

## West Nile Virus

West Nile Virus (WNV) infection is an illness transmitted to humans primarily by mosquitoes. The pathogen that causes WNV infection is a virus that is known to infect birds and other animals as well as humans. Employees working outside are at risk, particularly in warmer weather (when mosquitoes are more likely to be present). The following information below is designed to educate employers and workers on the virus and also offer ways to reduce the risks of infection.

### What are the signs and symptoms of West Nile Virus?

In most cases, persons infected with WNV either show no symptoms or have very mild flu-like symptoms, called West Nile fever. These mild cases of West Nile fever normally last only a few days and are not believed to cause any long-term effects. The typical time from infection to the onset of signs and symptoms is 3 to 14 days. Signs and symptoms of the milder illness, West Nile fever, include headache, fever, body aches, swollen lymph nodes, and/or a skin rash on the body.

According to the Centers for Disease Control and Prevention (CDC), severe illness is reported to occur in about 1 in every 150 persons infected with WNV. Symptoms of severe disease may last several weeks and may have permanent neurological effects. The signs and symptoms of more severe infection (West Nile encephalitis or meningitis) include headache, high fever, stiffness in the neck, disorientation (in very severe cases, coma), tremors and convulsions and muscle weakness (in very severe cases, paralysis). Persons who develop symptoms of severe WNV illness should seek medical attention immediately, as this disease can be fatal.

### How can workers become exposed?

Flooded areas, particularly in warm climates, provide the opportunity for mosquitoes to breed in stagnant water. Bites from infected mosquitoes may result in WNV.

### What can employers do to reduce the risk to workers?

Employers should keep in mind that elimination of mosquito breeding grounds is a highly effective way of reducing mosquito populations and reducing the number of mosquito bites. Mosquitoes lay eggs in standing water. Employers with employees working in and around areas of stagnant water should:

- Be aware of working conditions, i.e., the presence of equipment or areas where water accumulates.
- Advise employees to inspect work areas and, where possible, get rid of sources of stagnant or standing water to remove a potential breeding ground of mosquitoes.
- Reduce or eliminate mosquito populations by disrupting mosquito breeding grounds (i.e., whenever possible, drain ditches, gutters, etc., to get rid of sources of stagnant or standing water).
- Encourage workers to protect themselves from skin contact with dead birds. CDC recommends using gloves or an inverted plastic bag when handling dead birds.

### What can workers do to protect themselves?

It may not always be possible to eliminate all potential mosquito breeding grounds. Knowledge of some key steps that employees can take to minimize the risk of mosquito bites is, therefore, important in reducing the risk of WNV infection. Employees who work

outdoors should be aware that the use of personal protective equipment and techniques is essential to preventing mosquito bites. Employees should:

- Cover as much of the skin as possible by wearing shirts with long sleeves, long pants and socks whenever possible. Use light weight clothing to minimize the potential for heat-induced illnesses.
- Use insect repellents containing DEET on skin that is not covered by clothing. According to the CDC, the most effective repellents contain DEET (N, N-diethyl-m-toluamide or N, N-diethyl-3-methylbenzamide).
- Avoid the use of perfumes and colognes when working outdoors during peak times when mosquitoes may be active; mosquitoes may be more attracted to individuals wearing perfumes and colognes.
- Choose a repellent that provides protection for the amount of time that you will be outdoors/in areas of concern. The more DEET a repellent contains, the longer time it can protect one from mosquito bites, with protection times ranging from 1 hour (4.75% DEET) to 5 hours (23.8% DEET).
- Spray insect repellent on the outside of one's clothing, as it is possible for mosqui-

toes to bite through thin clothing.

- Do NOT spray insect repellent on skin that is under clothing.
- Never apply repellents over open wounds or irritated skin.
- Do NOT spray aerosol or pump products in enclosed areas. Do NOT spray a pump or aerosol product directly on one's face. First spray on hands and carefully rub on face (do not allow insect repellent to contact one's eyes and mouth).
- After working in areas where mosquitoes are a concern, use soap and water to wash skin that has been treated with insect repellent.
- Be extra vigilant at dusk and dawn when mosquitoes are most active.

#### Additional Resources:

CDC West Nile Virus Home Page at: [www.cdc.gov/ncidod/dvbid/westnile/index.htm](http://www.cdc.gov/ncidod/dvbid/westnile/index.htm)

The U.S. EPA (information on the use of insect repellents): [www.epa.gov/pesticides/factsheets/insectrp.htm](http://www.epa.gov/pesticides/factsheets/insectrp.htm)

OSHA at [www.osha.gov/dts/shib/shib082903b.html](http://www.osha.gov/dts/shib/shib082903b.html)

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For more complete information:



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