

North Carolina Department of Health and Human Services Division of Public Health • Epidemiology Section  
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Michael F. Easley, Governor Dempsey Benton, Secretary  
-Leah Devlin, DDS, MPH State Health Director

Mr. Dave XXXXXXXXXXXX,

I am in receipt of your letter dated February 7, 2008, Please note that I will be answering for Dr. Paul Buescher, Director of the State Center for Health Statistics (SCHS) and Dr. Leah Devlin, State Health Director who received your separate letters dated February 8, 2008, Thank you for taking the time to articulate your concerns about Lyme Disease in North Carolina. Your testimony is very powerful on your experiences with neurologic illness. I will attempt to address the issues of your story, the points that you addressed in your letter, and conclude with what North Carolina is doing to address the problem of tick borne infections.

First of all, Dr. Buescher is a biostatistician, and all reports on Lyme Disease come to the SCHS from the Epidemiology Section of which I am Chief. Both agencies are in the NC Department of Health and Human Services Division of Public Health (DPH), and both Dr. Buescher and myself report to Dr. Devlin, I have attached the NC DPH Position Statement and the US Case Definition for Lyme Disease. The Case Definition is what DPH must use by law to count cases of Lyme Disease. This law is to standardize nationwide surveillance and ensures that all states use the same criteria for counting. The law, however, does not govern the physician-patient relationship, Individual diagnoses are a private matter between patient and physician and public health will only investigate physician and laboratory reports of suspected cases. Hence, even if public health will not count a case for the purposes of surveillance, the physician may still use Lyme Disease as a working diagnosis for the management of his or her patient.

Your illness, at least with the information you provided, does not meet surveillance case definition for Lyme Disease because there is no documented positive serologic 2-step test (that is an ELISA and Western blot) for IgG specific antibodies to *Borelli burgdorferi* (*Bb*), IgM antibody tests (the test you provided me) are notoriously inaccurate, fraught with an unacceptably high false positive rate, and are not indicated nor accepted for the diagnosis of Lyme Disease, A person with Lyme Disease suffering for more than a month will have an IgG response to *Bb*. This important discrepancy is addressed in NC DPH Position Statement.

Next, I will comment on your claim that Lyme Disease is more prevalent in NC than the statistics show. First, I agree that most cases of tick-associated rash illness (the target or bull's eye rash seen in early Lyme Disease known as erythema migrans) are under-reported by physicians, Most physicians do not order lab tests for this illness, are comfortable making a clinical diagnosis of erythema migrans, and treat the patient for 2 weeks with oral doxycycline, However, in the SE US, including NC, there is no evidence that this rash presentation is Lyme Disease. Currently, it is a look-alike condition called Southern Tick-Associated Rash illness (or STAR!) that I will address later.

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Secondly, DPH and county public health officials have looked hard for evidence of Lyme Disease in NC. Our surveys and review of the published scientific literature find only uncommon and sporadic detection of *Bb* in the state. Epidemiologically, this is confirmed by 2 lines of evidence: 1) the NC College of Veterinary Medicine at NC State University tests hundreds of dogs per year, a species that is also susceptible to Lyme Disease, and rarely detects *Bb* infection in NC dogs, whereas they commonly detect *Bb* infection in dogs from Lyme Disease endemic regions like the Northeast US; and 2) DPH has never received a report, nor has any

county health department, of any outbreaks or clusters of juvenile inflammatory arthritis, the most common presentation of Lyme Disease in children as is reported from the Northeast US.

Thirdly, in the past decade, several patients in NC with ST ARI have had skin biopsies done and analyzed at the CDC and none have had *Bb* isolated. This is true of residents of other southern states and corroborated by the scientific literature. Note, in Lyme Disease endemic regions such as the Northeast US, *Bb* is easily isolated from skin biopsies of erythema migrans rashes.

Fourthly, in an ecologic assessment in Chatham County in the summer of 2005, public health entomologists trapped thousands of ticks; 99.9% were Lone Star ticks, a few were dog ticks, and only 1 was an *Ixodes* tick (the species that harbors *Bb*). Many of these trapped ticks were submitted for pathogen detection and none harbored *Bb*, yet many had the agents that cause Rocky Mountain spotted fever and Ehrlichiosis, two important tick borne infections in NC.

Lastly, DPH has received numerous reports of cases similar to yours, that is adults with long-term neurologic disorders lasting months to years, yet none have had a positive 2-step blood test for IgG antibodies to *Bb*. Further, doctors who claim they have diagnosed Lyme Disease in patients from NC with long-term neurologic disorders have never demonstrated hard evidence of *Bb* infection. The scientific evidence does not support the claim that Lyme Disease is hard to diagnose. Humans generate a robust IgG response to *Bb* infection, and *Bb* is relatively easy to detect from skin biopsies and can be isolated from other human specimens such as cerebrospinal fluid, joint fluid and synovium (tissue lining the joints) biopsies.

Thus I support the vast majority of NC physicians, who, like me, base their practice on scientific evidence. Until we have such evidence, physicians are correct to be skeptical of Lyme Disease acquired in NC.

There are important issues that I must mention. Suburban populations are moving into wooded and grassy areas causing much more interaction between people and ticks. There is evidence that the Lone Star tick is much more abundant in Piedmont counties than in years past, probably due to the explosion in the white tail deer population. These ticks carry important human pathogens such as the agents of Ehrlichiosis and perhaps others. The cause of ST ARI has yet to be explained and may not be an infection.

NC has taken important steps regarding tick borne infections by improving the science basis of emerging issues in the state. In 2007, the NC General Assembly increased funding to improve epidemiologic and laboratory investigations into tick borne infections. With this funding we are able to hire new positions devoted to laboratory and clinical issues. New studies will be launched this tick season with oversight and direction from the Vector borne Disease Task Force (which has representation from a member of the general public who is on the NC Tick Council, a public advocacy group promoting better understanding of tick borne infections). Studies will explore the cause of ST ARI and will look for new infectious diseases carried by ticks. We also hope to improve our prevention efforts by educating the general public on avoiding tick bites, removing ticks promptly if bitten, and seeing a physician early for suspicious rashes, fevers, or other symptoms that present within a week of exposure to a tick habitat.

It was nice talking to you today and I recognize this is a lot of information. I would be happy to discuss it with you again if you want to call, or if you would like for me to arrange a repeat IgG test for Lyme Disease to be run by the CDC reference lab.

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State Epidemiologist and Chief, Epidemiology Section

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