



**STATE OF NEW HAMPSHIRE  
DEPARTMENT OF HEALTH AND HUMAN SERVICES  
DIVISION OF PUBLIC HEALTH SERVICES**



## **PREVENTING DISEASES SPREAD BY MOSQUITOES**

In New Hampshire, some mosquitoes can transmit Eastern Equine Encephalitis (EEE) and West Nile virus (WNV). Since 2003, several NH residents have been diagnosed with EEE and WNV and some have died. People became sick between late July and early October. The best way to prevent both EEE and WNV is by avoiding mosquito bites. Residents can take simple and inexpensive precautions to avoid being bitten by mosquitoes and to eliminate mosquito breeding sites.

### **What is the best way to avoid mosquito bites?**

When mosquitoes are active, take the following precautions:

- ✓ If outside during evening, nighttime and dawn hours, or at any time mosquitoes are actively biting, children and adults should wear protective clothing such as long pants, long-sleeved shirts, and socks.
- ✓ If outside during evening, nighttime and dawn hours, or at any time mosquitoes are actively biting, consider the use of an effective insect repellent.
- ✓ Repellents containing DEET (N, N-diethyl-methyl-meta-toluamide) have been proven effective. No more than 30% DEET should be used on adults or children.
  - The American Academy of Pediatrics (AAP) Committee on Environmental Health has updated their recommendation for use of DEET products on children, citing: "Insect repellents containing DEET with a concentration of 10% appear to be as safe as products with a concentration of 30% when used according to the directions on the product labels."
  - AAP recommends that repellents with DEET should not be used on infants less than 2 months old.
- ✓ Repellents containing picaridin (KBR3023), oil of lemon eucalyptus (a plant based repellent), and IR3535 provide protection similar to repellents with low concentrations of DEET. Oil of lemon eucalyptus should not be used on children under the age of three years.
- ✓ Always use repellents according to manufacturer's directions.
- ✓ Do not allow young children to apply repellent themselves.
- ✓ Do not apply repellent directly to children. Apply to your own hands and then put it on the child's skin.

- ✓ Infants and children should be protected by placing mosquito nets over strollers in the evening, nighttime and dawn hours or at any time mosquitoes are actively biting.
- ✓ The length of time a repellent is effective varies with ingredient and concentration. Avoid prolonged or excessive use of repellents. Use sparingly to cover exposed skin and clothing.
- ✓ Wash all treated skin and clothing after returning indoors.
- ✓ Store repellent out of reach of children.

More information on mosquito repellents is available for physicians in the following technical articles:

Mark S. Fradin, MD, and John F. Day, PhD. Comparative Efficacy of Insect Repellents Against Mosquito Bites. *New England Journal of Medicine*, Volume 347:13-18, July 4, 2002 Number 1.

D.R. Barnard and R.D. Xue. Laboratory Evaluation of Mosquito Repellents Against *Aedes albopictus*, *Culex nigripalpus*, and *Ochlerotatus triseriatus* (Diptera: Culicidae). *Journal of Medical Entomology*, Volume 41(4):726-30. July 2004.

### **What can I do to reduce the number of mosquito breeding sites on my property?**

Mosquitoes lay their eggs in standing water. Adult mosquitoes use weeds, tall grass, and bushes to rest during the daytime. Mosquitoes can enter homes through unscreened windows or doors, or broken screens. Here are some steps that you can take:

- ✓ Make sure that doors and windows have tight-fitting screens. Repair or replace all screens in your home that have tears or holes.
- ✓ Eliminate standing water around residential and commercial areas by discarding outdoor artificial containers such as tin cans, plastic containers, glass bottles, or similar water-holding containers.
- ✓ Do not attempt to drain or alter natural water bodies for mosquito control, since the management of ponds and wetlands is regulated by the Department of Environmental Services and any planned alterations will require a permit before work may begin.
- ✓ Remove all discarded tires from your property. The used tire is the most common site for mosquito breeding in the United States.
- ✓ Dispose of or drill holes in the bottom of containers left outdoors, such as recycling containers or flowerpots. Drainage holes on the sides of containers will still allow enough water for mosquitoes to breed. Do not overlook containers that have become overgrown by aquatic vegetation.
- ✓ Mow grass and weeds as short as possible and thin shrubs to allow air circulation through plants.
- ✓ Make sure roof gutters drain properly. Clean clogged gutters in the spring and fall and as often as necessary to eliminate standing water.
- ✓ Tightly screen “rain barrels” to ensure mosquitoes can’t deposit eggs in or on water.

- ✓ Clean and chlorinate swimming pools, outdoor saunas and hot tubs. If not in use, keep empty and covered. Do not allow these covers to collect standing water.
- ✓ Aerate ornamental pools or stock them with fish. Water gardens become major mosquito producers if they are allowed to stagnate.
- ✓ Turn over wheelbarrows and plastic wading pools when not in use. Both provide breeding sites for domestic mosquitoes.
- ✓ Change water in birdbaths at least twice weekly.
- ✓ Remind or help neighbors to eliminate mosquito breeding sites on their property.

**Note:** Although certain pesticide products are available for sale in the marketplace to control mosquito larvae, one must obtain a special permit from the Department of Agriculture, Division of Pesticide Control to be able to apply pesticides to any surface waters in the State of New Hampshire. Questions regarding how to apply for such special permits may best be directed to the New Hampshire Department of Agriculture, Division of Pesticide Control at 603-271-3550.

**For more information, call the New Hampshire Department of Health  
and Human Services WNV/EEE Information Line at  
1-866-273-NILE (6453)**