DELAWARE MOSQUITO CONTROL SECTION

FAQ #8. What personal protection measures can I take to help avoid mosquito bites?

Probably the simplest action whenever possible is to **try to avoid areas or times where mosquitoes are most active**, such as near coastal marshes, wet woodlands or other swampy locations. But as was pointed out in FAQ #2, many mosquito species are long-distance fliers, and as such will often come find you.

If you happen to live in a mosquito-prone area or have occasion to visit such, then your next line of defense is try **to stay indoors if possible during peak mosquito activity**, which for many species is near dusk, during the evening or night, and into early morning. Using and keeping your door and window screens in good repair is an obvious measure. [In many areas, folks who are fortunate enough to have screened-in porches are very grateful they do!] Wherever mosquitoes might still be a problem inside a residence, the old practice of using mosquito bed-netting could be resurrected. However, some particularly troublesome species, such as the common saltmarsh mosquito or the Asian tiger mosquito, are also very active daytime biters -- since many people must be outside and active during the day, the avoidance measures above don't have much applicability.

The type of clothing you wear can also help to reduce mosquito bites. If it's not too hot or uncomfortable, consider **wearing long-sleeve shirts and pants** when outside. Wearing **light-colored clothing** also helps (in particular, avoid red colors). If the mosquito infestation is truly bad and you must remain outside, you might want to consider using a fine-mesh head net, or a mesh "shoo-bug jacket" treated or impregnated with a repellent. Using yellow light bulbs for outside lighting might also help.

Avoiding outside activities that require a lot of exertion and hence generate a lot of carbon dioxide, a powerful natural mosquito attractant, is also advisable in mosquito-infested areas. Physical exertion also produces body heat and lactic acid in sweat, which are also attractants for mosquitoes. Also do not use strong-smelling perfumes or cologne, nor fragrant soaps, shampoos or hairsprays.

Probably the most common remedy for contending with having to work, live or recreate outdoors in mosquito-infested areas is the use of some type of **chemical repellent**. Scientific studies have shown that by far the most effective types of repellents are commercially-available, over-the-counter products that contain the chemical **DEET** (e.g. OFF, Cutter, Muskol, Ben's, 6-12, Sawyer). Other types of repellents are also available, including certain brands of cosmetic creams that might have some repellent effect (e.g. Avon Skin-So-Soft), or various "natural" oils, spices or other extracts (e.g. eucalyptus oil, lemongrass, pennyroyal, allspice, bay, camphor, cinnamon, citronella, geranium, lavender, nutmeg, peppermint, pine, thyme). However, most scientific evidence shows most of them to be of comparatively little or only marginal effectiveness – nonetheless, the bottomline here is to use whatever you think or "know" works best for you.

There is a very small percentage of people who might have some adverse health reactions to high concentrations of DEET (e.g. 50-100%), so as a general rule it is recommended that **adults use repellents containing a DEET concentration of 30% or less, and for children the concentration should be 10% or less**. **Do not use DEET on infants under 2 years old.** From the standpoint of health precautions, it is better to more frequently apply formulations with lower DEET concentrations, versus infrequently applying formulations with higher DEET concentrations. Be sure to follow all application instructions on a repellent's label. If you want to avoid using DEET-based repellents all together, the EPA has recently determined that two other products also provide some effective relief – **picaridin** and **oil of lemon eucalyptus**.

Another type of chemical defense is to spray clothing with permethrin, a synthetic pyrethroid (e.g. Permanone), which actually functions as both an insecticide and a repellent, and is also used to help prevent tick problems. If permethrin is used, it should be applied only to clothing and never directly to skin, and all instructions for use must be closely followed.

Finally, there are other measures that you can take around your home or property to reduce mosquito bites that were discussed in FAQ #1 (i.e**. practice good water sanitation**), as well as perhaps taking some measures discussed in FAQ #4 that have much lower abatement effects (e.g. purple martin colonies, bat houses, mosquito collection/killing traps) -- at the risk of repetition, the true effectiveness of these latter methods is quite dubious relative to the level of relief needed or sought. Some people also find that burning certain materials (e.g. **citronella** candles, sticks or coils) to be of some limited help in keeping mosquitoes away from their personal airspace. It is known that Native Americans tried such smoky approaches (e.g. "smudge pots") to achieve some skeeter relief (if they could stand the smoke and smell), but during seasons of peak mosquito activity some tribes were also in the smart habit of relocating their villages to less mosquito-prone sites. For most modern Americans this type of ready residential movement is no longer an option, which is part of the reason for our Section's existence and mission.