

TIPS TO REDUCE THE RISK OF



BECOMING INFECTED WITH WEST NILE VIRUS

PROTECTING YOURSELF FROM MOSQUITO BITES

- ▶ Avoid spending time outdoors at dawn and dusk if possible.
- ▶ Make sure that doors and windows have tight fitting screens that have no tears or holes. Repair any that do.
- ▶ **Eliminate all sources of standing water on your property that can support mosquito breeding** (*Refer to Handout on Preventing Mosquitoes Around the House*).

PROTECTIVE CLOTHING

- ▶ When possible, wear long-sleeved shirts and long pants that are loose fitting and made of tightly woven fabric.
- ▶ Light colors are less attractive to mosquitoes than dark colors.
- ▶ For infants outdoors during peak mosquito activity periods, suspend mosquito netting over car seats, strollers, playpens or bassinets.

INSECT REPELLENTS

Background Information on DEET (N,N-diethyl-3-methylbenzamide).

DEET is still considered to be the most effective, and best studied, insect repellent currently available. After being used worldwide for over 40 years, it still has excellent record for safety when used according to label instructions, but toxic reactions can occur (usually when the product label is not followed). The effectiveness of any repellent can be influenced by factors including evaporation and absorption from the skin surface, removal due to sweat or rain, higher temperatures or a windy environment. The repellents currently available must be applied to all exposed areas of the skin. Unprotected skin within a few centimeters of a treated area is vulnerable to being bitten. Until 1989, the U.S. military issued repellent containing 75% DEET in an alcohol base. Concerns about potential toxicity from long-term daily use and complaints about the feel of the product prompted U.S. Army sponsored studies to produce new formulations. A slow-release, polymer based product containing **35% DEET was developed by 3M**. This has become the new standard formulation for the military. Under test conditions both lab and environmental, 35% DEET polymer formulation was as effective as 75% DEET in repelling mosquitoes. The polymer formulation provided more than 95% protection for up to 12 hours depending on the species of mosquito tested and the environmental conditions. **Amway Corporation produces this product under the brand name HourGuard** for the general public. **Minnetonka Brands** offers products containing 6.5% and 10.0% DEET. The 6.5% liposphere formulation was shown in 1 study to be effective for up to 2.5 hours. The 10% product was effective for about 1 hour longer.

FACTORS AFFECTING LENGTH OF EFFECTIVENESS

The effectiveness of any repellent can be influenced by factors including:

- ▶ Evaporation and absorption from the skin surface
- ▶ Removal due to sweat or rain, higher temperatures or a windy environment.

CHOOSING A PRODUCT

- ▶ Choose a repellent that provides protection for time that you will be outdoors. For outdoor activity of short duration, a product with a lower concentration is suitable. For casual use, products with 10-35% DEET will provide adequate protection under most circumstances.
- ▶ A higher percentage of DEET does not mean better protection-just longer protection. DEET concentrations greater than 50% do not increase the length of protection.

PERCENTAGE OF DEET AND CORRESPONDING LENGTH OF PROTECTION

- ▶ A product containing 30.0% DEET provided about 6.0 hours of protection.
- ▶ A product containing 23.8% DEET provided an average of 5 hours of protection.
- ▶ A product containing 20% DEET provided almost 4 hours of protection.
- ▶ A product containing 6.65% DEET provided almost 2 hours of protection.
- ▶ **Products** with 4.75% DEET and 2% **soybean oil** were both able to provide roughly 1.5 hours of protection.

USING REPELLENTS SAFELY

- ▶ Use enough repellent to cover exposed skin or clothing. Apply sparingly to skin.
- ▶ Do not apply repellent to skin that is covered by clothing-this increases the absorption of the chemical into the skin. (N.C.Coop. Extension-rev.8/23/02)
- ▶ Do not apply repellent to cuts, wounds, or irritated skin.
- ▶ After returning indoors, wash treated skin with soap and water.
- ▶ Do not spray aerosol or pump products in enclosed areas. Avoid breathing the spray and do not use near areas with food.
- ▶ Do not apply aerosol or pump products directly to your face. Spray your hands and then rub them carefully over the face, avoiding eyes and mouth. Use sparingly around ears.

USING PRODUCTS CONTAINING DEET ON CHILDREN

- ▶ The California Department of Health Services (DHS) advises that a concentration of DEET that is less than 10% is recommended, but repellents that contain 30% or less can be used. There are no definitive studies in scientific literature that indicate what concentration of DEET is safe for children. It was previously believed that concentrations of 10% or less should be used. The American Academy of Pediatrics (AAP) has recently updated their recommendation for the use of DEET containing products on children. "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."
- ▶ No serious illness has been linked to the use of DEET in children when used according to label instructions.
- ▶ The DHS also advises that repellents not be used on infants or toddlers younger than two years old.
- ▶ The selection of type and concentration of repellent to be used should take into consideration the length of time the child will be outdoors, exposure to mosquitoes, and the risk of mosquito-transmitted disease in the area.
- ▶ Do not allow young children to apply insect repellent to themselves.
- ▶ An adult should apply it to their hands and then rub them onto the child. Avoid the child's eyes, and mouth and apply it sparingly around the ears.
- ▶ Do not apply repellent to the child's hands because they may end up in the mouth.
- ▶ If you suspect that you or your child are reacting to an insect repellent, stop using the product immediately, wash the treated skin and seek medical attention. Take the product container with you to the doctor.

THE USE OF SUNSCREEN AND DEET CONTAINING REPELLENT

- ▶ Centers for Disease Control (CDC) recommends using two separate products because sunscreen requires more frequent applications while DEET should be used sparingly.
- ▶ You do not need to reapply insect repellent every time you reapply sunscreen.
- ▶ Follow the instructions on the package for each product.

NON-DEET CONTAINING REPELLENTS

- ▶ Persons with concerns about using DEET may wish to consult with their health care provider.
- ▶ Additional information can be obtained from the National Pesticide Information Center (1-800-858-7378)
- ▶ Some non-DEET repellent products, which are intended to be applied directly to the skin, do offer some protection from mosquito bites.
- ▶ Generally, they are not believed to offer the same level of protection, or if so, it doesn't last as long as DEET containing products. (Fradin and Day, 2002).

PERMETHRIN CONTAINING PRODUCTS

- ▶ For use on clothing only, not to be applied to skin because it is inactivated after 15 minutes by an esterase enzyme in the skin.
- ▶ Permethrin has been around since the 1970s and has an excellent safety record.
- ▶ Tested and used extensively by the Armed Forces
- ▶ Read label instructions-should be generously applied to clothing 2-4 hours before planned use-depending on humidity.
- ▶ Available at various locations selling sporting goods.
- ▶ Clothing that has been treated with Permethrin is also available through several companies specializing in outdoor equipment and clothing.

**CONTACT
THE SOLANO COUNTY MOSQUITO
ABATEMENT DISTRICT
IF THERE IS A MOSQUITO PROBLEM
WHERE YOU LIVE OR WORK.
(707) 437-1116**