TIC NC

Tick-borne Infections Council of North Carolina, Inc

Fall 2007

Position Paper

Re: the need for a comprehensive state plan to address North Carolina's tick problem

Our organization, formed 2 years ago by concerned citizens, finds that the response from the public health and medical communities in North Carolina urgently needs to be strengthened. North Carolina has long been the leading state in reports of Rocky Mountain Spotted Fever, a serious illness carried by the American dog tick (*Dermacentor variablilis*), and less commonly, the Brown dog tick (*Rhipicephalus sanguineus*). Even when treated Rocky Mountain Spotted Fever has a mortality rate of approximately 5% (MMWR 2006). While it is likely only a minority of actual cases get reported, last year over 800 cases were recorded by the state. An average of 3.5 fatalities have occurred each year for the last 25 years in North Carolina.

A new study on the lone star tick (*Amblyomma americanum*) recently published in the Journal of Medical Entomology, reports new distribution records for human pathogens *Ehrlichia chaffeensis, E. ewingii, "Borellia lonestari,"* and *Rickettsia amblyommii* (Mixon, et al 2006). Of the nine states surveyed in the study, the lone star ticks collected in North Carolina had the highest prevalence of *E. ewingii* (except for one site in New Jersey) (4.9%), *B. lonestari* (5.4%), and *R. amblyommii* (56.1%) of all the other states tested. *R. amblyommii* has been implicated as a human pathogen by work done on military bases and most recently, by our own state's work in Chatham County (Herman-Giddens, 2006). (See report under Publications, www.tic-nc.org.) In addition, in North Carolina at least 4% of the 391 ticks tested were found to be co-infected with two human pathogens. One carried three pathogens. "*B. lonestari,"* an organism related to the Lyme disease bacteria, *B. burgdorferi*, is not well understood at this point. Known to cause an erythema migrans type rash at the site of the bite in some individuals, opinions regarding the severity of disease caused by this organism range from none or mild to as serious as Lyme disease.

The Mixson, et al. paper provides concerning new data on the growing problem with tick-borne infections in North Carolina, especially from the aggressive lone star tick. As reported by some of our membership, certain areas in North Carolina have so many ticks that their presence has made normal outside activities such as hiking or gardening during the spring to fall months impossible. Even in the winter months, residents must be alert for the adult black-legged tick (*I. scapularis*), the active period for adults of this species. Though less common than the other kinds of ticks, their presence means no season is entirely safe. The risk of Lyme disease appears to be growing as well. During the summer of 2007 two dogs in central North Carolina who had never traveled out of the state were found to have Lyme disease by the NC School of Veterinary Medicine.

With over 50% on average of lone star ticks in North Carolina carrying at least one likely human pathogen the risk of disease or death to our citizens is considerable. Thus, it is critical for the state to develop and implement strategies for ongoing prevention and control now.

We suggest that components of a comprehensive public health program include:

1. a Governor's Tick-Borne Infections Task Force to help in the development of the public health program and to examine medical, informed consent, and insurance issues in the treatment of tick-borne infections, as well as the current controversy over diagnosis and treatment of Lyme disease

2. an ongoing, regularly updated education program for medical providers developed through collaboration with appropriate agencies and individuals such as universities, medical experts representing a broad range of viewpoint in the treatment of tick-borne infections, the Institute of Medicine, the Medical Board, and lay advocacy groups that includes:
    i. up-to-date information on the new emerging tick-borne infections
    ii. information on the diagnosis and treatment of all tick-borne diseases that occur in North Carolina including Lyme disease
    iii. information on both standards of care for Lyme disease (Infectious Disease Society of America and International Lyme and Associated Diseases Society) and patients' right to choose either standard
    iv. data on correct tick removal, control of ticks and their vectors, and prevention of tick bites
3. support for university scientists to conduct applied research on tick control methods and ecology of tick-borne agents
4. proactive surveillance for tick-borne illness in people with field ecological studies of ticks and pathogens
5. comprehensive research efforts to determine the prevalence of pathogens, such as *B. burgdorferi, B. lonestari, R. rickettsii, R. amblyommii*, etc., in ticks and wildlife
6. plans for control of the deer population (and/or other vectors) if that is determined to be of value
7. development of accurate educational materials and advice for the public, e.g. brochures, notices in state parks, at trailheads, etc., information for school nurses, local health departments, health classes at schools, and the use of the media to inform the public
8. allocation of state monies for prevalence studies that include people and vector animals and that produce maps and annual reports to the public
9. allocation of monies for an ongoing program for tick and tick-borne disease control.

It is urgent that a strong, comprehensive, and coordinated public health response immediately address these disturbing new statistics on the growing tick problem in North Carolina. State officials are already aware of the impact of ticks and tick-borne infections on tourism. In addition, problems exist with regard to real estate sales where properties are known to be infested with infected ticks, for the portion of the medical community that has offered 'controversial' care, and for infected people who have been unable to receive adequate care due to lack of knowledge by medical providers, insurance issues, and/or fear of Medical Board scrutiny. Unless these issues are appropriately addressed in a timely manner, liability issues may arise in the near future, especially now that this additional evidence for tick-borne infections in North Carolina has just been published in the scientific literature.

In summary, there is an urgent need for the state to develop an adequate program to address this growing public health problem caused by tick-borne infections.