

Insect Repellents and DEET

What is insect repellent?

Insect repellent is a spray or liquid used to keep biting insects, such as mosquitoes, away from your skin and clothing. Repellents work by preventing insects from landing on and biting your skin. Some are also effective against ticks and other insects.

Insect repellent should be used when you are outdoors to protect against insect bites and the illnesses they can carry, including West Nile virus. To protect against mosquito bites, the most effective insect repellents to use are those containing the ingredient DEET.

What is West Nile virus?

West Nile virus (WNV) is spread to humans through bites by infected mosquitoes. Mosquitoes can become carriers of the virus after biting infected birds.

Most people infected with WNV will not get sick at all. About 20 per cent of those infected will have flu-like symptoms or West Nile fever 3-14 days after the infection. In rare cases – less than 1 per cent – WNV infection can result in more serious illness such as meningitis, which is inflammation of the lining of the brain, or encephalitis, which is inflammation of the brain. It can occasionally result in death.

WNV has spread across North America since 1999. It is expected that WNV might make its way into BC in the summer of 2005. The mosquitoes that can carry WNV are present in BC; however, the risk may vary by region of the province during the summer and depends on the climate conditions to some extent. For more information on West Nile virus, including ways to protect yourself, see [BC HealthFile #88 West Nile Virus](#).

What is DEET?

DEET is the common name for *N,N*-diethyl-*m*-toluamide. DEET is the active ingredient in the most effective and widely used

insect repellents. Different repellents have different amounts of DEET. Products with higher concentrations of DEET are not more effective than those with lower concentrations, but they last longer.

Is DEET safe?

Yes, products containing DEET are very safe when used according to the directions on the label. There is no indication that DEET poses a risk to pregnant or nursing mothers.

Guidelines for using repellents with DEET

- **Infants less than six months of age.** Do not use any repellents that contain DEET. Infants should be protected with mosquito netting tucked over baby carriers.
- **Children 6 months to 2 years of age.** When children ages six months to two years of age live or travel in an area at high risk of complications from mosquito-borne illnesses, one application per day of insect repellent containing DEET may be considered. Talk with your doctor about using DEET in this age group if you are in or going to an area with WNV. Use an insect repellent with 10 per cent or less DEET. The repellent should be applied sparingly and not be applied to the face and hands. Prolonged use should be avoided. The protection will last about 2-3 hours.
- **Children 2 to 12 years of age.** Use an insect repellent with 10 per cent or less DEET. Do not apply more than three times per day. Do not apply to the face and hands. Prolonged use should be avoided. The protection will last about 2-3 hours.
- **Adults and children older than 12 yrs.** Use an insect repellent containing 30 per cent or less DEET.
- If you plan to be outdoors for a short period of time, always choose a product with a lower concentration of DEET. For example:

Concentration of DEET	Protection Time
30%	6 hours
15%	5 hours
10%	3 hours
5%	2 hours

Protection times may be less than this if you are sweating, getting wet, or by friction.

Tips for proper use of insect repellents

- Choose a repellent that provides protection for the amount of time that you will be outdoors.
- Always read the entire label carefully before use. Follow all of the instructions on the label, including proper use on young children. Adults should apply repellent to children. Do not allow children to apply it themselves.
- Avoid applying repellent to children's hands to reduce the chance of getting the repellent in their eyes and mouths.
- Apply the repellent only on exposed skin surfaces or on top of clothing. Do not use under clothing.
- Do not use aerosol or pump sprays directly on the face. Spray your hands and then rub the product over the face. Try to avoid getting it around your mouth or in your eyes. If you do get repellent in your eyes, flush well with water.
- Do not use the repellent on open wounds, cuts, or if your skin is irritated or sunburned.
- Avoid breathing in spray mists and never apply sprays inside a tent. Use only in well-ventilated areas.
- Do not use sprays or aerosol products near food.
- Wash treated skin with soap and water when you return indoors or when protection is no longer needed. Washing the repellent from the skin surface is important when a repellent is likely to be applied for several days in a row. If clothing is treated, it should be washed before being worn again.
- When using sunscreen, apply it first, wait thirty minutes, and then apply the DEET repellent.

- If you suspect a reaction to the insect repellent, stop using it and wash the treated skin. Call the poison control center: in Greater Vancouver, call 604-682-5050; in BC, call 1-800-567-8911.

Non-DEET repellents

There are effective insect repellents registered in Canada that contain active ingredients other than DEET. Instructions for proper use are listed on each product label.

These include repellents with *p*-menthane-3,8-diol (PMD), also known as lemon-eucalyptus oil. This product has been shown to be as effective as DEET, but protects against mosquitoes only for about 2 hours. Lemon-eucalyptus oil should not be used on children less than three years old. It should not be applied more than twice a day.

Soybean oil products are also effective mosquito repellants, but these are not widely available in Canada. Products with the substance picaridin are also effective, but these are not available in Canada. For a complete list of registered products, visit the Health Canada Pest Management Regulatory Agency Web site at www.pmra-arla.gc.ca.



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