

COMMISSIONER'S CORNER

More than Just the Bite: The Health Department's Arthropod Surveillance Program

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Arthropod-borne diseases, particularly those carried by mosquitoes and ticks, continue to be a serious concern in Westchester County. Physicians can expect to field many questions about Lyme disease and West Nile virus from patients over the coming months and may well be called upon to treat cases of arthropod-borne illnesses.

Mosquito-borne Diseases

Mosquitoes can carry a wide range of pathogens. One of primary concern in Westchester is West Nile virus (WNV).

Mild cases of West Nile virus infections may include a slight fever and/or headache. More severe infections are marked by rapid onset of high fever with head and body aches, disorientation, tremors, convulsions, and, in the most severe cases, paralysis or death. Symptoms usually occur from five to 15 days after infection. There is no cure for WNV infection; management of the illness includes treating the symptoms that arise and providing supportive care. Persons at highest risk for serious illness are those over 50 years of age. Healthy children and adults less than 50 years of age appear to have a low risk for becoming clinically ill. Only 37% of individuals clinically ill with WNV achieve a full recovery after the first year, mostly in people under 65 years of age. In addition, there appear to be long-term effects on WNV survivors including physical, functional, and cognitive symptoms such as muscle weakness, loss of concentration, confusion, and lightheadedness.

Other mosquito-borne pathogens that may be found in our area include LaCrosse virus, Jamestown Canyon virus, Eastern equine encephalitis, malaria, and dog heartworm. Eastern equine virus has a fatality rate of 35% in humans and caused two human deaths in New York (1971 and 1983).

The best way to protect against mosquito-borne pathogens is by avoiding mosquito bites. The Westchester County Health Department recommends that area physicians advise their patients to take the following preventive measures:

- Stay indoors during the twilight hours when most mosquitoes are active.
- Wear shoes, socks, long pants and a long-sleeved shirt when outdoors for extended periods of time.
- Consider the use of mosquito repellent. Repellents should be used carefully and sparingly and contain no more than 30% DEET (N, N diethyl-m-toulamide) for

- adults and no more than 10% DEET for children. Infants should not have DEET-containing repellants applied. Carefully read and follow directions on the container and wash treated skin when mosquito exposure has ended.
- Eliminate standing water by draining or refreshing to prevent mosquitoes from breeding.

Tick-borne Diseases

The deer tick (black-legged tick) is an important vector of the agents of Lyme disease, human babesiosis and human granulocytic ehrlichiosis. Co-infection with any two, or even all three, of these diseases is possible.

Lyme disease is a potentially serious illness caused by a bacterium that is passed to people and domestic animals through the bite of an infected deer tick. Lyme disease generally will not occur unless the tick has been attached for more than 36 hours. The most common symptom of Lyme disease is an expanding red rash, typically a bulls-eye rash, often at the site of the tick bite. The rash usually appears three to 30 days after the bite and may last for several weeks. Symptoms of Lyme disease can also include fever, sore throat, fatigue, sleeping difficulties, joint and muscle pain, swollen glands and dizziness. If left untreated, these symptoms may go away. Weeks or months after a tick bite, the symptom that brings most people to the doctor is stiffness in the large joints (arthritis). Bell's palsy - the drooping of one side of the face - may also occur.

Ehrlichiosis is a newly recognized tick-borne disease that is caused by bacteria. Like Lyme disease, ehrlichiosis is spread through the bite of an infected deer tick. Symptoms of ehrlichiosis can include fever, headache, chills, malaise, muscle and joint pain, nausea and vomiting. Acute weight loss, low platelet count, and low white blood cell count can also occur. The disease typically resolves within a few days of starting antibiotics. Recovery usually occurs without long lasting problems, but serious complications can occur. Complications can include respiratory problems, blood and kidney abnormalities, meningitis, and other central nervous system complications. There have been fatalities associated with ehrlichiosis.

Babesiosis is a tick-borne disease that is caused by protozoa. Babesiosis is also spread through the bite of an infected deer tick. Symptoms of babesiosis are very similar to malaria and can include headache, fever, chills, nausea, vomiting, muscle aches, confusion, difficulty breathing, kidney abnormalities and anemia.

Lyme disease, ehrlichiosis and babesiosis may be diagnosed through physical examination and the patient's history of symptoms. Blood tests may also be used to help confirm the diagnosis. Antibiotics given for Lyme disease in its early stages generally result in complete recovery with no long-term complications. The antibiotics most often used are amoxicillin and doxycycline to treat Lyme disease and antibiotics in the tetracycline family for ehrlichiosis. Symptomatic babesiosis is treated with quinine sulfate plus clindamycin. Antibiotics for tick bites alone without any symptoms are not commonly indicated.

To remove an embedded tick, use a pair of fine tweezers to grasp the tick's mouthparts as close to the skin as possible then pull it out slowly but firmly. Save the tick in a small container with a few drops of alcohol and call the Westchester County Health Department at (914) 813-5000, or visit our website at www.westchestergov.com/health, to find out how to have the tick species identified.

One of the most important tools we have to reduce the risk of arthropod-borne disease is the education of the public. In this, physicians have an invaluable role to play in helping promote awareness of protective measures among their patients. Such measures include:

- Avoid tick-infested (wooded or grassy) areas, especially in the summer.
- Wear light-colored clothes to spot ticks more easily. Tuck your pants into socks and shirt into pants.
- Use insect repellents containing DEET according to label instructions.
- Perform tick checks after outdoor activities at least once a day. Inspect the entire body (parents should check their children) and remove ticks promptly.