

Twenty years after: a town, its disease, its ticks

Lyme disease researcher sees future in prevention, not vaccine

BY ANTHONY M. FRASCA, M.D.

One of the ironies of Lyme disease is that the proliferation of ticks associated with the disease may have been caused by the banning of the controversial pesticide DDT.

It has been 20 years since a landmark paper was published in the *New England Journal of Medicine* titled "Spirochetes isolated from the blood of two patients with Lyme disease." The paper, published in 1983, resulted from research conducted at a Stony Brook University laboratory headed by Jorge Benach, Ph.D. It was Benach who was responsible for proving that Lyme disease was caused by a bacteria. The significance was that the disease could now be treated with antibiotics and morbidity would be lowered.

Benach recently presented a lecture reflecting on the last 20 years of research into the cause and treatment of Lyme disease to a standing-room-only crowd at Stony Brook. He said the discovery was the result of a major university effort and that the results of their research had worldwide implications.

The disease is named after the Connecticut town where mothers noticed that their children had all developed the same, unusual rash. The public outcry about the pattern of disease led to intense scientific investigations into the cause of the illness. What they were concerned about turned out to be the early manifestations of the disease that would come to be named after their town, Lyme.

However, funding for Benach's research — and the source that led him to investigate ticks — came from a different area of the country. Benach said it was the discovery of Rocky Mountain spotted fever in 1974 by Dr. Ricketts that led to governmental intervention and funds for treatment and basic scientific investigations. The Rocky Mountain spotted fever epidemic of the early 1970s was discovered to be the result of the proliferation of ticks.

Benach said, "The Rocky Mountain spotted fever

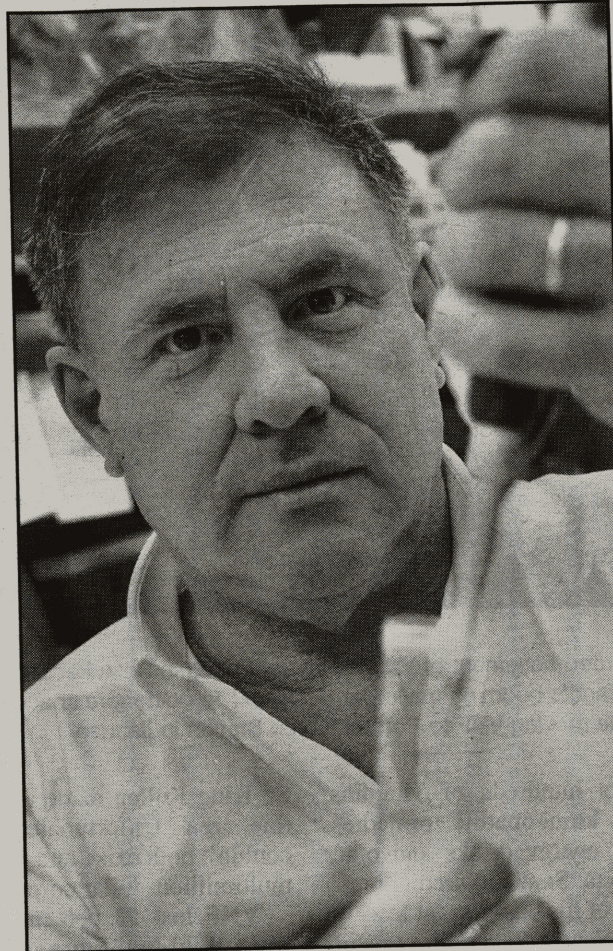


Photo by John Griffin/Media Services/Stony Brook University
Jorge Benach

epidemic ran its course. But a new disease appeared. In 1977 a malaria-like disease was discovered on Shelter Island in a dog warden.... We turned our attention to the

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Lyme disease

Cause: *Borrelia burgdorferi*, a spirochete bacteria transmitted by black legged deer ticks.

Location: Northeastern and mid-Atlantic states, Western United States, Europe and Asia. Ninety-two percent of U.S. cases from the states of Connecticut, Rhode Island, New York, Pennsylvania, Delaware, New Jersey, Maryland, Massachusetts and Wisconsin.

Diagnosis: Most often presents with erythema migrans, a bull's eye rash. Other symptoms include fever, malaise, headache, muscle and joint pains.

Treatment: Various antibiotics including amoxicillin, tetracycline and erythromycin.

Prevention: Avoid tick habitats especially in spring and summer. Deer ticks prefer moist, shaded, leafy environments. When in infested areas wear light-colored clothing to more easily see ticks. Wear long sleeved shirts and tuck your pants into your socks. Insect repellents containing DEET are effective in reducing tick attachment. Perform a tick check after exiting infested areas.

What to do for tick attachment: Ticks are not likely to infect with Lyme disease before 36 hours of attachment. Daily checks and prompt tick removal will help prevent infection. Attached ticks should be removed using fine-tipped tweezers. Vaseline, matches, nail polish and other products are not recommended. The tick must be pulled away from the body with a steady motion. Mouthparts remaining in the skin do not contain bacteria and need not be removed. The area should be cleaned with an antiseptic and observed over the course of a few days for signs of infection.