

For more
information call
the Health Info
Line at
613-735-8666
or
1-800-267-1097
Ext 666.

www.rcdhu.com

INSECT BITE PREVENTION

Mosquitoes are the insects most commonly associated with disease transmission. Mosquitoes can be divided into two groups: daytime and nighttime biters. Given the right environment, both groups can transmit serious diseases. The nighttime biters transmit malaria and Japanese encephalitis while daytime biters transmit dengue fever and yellow fever.

Ticks and biting flies can transmit a large number of diseases, including leishmaniasis, which is most common. The best protection against ticks is daily visual body inspection especially for ticks attached to your skin, especially legs, thighs, neck, and waist. If found, ticks should be removed by grasping the tick with tweezers as close to the skin as possible and pulling straight up and away.

Besides transmitting disease, insect bites are annoying. They cause local irritation and pain and may become infected or cause more serious systemic reactions. To provide the highest level of protection you must use a multi-pronged approach consisting of skin repellent, Permethrin-treated clothing, and bug-free shelters.

Chemical Insect Repellents

- **DEET**
This is the standard against which other repellents are tested because it has been proven to be the most effective repellent for over 40 years. It is also effective against more species of biting insects than any other repellent. It has no effect against bees and wasps.

Toxicity/Safety

The American EPA has concluded DEET does not present any health concerns if label directions are followed. Preparations of less than 50% DEET are almost free of side effects when applied to the skin of adults. Even with children, a 1994 study concluded there was no correlation between the severity of side effects and age, gender or concentration of DEET.¹

Safety Precautions

Despite the confidence of minimal side effects, the EPA recommends:

- lightly cover only exposed areas of skin,
- avoid mouth, eyes and the palms of children's hands,
- avoid inhalation of aerosol or spray,
- avoid cuts, inflamed or irritated skin,

...over

¹ International Travel Health Guide 2005-2006, Rose & Keystone, Mosby Elsevier, page 132



- wear long sleeves and long pants to decrease amount of exposed skin, and
- shower or wash repellent-treated skin when danger is removed.

Concentrations

Low concentrations of DEET (5% to 10% range) will prevent nuisance bites but do not provide sufficient protection where insect-borne diseases are a real threat. For protection in these areas of risk, 20% to 35% DEET concentration is needed. This provides protection for six to eight hours. You will need to reapply after this time.

Use of DEET with Children

Although there is no proven correlation between concentration of DEET and harmful effects on children, more than 35% concentration should NOT be used. Caregivers who select a very low concentration of DEET for children will need to either apply DEET more frequently or implement additional measures of protection such as ‘bug suits’ or netting. Do not allow children to handle DEET directly and wash the DEET off once safely indoors in a bug free environment.

- **Botanical Repellents**

Plant-based insect repellents are derived from a variety of plants with a variety of results.

Only a few have been proven to give anymore than short-lasting protection. The exceptions are soybean oil-based repellents and lemon eucalyptus repellents. These can give between 90 and 120 minutes of protection.

- **Protective Clothing**

Wear light-coloured long-sleeved shirts, trousers, socks & shoes and tuck trousers into socks. Hooded ‘bug suits’ are available for children. Treat clothing with Permethrin, a strong insecticide that kills insects and stays in treated clothing for four to six weeks through multiple washings. If clothing is soaked in Permethrin as recommended by the manufacturer, the clothing will provide protection for several months. It is non-toxic to mammals and skin absorption is extremely low. It does not stain clothing.

In a study done in Alaska, permethrin-treated clothing coupled with 33% DEET to exposed skin provided 99.9% protection against insect bites compared to greater than 1000 bites per hour in the non-protected group.

- **Bed Netting**

Bed nets treated with Permethrin provide a very high level of protection from mosquito bites. The density of the netting determines what other insects might be kept from entering the occupied area. Mesh of 300 holes per square inch is dense enough to keep out tiny sand flies.

- **Sunscreens**

Do not use sunscreen/insect repellent combinations. The recommended use of each is not compatible. Sun screen should be applied liberally and frequently while repellents need to be applied as recommended for safe practices.

Apply the sunscreen first and let it dry before applying the DEET over top. Then every two hours while outdoors, reapply sunscreen. The sunscreen should be rated at least 30 SPF with both UVA and UVB protection.

