

Fall 2012 NEWSLETTER

Tick-borne Infections Council of North Carolina, Inc.



www.tic-nc.org

Quote of the month: Who would have thought a group of dancers could look like a tick!

Pilobolus Dance Group. Durham Herald, July 6, 2012



Highlights:

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Save your ticks! Researchers at the University of North Florida want ticks for testing. See our website, TIC-NC.org, for their submission forms

Update on Reported North Carolina Tick-Borne Disease Surveillance Statistics

Disease	Total cases by year of report 2010 FINAL (confirmed/probable/suspected)	Total cases by year of report 2011 Preliminary (confirmed/probable/suspected)	Cases created between 1/1/12 and 6/30/12 probable + confirmed
Lyme disease	82 (21/61/400)	88 (18/70/135)	50
RMSF	286 (15/271/296)	327 (16/311/281)	200*
Ehrlichia	99 (19/80/77)	83 (27/56/102)	35
Anaplasma	28 (0/2/178)	21 (1/20/19)	13

* illness onset may be prior to 1/1/12

Note: Guilford County now has a second confirmed case of Lyme disease in a person who had not traveled out of the county for 30 after their tick exposure. **Therefore, Guilford County is now considered endemic for Lyme disease. This brings the number of counties in NC endemic for Lyme up to 3: Wake, Guilford and Haywood.**

Letter from TIC-NC Published in the Raleigh News & Observer

June 4, 2012

More ticks, less pest monitoring

While we are were pleased to see the May 29 story on the increase in Southeast ticks and diseases, clarification of a few points may be helpful, especially regarding the Lyme disease statistics. Rather than there being typically no positive tests 10 years ago in North Carolina; in fact, the CDC reported 47 cases in 2000, 41 in 2001, and 139 in 2002. Cases must meet stringent requirements to be accepted as official reports and it is acknowledged that reported cases usually represent the only the tip of the iceberg. They are in no way intended to present a full account of disease activity.

In 2010, after changes in reporting requirements for Lyme disease, North Carolina reported 21 confirmed, 61 probable and 400 suspected cases; in 2011, numbers were 18, 70, and 135 respectively. Suspected cases are not reported to the CDC. In 2010, Wake County was declared endemic for the disease.

There is nothing new reported in the article about the lone star tick. It has been noted in the south and as far north as New Jersey and New York for decades. As the article stated, it is becoming more abundant and, because it may transmit several human pathogens (with more probably to be discovered) and is an aggressive human biter in all life stages, it is a dangerous tick. The Gulf Coast tick, which also carries human pathogens, is relatively new.

That ticks and diseases are increasing, as the article emphasized, is certainly true. That makes it all the more tragic that last summer the state legislature dismantled the state's Public Health Pest Management Section, firing all the entomologists and related staff. The people of North Carolina deserve better than that, and so did Pest Management personnel who worked hard in risky conditions to learn more about tick and mosquito dangers and protect the public's health.

Marcia E. Herman-Giddens, DrPH, Tick-borne Infections Council of North Carolina

The length limit was waived to permit a fuller response.

<http://www.newsobserver.com/2012/06/04/2112425/marcia-e-herman-giddens-more-ticks.html>.

The letter is in response to this article: <http://www.newsobserver.com/2012/05/28/2095453/new-ticks-spread-across-southeast.html>

From UNC: Fight the (Tick) Bite

Ticks. The word itself is enough to give most people the willies. In what should be a relief to folks who work and play outdoors, a UNC-Chapel Hill doctoral student found how to almost completely avoid tick bites.

Research by Meagan Vaughn, a Ph.D. student in epidemiology at the Gillings School of Global Public Health, found that some State of North Carolina outdoor workers reduced tick bites by 93 percent by wearing repellent-treated clothing patented by a Greensboro-based company.

For the entire story: http://www.unc.edu/spotlight/tick_bites

N.C. State Researchers Develop Better Test for Bartonella

June 2012

“Cat Scratch Fever” might be best known as a catchy song, but the infection of the same name – scientifically known as Bartonella – is an easy-to-catch infection caused by a common, hard-to-detect microbe. But a test developed by N.C. State researchers could make it simpler to pinpoint the pathogen and treat the resulting symptoms.

Using a patented insect medium and a sensitive, sophisticated DNA analysis tool, N.C. State investigators have developed a Bartonella diagnostic test for humans. The goal is to identify Bartonella infections faster and more accurately, and a partnership with Research Triangle Park-based company, Galaxy Diagnostics, Inc., could make the test widely available.

“Locating Bartonella is like finding a needle in a haystack with the infection being the needle and the haystack being the patient,” said Ed Breitschwerdt, internal medicine professor at N.C. State's College of Veterinary Medicine. “If the haystack is too big and there are only a few needles, PCR will miss the infection more often than not.”

“The test itself seems to be scientifically very sound – growing more of the organism you're searching for to improve test sensitivity will be helpful,” he said. “However, I worry about putting all our treatment-plan bets on this test because there's little hard-core evidence indicating Bartonella is responsible for the chronic effects attributed to these infections.” Until additional investigations into Bartonella yield a more definitive link between the bacteria and long-term symptoms, he said,

physicians should opt to pair the test with traditional clinical observation and assessment.

Read more here: <http://www.charlotteobserver.com/2012/06/24/3332959/sharper-infection-detection.html#storylink=cpy>

Hearing on Lyme Disease held July 18, 2012 by The House Committee on Foreign Affairs



Original testimonies are now available for download including additional materials from each of the witnesses. Scroll down this page for .pdf files: <http://foreignaffairs.house.gov/hearings/view/?1455>

Tennessee Managed Care Study Shows Much Higher Lyme Disease Cases Than Reported

Tennessee study shows LD incidence was 7.7 times higher ($p < 0.001$) than that reported to the state using claims from one managed care organization.

<http://jamia.bmj.com/content/early/2012/07/18/amiajnl-2012-000948.short?rss=1>

Squirrels Found to Play Large Part in Tick-Borne Infections

Science News ... *from universities, journals, and other research organizations*

Novel Animal Reservoir for Group of Tick-Borne Diseases Discovered -- And It Lives in Your Backyard

Science Daily (June 23, 2012) — A team of scientists at Washington University in St. Louis has been keeping a wary eye on emerging tick-borne diseases in Missouri for the past dozen years, and they have just nailed down another part of the story.

They knew from earlier work that the animal reservoirs for the diseases included white-tailed deer, wild turkey and a species in the squirrel family, but the DNA assay they had used wasn't sensitive enough to identify the species.

Squirrels belong to a large family called the Sciuridae, which includes chipmunks, fox squirrels, red squirrels, flying squirrels, ground hogs and prairie dogs.

In the May issue of the *Journal of Medical Entomology* the scientists, led by Robert E. Thach, PhD, professor of biology in Arts & Sciences, report that a more sensitive assay has allowed them to identify the major species in question as the eastern gray squirrel.

Yes, the friendly neighborhood seed thief and dog tease is also a mobile tick blood supply and bacteria incubator. For the entire story see:

<http://www.sciencedaily.com/releases/2012/06/120623094409.htm>

More on the Lone Star Tick Bite and Meat Allergy

We have had articles on the alpha-gal allergy as it is called in previous newsletters. This link is to a new article. You will notice most of the victims mentioned are from North Carolina.

Ticks causing mysterious meat allergy By **Olivia Smith**, CNN, June 20, 2012

http://www.cnn.com/2012/06/20/health/meat-tick-bite-allergy/index.html?hpt=hp_bn12

And from Food Safety News: <http://www.foodsafetynews.com/2012/06/red-meat-allergy-likely-caused-by-tick-bites/>

New Link to CDC Suggestions on How to Protect Yourself from Ticks

<http://www.cdc.gov/Features/StopTicks/>

Phone App from Texas

Dr. Pete Teel, Texas AgriLife Research entomologist at College Station and hero tick stalker extraordinaire, has created just the right tool to take Texas ticks to task. He has created a one-place-for-all info-tool called the TickApp, a central cyber point that can be accessed any time/any day for all the tick information you need whether you are a dog owner, hunter, farmer or rancher, hiker, soldier, or medical professional.

Teel says the mobile smart-phone app is available at no charge and is easy to use with little searching required.

“Whether you are a healthcare professional needing fast tick identification information, an urban pet owner slogging through the bewildering arsenal of control alternatives, or a South Texas cattleman facing financial hardship due to ticks, the app is meant for you,” Teel said in a recent AgriLife update. “It’s all very user-friendly and opens with just six easy-to-follow tabs that are quick to navigate. There’s a brief introduction, then a tick ID tab followed by tabs on tick biology, prevention and protection, removal and finally control and management practices.”

The TickApp can be downloaded at <http://tickapp.tamu.edu>.

<http://southwestfarmpress.com/livestock/tick-technology-takes-trouble-task>

Lyme Disease Presents Differently in Men and Women

By: SHARON WORCESTER, Internal Medicine News Digital Network

<http://www.internalmedicineneeds.com/news/infectious-diseases/single-article/lyme-disease-presents-differently-in-men-and-women/1bf48578d55240b1f29c02758d83ca46.html>

ATLANTA – Women with Lyme disease display more clinical symptoms than do men with the disease and also are less likely to seroconvert following treatment, according to findings from a prospective cohort study involving 77 patients.

Numerous symptoms were reported more often by the 37 women in the study than by the 40 men. For example, significantly more women than men reported joint pain, muscle pain, headache, back pain, heart palpitations, nausea, vomiting, anxiety, numbness and tingling, and changes in vision during at least one of six preplanned study visits with a physician, Lauren A. Crowder, M.P.H. reported in a poster at the International Conference on Emerging Infectious Diseases.

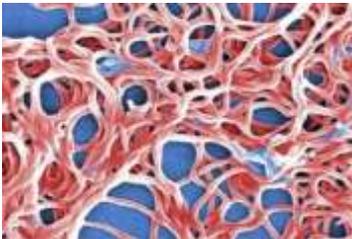


Photo courtesy Janice Haney Carr/CDC

Hypothesis: women and men may have a different immunological response to the bacteria that causes Lyme disease.

Joint pain, heart palpitations, nausea, vomiting, and changes in vision were reported significantly more often by women at two of the six visits, and headache was reported significantly more often by women at four of the six visits.

"The second preliminary finding we observed in our cohort of patients was that women were less likely to seroconvert on the antibody tests for serodiagnosis of Lyme disease," Ms. Crowder of the Lyme Disease Research Foundation, Lutherville, Md., said in an interview.

At the initial study visit, a similar proportion of men and women (about 60% of each) tested negative for Lyme disease using the Centers for Disease Control and Prevention's recommended two-tier testing criteria for serodiagnosis. However, at the second visit, which was performed immediately post treatment, 70% of women who tested negative at the first visit remained negative, compared with only 35% of the men who initially tested negative.

Additionally, polychromatic flow cytometry performed on patient samples indicated a significantly higher mean frequency of CD4+CCR5+ T-cells prior to treatment in women (9.82%) compared to men (5.96%).

"These findings suggest to us that there may be a difference between how men and women respond to infection with Lyme disease. One hypothesis for these differences is that there may be an immunological variation in response to *Borrelia burgdorferi*, the bacterial infection that causes Lyme disease, between men and women," Ms. Crowder said.

Study participants had early, untreated erythema migrans and clinically confirmed Lyme disease. At the first of the six study visits, they were tested using the CDC criteria by a commercial laboratory. All were treated with 3-week course of doxycycline and were then followed for up to 2 years. At each study visit, participants underwent a physical examination, repeat laboratory evaluations, and interval history, and they reported clinical symptoms and completed self-administered surveys.

The findings highlight a need for additional research on sex-based differences in the effects of early Lyme disease. Such differences have been seen in other infectious disease, but have not been thoroughly explored in early Lyme disease, Ms. Crowder noted.

Such study is important given that Lyme disease is the most common vector-borne infectious disease in the United States. Although most patients recover from acute infection with proper antibiotic treatment, a subset of patients develop Post-Treatment Lyme Disease Syndrome. The CDC defines this syndrome as involving lingering symptoms of fatigue, pain, or joint and muscle aches. In some cases, these can last for more than 6 months. "We will continue to explore these suggested differences both in this cohort and in future research studies," she said.

Ms. Crowder also stressed the importance of encouraging patients to look for ticks if they live in Lyme endemic areas. This study was supported by the Lyme Disease Research Foundation. Ms. Crowder had no disclosures to report.

Gulf Coast Ticks Now in Virginia

A new infestation is causing concern at the Fairfax County, Va., Health Department.

Ticks normally found in Gulf Coast states have been discovered in a landfill off Interstate 66 in the Fair Oaks area. Because the ticks can carry disease, the health department is pressing hard to contain them.

A handful of the ticks show up in the area each year, probably dropped from migratory birds. Last July, the health department was surprised to find 69 of the Gulf Coast ticks when they treated a fawn from the landfill at an animal shelter: 42 percent of those ticks carried the bacterium *Rickettsia parkeri*, which can cause a type of Rocky Mountain spotted fever disease. The Gulf Coast ticks do not carry Lyme disease.

Tick traps dot the landfill, now, as health department staffers collect them every week trying to learn more about the ticks and their population. The landfill is fenced off and gates are closed to discourage deer.

The complete story:

<http://www.nbcwashington.com/news/local/Gulf-Coast-Ticks-Invade-Virginia-121533569.html>

Tick Feces May Be Dangerous

***Borrelia burgdorferi* Visualized in *Ixodes scapularis* Tick Excrement by Immunofluorescence**

Toni G. Patton, Kevin S. Brandt, and Robert D. Gilmore Jr. CDC. Vector-Borne and Zoonotic Diseases. -Ahead of print. doi:10.1089/vbz.2011.0922.

Abstract

The enzootic cycle of *Borrelia burgdorferi*, the etiologic agent of Lyme disease, involves *Ixodes* spp. ticks and vertebrates. Resident tick *Borrelia*, harbored inside the midgut, are eventually expelled with the tick's saliva into the vertebrate host when a tick consumes a blood meal. During this 4- to 5-day feeding period *I. scapularis* will defecate onto the host's skin. Previously we detected borrelial DNA in tick feces throughout engorgement. In this study we report the microscopic examination for *B. burgdorferi* in nymphal excrement. Using immunofluorescence assays, we observed *Borrelia* in all mouse skin and capsule fecal swabs tested, although we could not culture the spirochetes. These results update our previous analysis by revealing that spirochetes can also be visualized in tick excrement. Furthermore, the results emphasize that borrelial contamination by defecation is a possibility, and that caution should be exercised by researchers investigating pathogen/host/vector interactions. The biological significance of the presence of non-culturable *Borrelia* in tick feces during engorgement is unclear.

Tick Population Up 80% in Rhode Island

According to research by [Dr. Thomas Mather](#), director of the [URI Center for Vector-Borne Disease and the Tick Encounter Resource Center](#), the university's tick surveillance team completed its initial round of tick sampling at all 60 of the sites that have been monitored for the past 18 years. Deer tick numbers in Rhode Island are up 80 percent over 2011 levels and 142 percent above the previous five-year average - meaning that the risk of contracting Lyme disease or other tick-borne diseases was especially high this summer.

North Carolina no longer has a Pest Management Section to help protect our citizens from vector-borne illnesses. Without state entomologists and researchers in North Carolina, our state is unable to perform tick sampling like Rhode Island does.

Sen. Jack Reed of Rhode Island says Lyme disease is a growing problem, and he is working on a bill that would help funnel more money to research targeting prevention and treatment. Rep. Chris Smith of New Jersey says the bill would pull together the best available science and then aggressively attack the disease. For the entire Wall Street Journal article:

<http://online.wsj.com/article/AP2a968b92f4f243f5900194344a4ff7d6.html>

Private Deer Removal Service in Massachusetts

As far as we know, we do not have anything like this here in North Carolina yet.

<http://www.massdeerservice.com/>. Apparently, in addition to deer elimination services, they are advertising and selling two different tick test kits - the Lymentor and the Lymealyzer

<http://lymealyzer.com/>. At this point, we do not have any idea who developed these tests and whether they have been through any type of validation process.

Whole Brain Atlas Available Online

Whole brain atlas for neurologists and the medically inclined. Images of Lyme disease encephalopathy are included:

<http://www.med.harvard.edu/AANLIB/home.html>

NPR Station in Boston Has Series on Lyme Disease

WBUR, Boston's NPR (National Public Radio) station, 90.9, began publishing a series, "[Living With Lyme](#)", on their website on June 26, 2012.

The series of articles are accompanied by free downloadable podcasts. Certain comments are interesting.

Resource List - Lyme Disease:

<http://www.wbur.org/2012/06/25/lyme-disease-resources>

In Lincoln, It's Town Vs. Ticks:

<http://www.wbur.org/2012/06/25/lyme-disease-lincoln>

Map: Lyme Disease Cases In Mass., By Town:

<http://www.wbur.org/2012/06/25/massachusetts-lyme-disease-map>

A Long, Painful Battle With Lyme Disease:

<http://www.wbur.org/2012/06/26/barbara-macleod-lyme-disease>

The Debate Over 'Chronic' Lyme Disease:

<http://www.wbur.org/2012/06/26/chronic-lyme-disease>

What To Do If You Think You've Been Exposed To Lyme Disease:

<http://www.wbur.org/2012/06/26/lyme-what-to-do>

Why Your Dog Can Get Vaccinated For Lyme Disease And You Can't:

<http://www.wbur.org/2012/06/27/lyme-vaccine>

Some Cape Residents Worry Tourists Aren't Taking Precautions To Prevent Lyme:

<http://www.wbur.org/2012/06/27/cape-cod-lyme>

How Much Lyme Disease Are We Living With?:

<http://www.wbur.org/2012/06/28/lyme-prevalence>

Lyme Disease Complicates Doctor-Patient Relationship:

<http://www.wbur.org/2012/06/29/lyme-science-controversy>

The Complexities Of Diagnosing Lyme Disease:

<http://www.wbur.org/2012/06/29/diagnosing-lyme-disease>

Emerging Tick-Borne Diseases Causing Concern In Mass.:

<http://www.wbur.org/2012/06/29/tick-borne-diseases>

Tracking Lyme disease

<http://onpoint.wbur.org/2012/07/03/tracking-lyme-disease>

Ed note: The recently published study from Yale concluded *that almost all of the south is “low risk” and that there are zero infected ticks*. We believe this is incorrect. The data are 6-8 years old, sampling was not thorough, and the statement that there were zero infected ticks was based on the testing results of only 9 ticks. Other studies in the south have found black-legged ticks infected with the Lyme disease bacteria. More information from the published response to the Yale study is available on request to TIC-NC. Herman-Giddens ME. *Yale Lyme disease risk maps are not accurate for the South in 2012*. Am J Trop Med Hyg. 2012 Jun;86(6):1085; author reply 1086.

Infant Born to Mother Infected with Babesia Microti Also Infected

Babesiosis is usually acquired from a tick bite or through a blood transfusion. We report a case of babesiosis in an infant for whom vertical transmission was suggested by evidence of *Babesia* spp. antibodies in the heel-stick blood sample and confirmed by detection of *Babesia* spp. DNA in placenta tissue.

http://wwwnc.cdc.gov/eid/article/18/8/11-0988_article.htm



Virus Detection in Questing Ticks is not a Sensitive Indicator for Risk Assessment of Tick-Borne Encephalitis in Humans by P. Stefanoff, M. Pfeffer, and W. Hellenbrand, et al.

Article first published online: 6 JUL 2012 DOI: 10.1111/j.1863-2378.2012.01517

Tick-borne encephalitis virus (TBEV) is the most important tick-transmitted arbovirus causing human disease in Europe, but information on its endemic occurrence varies between countries because of differences in surveillance systems. Objective data are necessary to ascertain the disease risk for vaccination recommendations and other public health interventions. In two independent, separately planned projects, we used real-time RT-PCR to detect TBE virus in questing ticks. In Poland, 32 sampling sites were selected in 10 administrative districts located in regions where sporadic TBE cases were reported. In Germany, 18 sampling sites were selected in two districts located in a region with high TBE incidence. Altogether, >16 000 ticks were tested by real-time RT-PCR, with no sample testing positive for TBEV. A systematic search for published studies on TBEV prevalence in ticks in Poland and Germany also suggested that testing large numbers of collected ticks could not consistently assure virus detection in known endemic foci. Although assignment of results to administrative regions is essential for TBE risk mapping, this was possible in only 10 (investigating 22 417 ticks) of 15 published studies (>50 000 ticks) identified. We conclude that the collection and screening of ticks by real-time RT-PCR cannot be recommended for assessment of human TBE risk. Alternative methods of environmental TBEV monitoring should be considered, such as serological monitoring of rodents or other wildlife.

Helpful website: http://www.tickencounter.org/tick_identification

Advertisement



About Insect Shield Technology:

Insect Shield's EPA-registered technology converts clothing and gear into effective and convenient insect protection. The repellency is long-lasting and appropriate for use by the entire family with no restrictions for use.

Quick Facts:

- Repellency is in the clothing and gear – not on your skin
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- Appropriate for the entire family
- No need to re-apply
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Visit our website: www.insectshield.com

Online store: www.insectshield.com/work

TIC-NC is grateful for the financial contributions of Insect-Shield, LLC.

Tick-Borne Infections Council of North Carolina is a non-profit organization formed to improve the recognition, treatment, control, and understanding of tick-borne diseases in North Carolina. We are all-volunteer and appreciate donations.

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Any contact information is provided for you to learn about tick borne illnesses and related issues. Our organization is not responsible for the content of other material or for actions as a result of opinions or information expressed which may appear from time to time.

It is the responsibility of you as an individual to evaluate the usefulness, completeness or accuracy of any information you read and to seek the services of a competent medical professional of your choosing if you need medical care.

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