

Dr. Steve Meshnick explores tick territory – the fields and woods so common in North Carolina.

Clothes make the man (or woman) less tasty to ticks

ike the flowers and blooming trees that L herald spring, an unwelcome pest also reappears after the long winter – the tick. Tick-borne illnesses – including Lyme disease and Rocky Mountain spotted fever – are prevalent in many parts of the U.S. and the world. Steven Meshnick, MD, PhD, professor of epidemiology at UNC's Gillings School of Global Public Health, is determining whether clothing with built-in insect repellent will reduce the chances that people will contract tick-borne illnesses.

In a manuscript published online in the journal Vector-Borne and Zoonotic Diseases on March 11, 2011, Meshnick reports on a pilot study he conducted with epidemiology doctoral student Meagan Vaughn. The open-label pilot study followed workers in the North Carolina Division of Water Quality, some of whom wore their usual clothing and others who wore clothing treated by Insect Shield.® ("Open label," the opposite of "double blind," means that both researchers and participants knew which group was wearing the treated clothing.)

Based in Greensboro, N.C., Insect Shield LLC has developed clothing that provides protection against many species of insects through 70 launderings. Researchers found that people wearing Insect Shield®-treated

clothing had 93 percent fewer tick bites than those using standard tick bite prevention measures (e.g., repellents applied directly to the skin).

Based on results of that study, Meshnick and Vaughn received a \$1.2 million, four-year grant from the U.S. Centers for Disease Control and Prevention's National Institute for Occupational Safety and Health to fund a double-blind, randomized controlled study, "Preventing Exposure to Ticks and Tickborne Illness in Outdoor Workers." The study has enrolled more than 120 state forestry and park rangers and wildlife workers who sent their uniforms to Insect Shield LLC but don't know whether they are among the half whose uniforms were treated. Researchers will follow workers to get accurate counts of tick bites and tick-borne disease.

"We think this will work, but we want to prove it," says Meshnick. "We believe this is a fairly cost-effective way to protect people from tick-borne disease because it kills the tick before it can bite in the first place."

Meshnick, who also conducts research in developing countries, says that if this study proves the efficacy of Insect Shield® clothing for preventing tick bites, the next step will be to test whether it works against mosquitoes. "In the long term, we want to see whether [the treated clothing] can prevent other insect-borne diseases, such as malaria, which is found in many developing and poor countries."

- Michele Lynn

Above, North Carolina-based Insect Shield LLC developed clothing that protects against ticks and other insects through 70 launderings.

At right, N.C. Wildlife Resources Commission employees attend a recruitment meeting in March 2011.



