Protect Yourself from Bites

Even though your property may be devoid of mosquito breeding sites, mosquitoes can travel two to three miles from their breeding site in search of a blood meal. Following these tips can reduce your risk of being bitten by a mosquito:

- Make sure window and door screens are "bug tight."
- Use the proper type of light outside; incandescent lights attract mosquitoes, while fluorescent lights neither attract nor repel mosquitoes.
- Stay indoors at dawn and dusk, when mosquitoes are most active. If you must go outdoors, wear a long-sleeved shirt and long pants.
- Insect repellents, when applied (sparingly) to exposed skin, deter mosquitoes from biting. Spray thin clothing with repellent since mosquitoes can bite through it. Be sure to follow all directions on product labels.
- In April 2005, the Centers for Disease Control and Prevention released new guidance about effective mosquito repellents. In addition to DEET, two additional active ingredients, picaridin and oil of lemon eucalyptus, have been shown to offer long-lasting protection.
- Mosquitoes are repelled by high winds, so electric fans may provide some relief at outdoor events.
- Vitamin B and "ultrasonic" devices have not been proven effective in preventing mosquito bites.

How to Submit a Dead Bird

The Commonwealth of Pennsylvania is strongly encouraging citizens to report and submit dead birds for West Nile virus testing. Reporting can be done online, while submissions must be done through your West Nile county coordinator. All species of birds, except chickens and water fowl, will be tested; however, only a limited number of birds will be tested each week. The information you provide is important and will be entered into a database for tracking purposes since birds provide an early warning that the virus is active in an area. For more information, please visit the Pennsylvania Department of Health's Web site at www.westnile.state.pa.us or call toll-free at 1-877-PA-HEALTH (724-3258).

References

Penn State's West Nile Virus Web Site:
www.pested.psu.edu/issues/wnv

Using Insect and Tick Repellents Safely
(Pesticide Education Program):
pubs.cas.psu.edu/freepubs/pdfs/uo211.pdf

Pennsylvania Department of Health Web Site:
www.westnile.state.pa.us
Toll-free telephone number:
1-877-PA-HEALTH (724-3258)

Centers for Disease Control and Prevention:
www.cdc.gov/ncidod/dvbid/westnile/index.htm

American Mosquito Control Association:
www.mosquito.org

Prepared by the West Nile virus coordinating committee at Penn State.

Visit Penn State's College of Agricultural Sciences on the Web:
www.cas.psu.edu

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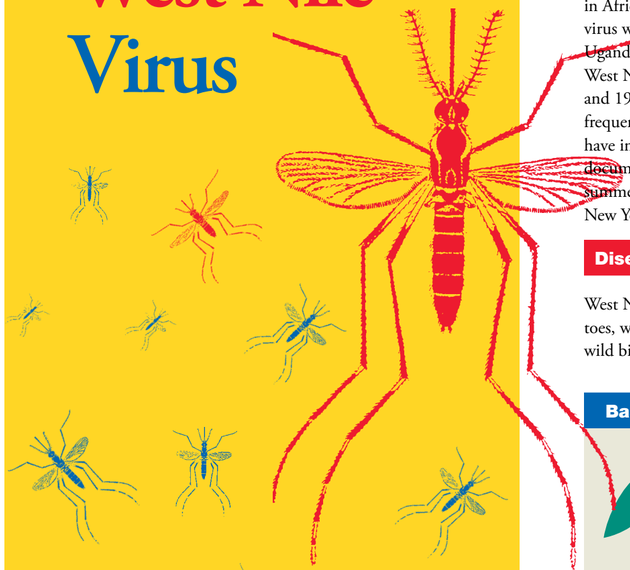
West Nile Virus



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The West Nile virus, which can cause encephalitis, is commonly found in humans, birds, and other animals in Africa, Europe, Asia, and the Middle East. The virus was first isolated in the West Nile province of Uganda in 1937. The earliest recorded epidemics of West Nile encephalitis occurred in Israel between 1951 and 1954 and again in 1957. Since the mid-1990s, the frequency and severity of West Nile virus outbreaks have increased. West Nile encephalitis had never been documented in the Western Hemisphere before the late summer of 1999, when an outbreak occurred in the New York City metropolitan area.

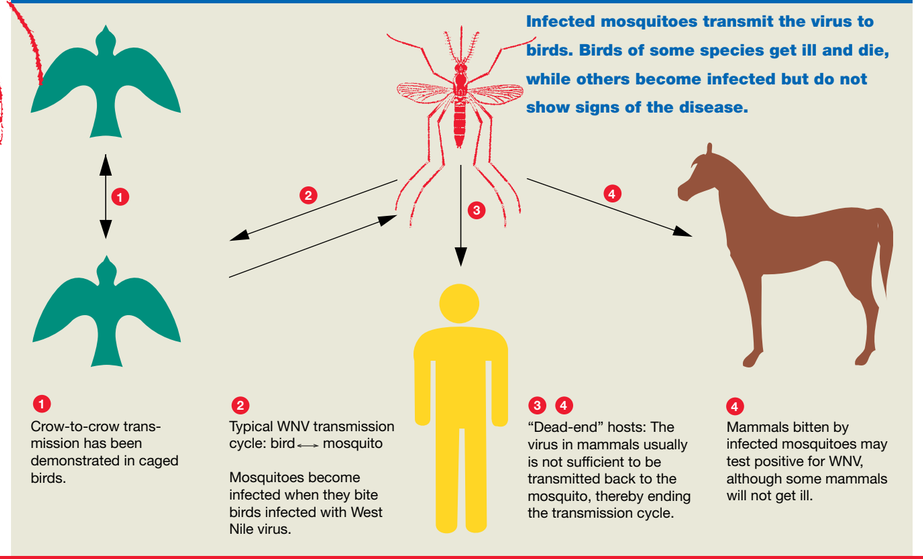
Disease Transmission

West Nile virus is transmitted by infected mosquitoes, which become infected after biting infected wild birds—the primary hosts of the virus. The virus circulates and multiplies for several days in a mosquito's blood before penetrating its salivary glands. After an incubation period of 10 to 14 days, an infected mosquito can transmit the virus to both humans and animals while feeding on them.

Most female mosquitoes must take a blood meal before they can lay eggs. A female's persistent search for blood can bring it into houses and yards where it may come into contact with people. Fortunately, even in areas where mosquitoes do carry the virus, very few mosquitoes are infected. So, the chance of being bitten by an infected mosquito is small.

Since 2002, the Centers for Disease Control and Prevention (CDC) has confirmed additional routes of transmission, including organ transplants, blood transfusions, pregnancy (mother-to-child), and breastfeeding.

Basic Transmission Cycle of the West Nile Virus (WNV)



The CDC is working with other agencies to track and further investigate these types of cases. Remember, the vast majority of human WNV infection occurs through the bite of a WNV-infected mosquito.

Geographic Distribution

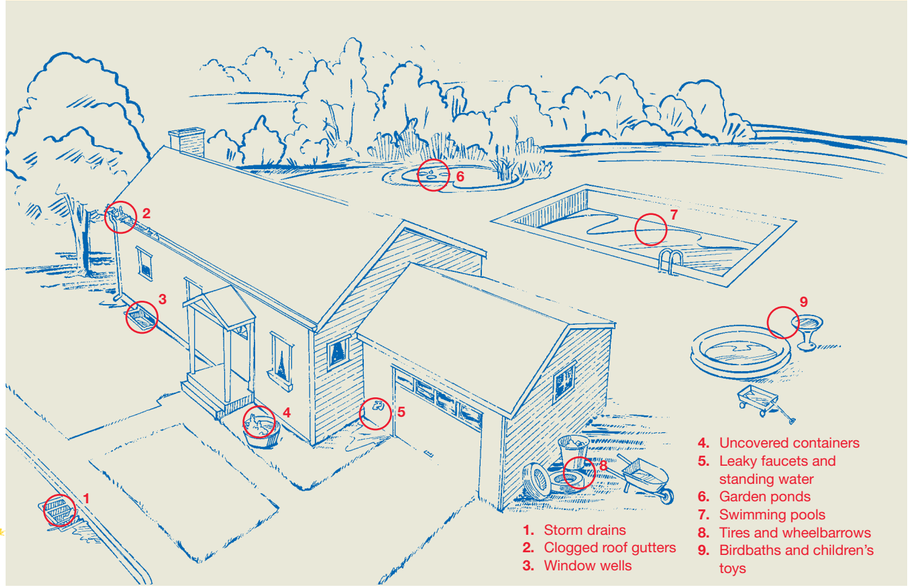
West Nile virus was first detected in just four northeastern states in 1999. Since then, West Nile virus has been detected in wild birds, mosquitoes, horses, and humans and its distribution has continued to spread across the United States. In 2000, West Nile virus was detected in the Northeast and Mid-Atlantic states, and then in the Southeast and Midwest in 2001. By 2002, West Nile virus had reached the West Coast. In Pennsylvania, West Nile virus has been detected every year since 2000. The number of human cases in Pennsylvania peaked in 2003 at 237, but since then the numbers have been considerably lower (25 and fewer).

Symptoms of West Nile Encephalitis

The incubation period of a West Nile virus infection in humans is usually 3 to 14 days. Most people who are infected with the virus have either no symptoms or mild ones such as fever, headache, fatigue, body aches, and occasionally a mild skin rash or swollen lymph glands. Less than 1 percent of those infected with WNV will develop a more severe infection, which may lead to encephalitis, meningitis, meningoencephalitis, or poliomyelitis. These symptoms include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. In some cases, death can occur.

All residents living in areas where West Nile virus has been detected potentially can become infected with the virus. However, only a small number of people who become infected will develop a serious case of encephalitis. People over 50 years of age are at greater risk of becoming severely ill. Nevertheless, anyone, regardless of age, is at risk.

Mosquito Breeding Sites



Diagnosis and Treatment

Although there is no specific treatment, medication, or cure, the symptoms and complications of West Nile encephalitis can be treated. Severe cases may call for hospitalization, intravenous (IV) fluids, airway management, respiratory support, and prevention of secondary infections such as pneumonia. Please check with your health care provider regarding current preventative and treatment actions. Currently, many scientists are working on developing a vaccine against West Nile encephalitis for humans.

Prevention and Control

You can reduce the number of mosquitoes around your home and neighborhood by eliminating standing water, in which mosquitoes can breed.

- Dispose of any refuse, such as tin cans, containers, and in particular used tires, that can hold water. Tires have become the most important mosquito breeding sites in the country.
- Drill holes in the bottoms of recycling containers, and check uncovered junk piles.
- Clean clogged roof gutters every year, and check storm drains, leaky faucets, and window wells.
- Empty accumulated water from wheelbarrows, boats, cargo trailers, toys, and ceramic pots. If possible, turn them over when not using them.
- Do not allow water to stagnate in birdbaths, ornamental pools, water gardens, and swimming pools or their covers. Ornamental pools can be aerated or stocked with fish. Swimming pools should be cleaned and chlorinated when not in use.
- Alter the landscape of your property to eliminate standing water. *Keep in mind that during warm weather, mosquitoes can breed in any puddle of water.*

Use DEET Repellents Properly

DEET remains one of the most widely used insect repellents. Products containing 10 to 35 percent DEET will provide adequate protection for most people under most conditions. The American Academy of Pediatrics (AAP) has updated their DEET recommendations for children, citing: "Insect repellents containing DEET with a concentration of 10 percent appear to be as safe as products with a concentration of 30 percent when used according to the directions on the product labels." A higher percentage of DEET in a repellent does not indicate better protection—just that the protection will last longer. To use a repellent product safely, regardless of its active ingredient, follow these guidelines:

- Verify that the product has an Environmental Protection Agency (EPA) registration number. Its presence on the label means the product was approved for use by the EPA.
- Before using any product, read and understand the directions on its label.
- Do not spray a repellent in an enclosed area or near food, and do not inhale aerosol formulations.
- According to the AAP, DEET should not be used on infants under two months of age. Other guidelines cite not using DEET until children are two years of age.
- Use just enough repellent to lightly cover exposed skin and clothing. Never apply repellents to cuts, wounds, or inflamed and irritated skin. Do not saturate the skin or apply beneath clothing.
- To apply a repellent to your face, first dispense or spray it onto your palms and rub your hands together. Then apply a thin layer to the surface of your skin. Do not place repellent in your eyes or mouth.
- Do not allow children to apply DEET by themselves. Do not apply a repellent directly to a child's skin. First apply it to the palms of your own hands and then apply it to the child. Do not apply repellent to children's hands since they may touch their eyes and mouth, causing irritation.
- DEET can damage some plastics, synthetic fabrics, leather, and painted or varnished materials. DEET does not damage natural fibers such as cotton or wool.
- After applying a repellent, wipe or wash it from your hands.
- A single application of a repellent is sufficient under most conditions. Avoid prolonged or excessive use of DEET.
- If a sunscreen product is needed, it should be applied first, followed by a DEET repellent product. CDC does not recommend using a combination sunscreen/DEET product.
- Once indoors, wash all treated skin and clothing with soap and water. Wash treated clothing before wearing it again.
- If you suspect someone is reacting negatively to an insect repellent, discontinue its use, wash treated skin, and call the National Poison Center number: 1-800-222-1222. If you must see a doctor, take the repellent with you.

A very small segment of the population may be sensitive to DEET and/or other insect repellents. For more information about DEET, contact the National Pesticide Information Center at 1-800-858-7378 or your health care provider.