

WINTER NEWSLETTER 2008 - 2009

Tick-borne Infections



Council of North Carolina, Inc

News Flash!

The state has recognized **Lyme disease** as an emerging disease in North Carolina. Counties will be defined as endemic for Lyme disease after two human cases are identified. The person must meet CDC reporting criteria for Lyme disease (certain symptoms and labs) and not have had likely exposure out of the county within 30 days of illness. This definition for endemic varies from that recommended by the CDC and has caused controversy. TIC-NC's position is that the state should adhere to what is recommended by the CDC: either two human cases as above, or established populations of the vector tick (black-legged) that are infected with *Borrelia burgdoferi*, the agent of Lyme disease.

Highlights...

Scroll down to see these features and more!

- The state [Vector-borne Disease Task Force meeting schedule](#)
- Tick-borne infection statistics, 2007 and by county 2000-2005
- The tick that can carry Lyme disease collected from Chatham County and many other NC counties
- The truth about fire ants and ticks
- Treated clothes that kill ticks from a North Carolina company
- Tick findings for the southeast from Dr. Oliver, Georgia Southern University
- Statement from Infection Disease Society Association (IDSA) on Selection of Panelists for the IDSA Guidelines Review

Quote of the season...

The organizer of the **Regional Conference to Assess Research and Outreach Needs in Integrated Pest Management to Reduce the Incidence of Tick-Borne Diseases in the Southern US**, Dr. Apperson states, "I think that we have a promising start towards documenting the issues associated with the increasing incidence of tick-borne diseases in the south." The meeting was held at the CDC in Atlanta in January 2009.

DATES FOR THE 2009 STATE VECTOR-BORNE TASK FORCE MEETINGS

The state [Vector-borne Task Force](#) meetings will be at the main DPH offices at 5605 Six Forks Road, Building three, in the Cardinal Conference Room.

- April 17th at 10 AM
- July 10th at 10 AM
- October 16th at 10 AM

These meetings are open to the public. They are very interesting. Although it is unlikely that the dates will change you may want to check before going-- info@tic-nc.org or 919-542-5573.

CASES OF LYME DISEASE, RMSF, and EHRLICHIOSIS REPORTED TO THE CDC FROM NORTH CAROLINA BY COUNTY 2000-2005

Available from this link:

<http://www.epi.state.nc.us/epi/gcdc/pdf/CDbyCountybyYear2000-2005.pdf>

CASES OF LYME DISEASE, RMSF, and EHRLICHIOSIS REPORTED TO THE CDC FROM NORTH CAROLINA 2007

Lyme disease	53
Rocky Mountain Spotted Fever	664
Ehrlichiosis, all types	60
Total	777

Certain other tick-borne infections (TBIs) such as STARI are not required to be reported. Between this and the fact that only the minority of reportable cases actually get reported, this means that the number of North Carolina citizens who got sick in 2007 from TBIs is in the thousands. From 2000 through 2005 (the latest year for which statistics are available) there were 7 deaths due to RMSF.

NEW HEALTH DIRECTOR APPOINTMENT FOLLOWING DR. DEVLIN'S RESIGNATION

Raleigh News & Observer, February 24, 2009. Dr. Jeffery P. Engel, who has served as the state's epidemiologist since 2002, has been named the state's new health director. He replaces Dr. Leah Devlin, who retired in January.

"North Carolina has long been considered a national leader in its proactive approaches to public health issues," Lanier Cansler, head of the state Department of Health and Human Services, said in announcing the appointment.

NC STATE ACTIVITIES ON TICKS

- surveillance and maps of black-legged ticks
- signage for parks and trailheads is being designed
- enhanced website, new brochures

- tick attach study with state environmental health workers
- 3 counties have tick demonstration projects funded for 3 years

Our thanks to Marcee Toliver with the Pest Management Division who is working very hard on all this.

NEWS AND OBSERVER STORY ON BARTONELLA RESEARCH AT NCCU

Dec 14, 2008 ... Raleigh *News & Observer*

In bacteria, vet sees key to human ills

Talk of the newly identified pathogen was everywhere in veterinary circles. Breitschwerdt, who had been studying tick-borne bacteria, including the one that causes Rocky Mountain spotted fever, was intrigued. "These aren't new bacteria -- they've been around for millions of years," Breitschwerdt says. "What is new is our knowledge of their presence, not only on the planet, but in animals."

....In a paper published last month, Breitschwerdt detailed Jason Sigmon's case along with five others. All had Bartonella infections that caused chronic, untreatable illnesses. Jason and two others, including the vet who had been diagnosed with multiple sclerosis, were cured with antibiotic treatment. One continues on antibiotics and has shown improvement, while two did not respond to treatment.

Breitschwerdt says the findings demonstrate that Bartonella should be considered when otherwise healthy people develop sudden, chronic illnesses. He says many diagnoses in people could be attributed to Bartonella if better testing were more widely available.

But it remains a hard sell. "You can't diagnose what you don't know exists," Breitschwerdt says.

Follow the link for the complete story. www.newsobserver.com/news/story/1333377-p2.html -

Letter to the News and Observer from TIC-NC in response to article:

<http://www.newsobserver.com/opinion/letters/story/1349230.html>

Serious tick problems Published: Tue, Dec. 30, 2008 12:30AM

We were pleased to see the Dec. 14 coverage of the excellent work Dr. Ed Breitschwerdt is doing on Bartonella, a potentially serious infection spread by certain biting insects. New research is showing that ticks also transmit this disease. All four of the human-biting ticks in North Carolina may transmit one or more diseases to humans.

Tick diseases in North Carolina in addition to Lyme disease, STARI, Bartonella and Rocky Mountain spotted fever mentioned in the article include ehrlichiosis, tularemia, several other pathogens under study and possibly babesiosis. The latter needs to be researched in North Carolina. Some of these infections may be fatal.

In recent years, our state has reported about 1,000 cases per year of the three reportable tick-borne infections. Since only a fraction of reportable cases enter the system and, as the article pointed out, several tick-borne infections are not reportable, this means many thousands of North Carolina residents get sick each year from ticks, and, on average, a few will die.

Fortunately, the state is beginning to realize what a serious problem we have with ticks. More research and control of the deer population will help. Breitschwerdt and others such as Dr. Charles Apperson at N.C. State who struggle for funds for tick research deserve our support.

CLOTHES THAT KILL TICKS, BUZZ OFF COMPANY IS HERE IN GREENSBORO, NC ! <http://www.buzzoff.com/CmsContent/Default.aspx>

Insect Shield® technology lasts through 70 washings!

Insect Shield technology converts clothing and gear into long-lasting, effective and convenient insect protection. Insect Shield® Repellent Apparel products are proven and registered to repel mosquitoes, ticks, ants, flies, chiggers and midges (no-see-ums). Insect Shield® Repellent Gear products are proven and registered to repel mosquitoes, **ticks**, flies and fleas.

A video on the technology can be seen at: <http://www.insectshield.com/Video/default.htm>
As for toxicity the company tell us that after 8 years of testing the EPA has deemed Insect Shield appropriate for use by infants, children of any age and women who are pregnant or nursing.

The company will treat your own clothes. It is cheaper 'by the dozen.' Friends and families can get together to send in a batch of clothes together and save money. Apparently this stuff really works. See details on their website.

CONFERENCE AT THE CDC IN JANUARY ON TICKS AND TICK-BORNE ILLNESSES IN THE SOUTH

Regional Conference to Assess Research and Outreach Needs in Integrated Pest Management to Reduce the Incidence of Tick-Borne Diseases in the Southern US. January 21-23, 2009.

Overview and Objectives

Tick-borne diseases are an important source of illness in the southern region of the United States. This workshop on tick-borne diseases of importance in the southern US is being held to consider the public health threat posed by ticks and tick-transmitted illnesses. The purpose is to assemble professional stakeholders for strategic planning to address issues associated with the increasing public health burden imposed by ticks and tick-borne diseases in the south. A report will be issued that describes societal and institutional issues that are presently limiting health care providers and public agencies from addressing tick-borne diseases effectively and proactively. The report will also identify significant gaps in knowledge of the ecology and epidemiology of tick-borne diseases in the south that are impeding an integrated approach to the management of ticks and tick-borne diseases. Important areas of research will be identified and resources needed to accomplish the research will be described as well.



REGIONAL WORKSHOP TO ASSESS RESEARCH AND OUTREACH NEEDS IN INTEGRATED PEST MANAGEMENT
TO REDUCE THE INCIDENCE OF TICK-BORNE DISEASES IN THE SOUTHERN UNITED STATES

TOM HARKIN GLOBAL COMMUNICATION CENTER
CENTERS FOR DISEASE CONTROL AND PREVENTION
ATLANTA, GEORGIA

JANUARY 21-23, 2009

The introductory and summary presentations have been posted on the Southern Region IPM Center's website. You can access the files at: <http://www.sripmc.org/tickworkshop/>.

DO FIRE ANTS REALLY EAT TICKS? By Al Cooke

The short answer is “yes.” Researchers have confirmed that both in the laboratory and in the field, fire ants will eat ticks. Seems they attack at the base of one leg to get into the abdomen and all the rich blood therein. It’s a gruesome ant-eat-tick world out there.

Perhaps more significant questions are whether we can stop killing ticks to allow the fire ants more opportunities? Or should we stop killing fire ants so that they will control ticks? Or, should we just let them fight it out among themselves and go watch the ballgame? Actually that latter may be the most practical option for any of us.

But the fact that fire ants eat ticks does not necessarily imply that fire ants are an effective control measure. All the research I’ve seen examined only the question of lone star ticks. I suspect they would also dine on other species; they seem somewhat more general than specific in their appetites. I have frequently suggested that fire ants are actually beneficial insects due to their feeding on other insects. But they are generalists, feeding on the good, the bad, and the ugly with little discrimination. And few folks seem to take me seriously when I suggest fire ants are beneficial.

Researchers also have noted that the control of ticks by fire ants in their studies was much more extensive in exposed open areas than in more heavily shaded woodland areas. And that is not surprising given that fire ants are much more likely to show up in open, exposed areas. Ticks seem to be more a problem in areas with a little to a lot of shade where fire ants are not commonly observed.

Yes, fire ants eat ticks. But given the number of calls I receive about each of them, I see no indication that either is having a significant impact on the population of the other.

Al Cooke

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Thanks to Al Cooke for writing this article for us.

NEW BLOG BY AUTHOR OF "CURE UNKNOWN" BY PAMELA WEINTRAUB

<http://blogs.psychologytoday.com/blog/contested-diseases/200812/into-the-woods>

"In the months ahead you can look to this space for discussion and dialog on diseases that are ill-defined, mysterious, contested, controversial -often unrecognized and written off by doctors as nonexistent, or all in a person's head. Included in the list you'll find Lyme disease and the complex of tick-borne infections, chronic fatigue syndrome, fibromyalgia, Gulf War syndrome, and others. The contested patient endures a journey both arduous and unique and, week after week, I'll open a window on that experience here. I start with my own story. For years my family suffered the indignity and pain of undiagnosed Lyme disease in the harsh, hyperinfested, uninformed hamlet of Chappaqua in Westchester County, New York...."

Anyone can participate in this blog.

Borrelia carolinensis sp.nov. - a new (14th) member of Borrelia burgdorferi sensu lato complex from the southeastern United States

Nataliia Rudenko, Maryna Golovchenko, Libor Grubhoffer, and James H. Oliver Jr.

Journal of Clinical Microbiology Accepts, published online ahead of print on 19 November 2008 <http://dx.doi.org/10.1128/JCM.01183-08>

Approximately 118 *Borrelia* isolates were cultured from a variety of rodents, birds and ticks collected in the southern USA. In addition to a highly diverse group of *Borrelia bissettii* strains, and a homogenous group of *Borrelia burgdorferi sensu stricto* strains, a group of 16 isolates with unusual characteristics was found.

Isolates were cultured from ear biopsies of the rodents *Peromyscus gossypinus* and *Neotoma floridana* trapped at 5 localities in South Carolina. Multilocus sequence analysis of rrf-rrl intergenic spacer, 16S rRNA, flagellin, ospA and p66 genes were used to clarify the taxonomic status of the new group of *B. burgdorferi sensu lato* isolates.

Thirteen species of *B. burgdorferi* sensu lato complex were used as controls. Unique RFLP patterns of rrf-rrl intergenic spacer region and flagellin gene were recognized. Unique signature nucleotides were also found in the 16S rRNA gene. Phylogenetic analysis shows that the 16 new isolates cluster together but separately from the other species in the *B. burgdorferi* sensu lato complex.

Our data strongly support the recognition of the 16 isolates as a new *B. burgdorferi* sensu lato species. We propose to name this genospecies *Borrelia carolinensis* with respect to the place of its currently known geographic location.

<http://dx.doi.org/10.1128/JCM.01183-08>

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BARTONELLA

NC State Researcher Links 'Silent Epidemic' to Hidden Pathogen

Dec. 4, 2008. A North Carolina State University researcher has discovered that certain tick-borne bacteria may be responsible for some chronic and debilitating neurological illnesses in humans, particularly among people with substantial animal contact or arthropod exposure.

Dr. Edward Breitschwerdt, professor of internal medicine at NC State's College of Veterinary Medicine and adjunct professor of medicine at Duke University, studied the bacteria *Bartonella* to determine how long these bacteria induce active infection in humans. The most commonly known *Bartonella*-related illness is cat scratch disease, caused by *B. henselae*, a strain of *Bartonella* that can be carried in a cat's blood for months to years.

Cat scratch disease was thought to be a self-limiting, or "one-time" infection; however, Breitschwerdt's previous work discovered cases of children and adults with chronic *Bartonella* infections - from strains of the bacteria that are found in cats (*B. henselae*) and dogs (*B. vinsonii* subsp. *berkhoffii*).

In a study published in the September volume of the *Journal of Clinical Microbiology*, Breitschwerdt and colleagues from the Duke University Medical Center and the Centers for Disease Control and Prevention in Atlanta were able to detect one or more strains of *Bartonella* in blood samples from six patients suffering from a broad spectrum of neurological and neurocognitive abnormalities, including chronic migraines, seizures, memory loss, disorientation and weakness.

All of the patients in the study had both frequent tick exposure and significant animal exposure – some were veterinarians, others had grown up on farms or had occupations that kept them outdoors – and all of them suffered from chronic, debilitating neurological problems.

The patients were treated with antibiotics, and three of them saw marked improvement. In the other cases, improvements were minimal or short-term.

Breitschwerdt believes that his research offers hope – perhaps the identification of a specific infectious cause of chronic neurological disease and another potential avenue of treatment – for

what could be a significant segment of the population.

"*Bartonella* has been described by some scientists as a 'stealth pathogen,'" he says. "Our research could lead to the elimination of what may be a silent and currently unrecognized epidemic among humans."

"*Bartonella* sp. Bacteremia in Patients with Neurological and Neurocognitive Dysfunction," Journal of Clinical Microbiology, Sept. 2008. E. B. Breitschwerdt, R. G. Maggi, N. A. Cherry, North Carolina State University; C. W. Woods, Duke University Medical Center; W. L. Nicholson, Centers for Disease Control and Prevention

PICTURE OF FOUR-POSTER DEVICES USED TO CONTROL TICKS ON DEER

Shelter Island

Getting Rid of Ticks Takes Time and Money



Doug Kuntz for The New York Times

LURES When deer eat the corn in four-poster devices, above, they are dosed with insecticide.

The New York Times By PAT WIEDENKELLER, Published: December 12, 2008
Excerpt of story: Deer at the feeding stations, which are baited with corn, rub their heads against rollers soaked with a tickicide, permethrin, as they eat. NY state bans the four-poster devices, in part because it prohibits the feeding of wild deer, which encourages them to congregate and can spread diseases among herds. The \$1.2 million effort, paid for initially with money from the state, Suffolk County and the Town of Shelter Island, as well as local committees and foundations, could run short of money by next summer, government officials and community advocates said.

The study must be conducted over three to four consecutive years — linked to the tick's life cycle — to produce usable results, said Dale Moyer, who supervises the study for the Cornell Cooperative Extension of Suffolk County. The New York Times, New York, NY

<http://www.nytimes.com/2008/12/14/nyregion/long-island/14deerli.html>

INTERESTING FINDINGS ABOUT TICKS AND THE LYME DISEASE BACTERIA IN THE SOUTHEAST. Dr. James Oliver, Jr., Institute of Arthropodology and Parasitology, Georgia Southern University January 2009

1. We have isolated and have in culture approximately 275 *Borrelia burgdorferi* s. l. strains from several species of rodents, birds and ticks from GA, SC, FL, and MO. They include *B. burgdorferi* sensu stricto, *B. bissettii*, *B. carolinensis*, *B. andersonii*, and *Borrelia* sp.nov.
2. *B. burgdorferi* s.s. contains at least 2 major genetic groups that are well established at several geographic sites in the S.E.U.S. *B. bissettii* are even genetically more variable than *B. burgdorferi* s. s. It is common for these species to occur at the same geographic site and in the same tick species. Some time dual infections occur in the same individual tick.
3. The main reservoir hosts include the cotton mouse (*P. gossypinus*), the cotton rat (*Sigmodon hispidus*), and eastern woodrat (*Neotoma floridana*). The Carolina wren and Eastern Towhee are also often infected. The vector ticks include *Ixodes scapularis*, *I. affinis*, *I. minori*.
4. Methods used in analysis include the usual techniques generally accepted. State of the art molecular analysis is used. Currently molecular analysis of sequences of 5 genomic loci are being evaluated for *Borrelia* sp. nov. and compared to the 14 genomic species described in the *B. burgdorferi* s. l. complex.
5. Several of the isolates from GA, SC, and FL have been experimentally transmitted via *I. scapularis*, *I. affinis*, and *I. minori* in the lab.
6. We continue to work on the genetic variability among our *Borrelia* cultures and the vector ability of each tick species.
7. There are several similarities in behavior of southern *Ixodes scapularis* and *Ixodes pacificus* (California). Lizards are often hosts for immatures of both species, but rodents and birds are also common hosts. In general, common cloth drags are not as productive for nymphs of both species. Observations suggest that the nymphal *I. scapularis* quest in the leaf litter more often than higher up on vegetation in the southern U. S. compared to the northern populations. Adult *I. scapularis* do bite humans in the South.

THE INFECTIOUS DISEASE SOCIETY OF AMERICA PANEL SELECTION FOR RE-REVIEW OF THEIR CONTROVERSIAL GUIDELINES

Statement from IDSA on Selection of Panelists for Review- January 2009

The Infectious Diseases Society of America (IDSA) announces the selection of a special review panel to examine whether the Society's Lyme disease guidelines, published in 2006, should be revised or updated based on a rigorous review of the medical and scientific evidence.

IDSA is conducting this review as part of its voluntary agreement with the Attorney General of Connecticut, who had questioned the process used by IDSA's previous guidelines panel. It is important to note that at no point were the medical findings of IDSA Lyme disease guidelines panel questioned by the Connecticut investigation. All recommendations from IDSA 2006 practice guidelines remain in effect.

Members of the review panel were selected through an open application process to ensure that the panel as a group reflects a balanced variety of perspectives and experience. Panel members come from a broad range of relevant disciplines, including clinical experience in treating patients with Lyme disease and experience in investigating the best methods to diagnose and treat Lyme disease and other infectious diseases. In addition to conducting a thorough literature review, the panel will hold a public hearing that will be available online and will solicit additional input.

As agreed by all parties, all review panel members, including the chairperson, were screened for potential conflicts of interest and were deemed eligible by ombudsman and medical ethicist Howard Brody, MD, PhD, author of *Hooked: Ethics, the Medical Profession, and the Pharmaceutical Industry*. Dr. Brody was jointly selected by IDSA and the Office of the Attorney General.

The chairperson of the review panel is Carol J. Baker, MD, an infectious diseases specialist and pediatrician with Texas Children's Hospital in Houston. Dr. Baker has more than three decades of experience treating patients and is professor of pediatrics, molecular virology and microbiology, and head of the section of infectious diseases at Baylor College of Medicine. She is a past president of the National Foundation for Infectious Diseases (NFID) and IDSA.

Following is a list of selected panelists:

Carol J. Baker, MD, Chair Baylor College of Medicine Houston, TX William A.

Charini, MD, Peabody, MA

Paul H. Duray, MD (retired), Westwood, MA

Paul M. Lantos, MD, Duke University Medical Center Durham, NC

Gerald Medoff, MD, Washington University School of Medicine St. Louis, MO

Manuel H. Moro, DVM, MPH, PhD, National Institutes of Health Bethesda, MD

David M. Mushatt, MD, MPH & TM, Tulane University School of Medicine New Orleans, LA

Jeffrey Parsonnet, MD, Dartmouth Hitchcock Medical Center Lebanon, NH

Cmdr. John W. Sanders, MD, U.S. Naval Medical Research Center Detachment, Peru

IDSA Lyme Disease Review Panel Announces Public Input Period and Hearing Date

IDSA has convened a review panel to examine whether the Society's Lyme Disease guidelines, published in 2006, should be revised or updated based on a rigorous review of the medical and scientific evidence on the diagnosis and treatment of Lyme Disease.

The Review Panel is initiating a 60-day input period to allow the public to submit information to ensure that all points of view are taken into consideration. There will also be an [open public hearing](#) to offer a forum for the presentation of relevant information on the diagnosis and treatment of Lyme Disease.

The 60-day public input period is now open. Interested individuals and organizations may submit information as follows:

Submissions* must be received by **5:00 PM Eastern, April 3, 2009** and must include:

1. Statement (< 5 pages) including:
 - a. Name and contact information of the submitter
 - b. Issue(s)/concern(s) and relevance to [2006 IDSA Lyme Disease guidelines](#); and/or
 - c. Issue(s) not covered in the 2006 IDSA Lyme Disease guidelines
2. Reference list of supporting data (if available) (<2 pages)

Submissions should be made to the attention of the "IDSA Lyme Disease Review Panel" at: lyme@idsociety.org.

The Review Panel is committed to considering all points of view. The Panel respectfully requests that those submitting comments not exceed the page limit in order to ensure that Panel members have ample opportunity to review all comments.

****Note that submissions may be posted Online by IDSA for public viewing.***

Open Public Hearing April 27

The Review Panel will hold an open public hearing on Monday, April 27, 2009 in the Washington, DC area (location to be determined). Additional information, including how to apply to be a presenter, is forthcoming.

CDC BLOG FOR ANYONE INTERESTED IN THE CDC

ABOUT CDCChatter.net: Welcome to CDCChatter.net, an unofficial blog for employees of the Centers for Disease Control and Prevention (CDC), external partners and others who are interested in CDC. This blog was established for CDC employees and others to post information, express opinions, make comments and otherwise communicate about decisions, changes, events and other issues that are occurring at CDC. This blog is intended to provide a forum for people to express their views. It is not intended as a forum for disclosing classified or confidential information nor is it intended in any way to compromise the mission and efficacy of CDC.

You do not need to register or log-in to submit news or comment on news. See FAQ for instructions on how to submit news and comments.

You may contact the Blog Administration directly by E-mail at anonpost@cdcchatter.net . The link is: <http://www.cdcchatter.net/>

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.

This organization is not a representative, program, affiliate of any other organization, unless specifically stated. Contact us at info@tic-nc.org

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