



## **AVOID MOSQUITO BITES!**

### **Look for repellents with EPA-registered active ingredients:**

Repellents containing DEET (N, N-diethyl-m-toluamide), picaridin (KBR 3023), or oil of lemon eucalyptus (p-menthane 3,8-diol) typically provide longer-lasting protection than other products.

Permethrin is registered for use on clothing, shoes, bed nets, and camping gear, though not directly on skin. It can provide protection through several washings.

### **Wear clothing that can help reduce mosquito bites**

Wear long sleeves, long pants, and socks whenever possible outdoors. Mosquitoes may bite through thin clothing, so consider spraying clothes with repellent (including permethrin) for extra protection.

### **Be aware of peak mosquito hours**

The hours from dusk to dawn are peak mosquito biting times. You can get bites even during a short time outdoors. Take extra care to use repellent and protective clothing.



## **RESOURCES**

For detailed information about prevention and repellent use, see [www.cdc.gov/westnile](http://www.cdc.gov/westnile) or call the CDC public response hotline at

**1-800-CDC-INFO**

For additional information on repellent safety see the National Pesticide Information Center at <http://npic.orst.edu> or call

**1-800-858-PEST**

For information about WNV transmission in your area consult your local or state health department.



# **WEST NILE VIRUS AND TRANSPLANT RECIPIENTS**



West Nile virus (WNV) causes a potentially serious illness that affects the central nervous system. WNV is now in most of the United States. The most important way people become infected is through the bite of an infected mosquito. People who have ever received a transplant may be at significantly higher risk of developing serious WNV disease, including meningitis and encephalitis.



## Transplant recipients are at increased risk of severe West Nile virus disease

Medicines taken by transplant recipients can make it hard to fight infections. Transplant recipients may develop the severe forms of WNV disease, including encephalitis, meningitis, and even death, more often than persons with normal immune systems.

## The Disease

West Nile virus is a seasonal epidemic in North America that flares up in the summer and continues into the fall.

Some people infected with WNV will develop serious, and sometimes life-altering illnesses that usually require hospitalization, such as West Nile encephalitis and West Nile meningitis — conditions associated with inflammation of the brain or the area around the brain — or West Nile polio-like paralysis. WNV disease occurs between three and 14 days after being bitten by an infected mosquito. **Symptoms of severe WNV disease** include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, muscle weakness, vision loss, numbness, and paralysis. Symptoms can last several weeks, and neurological effects can be permanent.

WNV usually causes no symptoms or less severe illness with fever, headache, body aches, nausea, or vomiting. Sometimes this includes a skin rash on the chest, stomach, and back. These symptoms typically last a few days — but may last several weeks.

**There is no specific treatment for WNV disease.** Human vaccines for WNV are still in the early stages of development.

## Special Considerations for Transplant Recipients

- WNV disease should be considered in any transplant recipient with unexplained fever and/or neurological symptoms during mosquito season. This is true even for recipients who develop the infection long after their transplant.
- As with any illness, contact your health care provider if you think you have symptoms of West Nile virus infection.
- Immunosuppressed recipients may have longer incubation periods, delayed development of antibody, and an increased likelihood of getting severe disease compared to people who are not immunosuppressed.



## Remember!

Keep repellent close at hand during summer months.

**The easiest and best way to avoid WNV disease is to prevent mosquito bites.**

- Use protective clothing and effective repellents whenever you go outdoors.
- Mosquito proof your home. Install or repair screens on windows and doors to keep mosquitoes outside.
- Empty water from buckets, cans, pool covers, flowerpots, pet water dishes, birdbaths, and other items weekly.