minimize their risk of exposure.
- ~~/~~ If skin and/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.

If you think that you are experiencing any health effects from pesticides, call your doctor or the Massachusetts Poison Control Center (800) 682-9211 or (617) 232-2120. Toxicology staff at the MDPH can also be consulted by calling the WNV information line at 1-866-WNV-MASS (press 5 to be connected to the Environmental Toxicology Program), or by calling (617) 624-5757.

Q19: Should I be concerned about covering the swimming pool in my yard?

A: All types of pesticides used in spraying operations for adult mosquito control break down quickly in sunlight and water. Therefore, no special precautions or waiting periods are recommended for outdoor swimming pools. However, if a pool is not being used during the summer months (e.g., if it not being chlorinated or filtered), keep it covered or have it drained. **Any standing body of water is a potential breeding ground for mosquitoes.**

Q20: How do I find out if spraying for mosquitoes will occur in my neighborhood and when?

A: Your local health department or board of health will know best if spraying for mosquitoes is likely to occur in your community. The MDPH State Laboratory Institute tests mosquitoes for the virus on a regular basis. A community's decision to spray may depend on a number of factors such as the results of mosquito surveillance efforts, the results of testing of dead birds for the virus, and the number of dead birds reported to the lab by the public. During the summer, this information can change from one week to the next so therefore, it is possible that the decision to spray will be made only a few days before it will occur. For this reason, check your local newspaper, radio station, cable television station, or your community's website for updates.

Q21: If I work or spend time in other communities where I do not live, how do I find out if those communities are scheduled for spraying?

A: Each community's health department or board of health or the office of the Mosquito Control Project to which that community belongs would have the most accurate information. However, not all Massachusetts communities belong to a Project. The telephone numbers for each Project may be found by calling the Massachusetts Department of Food and Agriculture at (617) 626-1700 or by going to their website at <http://www.massdfa.org/wnv/index.htm>. Unfortunately, if you need information about spraying in several towns, you may have to make a

number of calls. Because this information can change quickly, the most reliable source of information on spraying is usually the city or town itself.

Q22: Who can I call if I have more questions?

A: Call your local health department or board of health if you have any questions about West Nile virus or mosquito control. This fact sheet and other fact sheets about the virus are available on the Massachusetts Department of Public Health website (<http://www.state.ma.us/dph>) or you can call the Department's West Nile virus hotline at **1-866-MASS-WNV or 1-866-627-7968**.

Q23: What are some other sources of information on West Nile virus and pesticides?

A : You may find additional information at your local library or by searching the following websites:

For more information about pesticides:

U.S. Environmental Protection Agency, www.epa.gov/pesticides/factsheets

National Pesticides Telecommunications Network (NTPN), <http://ace.orst.edu/info/nptn/wnv/>

For more information about West Nile virus:

Centers for Disease Control, www.cdc.gov/ncidod/dvbid/westnile

You might also look at the websites for other states that have been active in West Nile virus surveillance activities such as:

New York, www.health.state.ny.us/

Connecticut, www.state.ct.us/dph

New York City, www.ci.nyc.ny.us/html/doh

New Jersey, www.state.nj.us/health