Catching the West Nile virus in action

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Since 1999, several outbreaks of West Nile Virus, which causes fever or severe neurological symptoms and is transmitted from birds to humans by blood-sucking mosquitoes, have been seen in the U.S., usually during the summer months. But researchers aren't certain how the virus migrated here -- and they don't know how, or where, it will appear next.

Now Prof. Ella Mendelson of Tel Aviv University's School of Public Health at the Sackler Faculty of Medicine, working with the Israeli Ministries of Health and Environment, has instituted a study that tracks both clinical cases of West Nile Virus and populations of infected mosquitoes. By examining the outbreaks and testing samples of the mosquito populations from high-risk areas (such as those near large bodies of water), her method can identify "danger zones" and produce timely warnings of impending outbreaks. And by providing more information on the dynamics and mobility of the virus, it could also solve the mystery of how the virus migrates.

The research appears in the journal *Eurosurveillance*.

Don't forget the repellent

The virus, which was first recorded in the 1930's and is believed to have originated in Egypt, is now spreading across the globe to non-traditional climates such as Western Europe and North America, says Prof. Mendelson. She and her fellow researchers at the Central Virology Laboratory are geographically tracking the virus, recording where it originates, the genetic types of the virus that are circulated, and the

dynamics of infection. They analyze both the occurrences of outbreaks among the human population, as well as the virus' appearance in the mosquito population.

First, mosquitoes are collected from different areas known to be hotbeds of the virus throughout a given country. The females are identified and tested for the presence of the virus, giving researchers information not only on the location of the virus, but the type of the virus as well. In Israel, the information is then relayed to the Ministries of Health and of the Environment so they can keep abreast of the situation and inform the public when necessary. "It's important to ensure that local authorities take preventative anti-mosquito measures where they can," says Prof. Mendelson.

Keeping the blood banks safe

More recently, says Prof. Mendelson, the researchers have been expanding their interest to include ensuring the safety of donated blood. In connection with the Central Blood Bank in Israel, Prof. Mendelson and her fellow researchers have been testing blood donated to the bank for signs of West Nile Virus.

"We evaluate the blood to see if there is a frequency of donations that might carry the virus," she says, noting that it is important for public health to be involved. A broad approach to West Nile Virus awareness and safety can be a model for nations which have just begun to contend with outbreaks of the virus in recent years.

When this approach is adopted by other key countries, it will be possible to track West Nile Virus on a global scale. Prof. Mendelson notes that an ounce of prevention is worth a pound of cure. She urges precaution during the evening hours, the mosquitoes' most active time of day. Wear long sleeves and use plenty of bug repellant, she counsels.

Provided by Tel Aviv University