Tick-Borne Infections Council of North Carolina, Inc.

NEWSLETTER 2018, Volume 1

Quote of the season: - On removal of links to the IDSA guidelines, weeks after the lawsuit against the IDSA was filed-- "It has been over a decade since the IDSA guidelines on treatment of Lyme disease, developed in 2006, were published. Since then, additional published research further informs Lyme disease treatment. As a result, CDC is updating its website with treatment information more immediately helpful to health care providers and people with Lyme disease. We are aware that IDSA is working on updates to its guidelines. Because CDC is not involved in this effort and does not know when these guidelines will become available, we have chosen to share information that may be helpful to health care providers and people with Lyme disease. We look forward to reviewing the new IDSA guidelines once released." -- Candice Burns Hoffmann, CDC spokesperson

Also from the CDC: " Lyme disease continues to be the most commonly reported vectorborne disease in the United States. Although concentrated in historically high-incidence areas, the geographic distribution is expanding into neighboring states." Ed. note: This includes North Carolina. CDC in Surveillance for Lyme Disease — United States, 2008–2015. MMWR Surveill Summ 2017;66(No. SS-22):1–12. DOI: http://dx.doi.org/10.15585/mmwr.ss6622a1.

Highlights…

Scroll down to see these features and more!

- **Vectorborne Disease Work Group meeting report**
- **Florida tick study**
- **CDC report on the spread of Lyme disease**
- **Federal antitrust lawsuit about denial of Lyme disease coverage**
- **Reports disease and Poland, Switzerland, Ireland**

State Vector-Borne Disease Working Group 2018 Meeting Schedule

Tentative 2018 VBWG meeting dates: January 26th, April 27th, Jul 27th, and October 26th
The January meeting was cancelled.

(Check with us before going to confirm date as they occasionally change.)

Location:
Office of the Chief Medical Examiner Photo ID required.
4312 District Drive
Raleigh, NC 27607

Links to Letters to Medical Providers from the State Department of Public Health on Lyme Disease and Rickettsial Diseases

These links are to the letters the state Department of Public Health issues every year to medical providers on Lyme disease and the Rickettsial diseases such as RMSF:

Where To Find CDC Case Definitions and their Statement that the Surveillance Case Definitions Are "not to be used as the sole criteria were establishing critical diagnosis"

Go to: www.cdc.gov/lyme/healthcare/index.html. (The links below in a clip of the website are not active.) Scroll down and find "Case Definition and Report Forms". See the grey box with "Note" containing the disclaimer.

Case Definition and Report Forms

- Lyme Disease Surveillance Case Definition (revised Jan 2017)
- Lyme Disease Surveillance Case Report Form [PDF – 2 pages] (for public health officials' use)

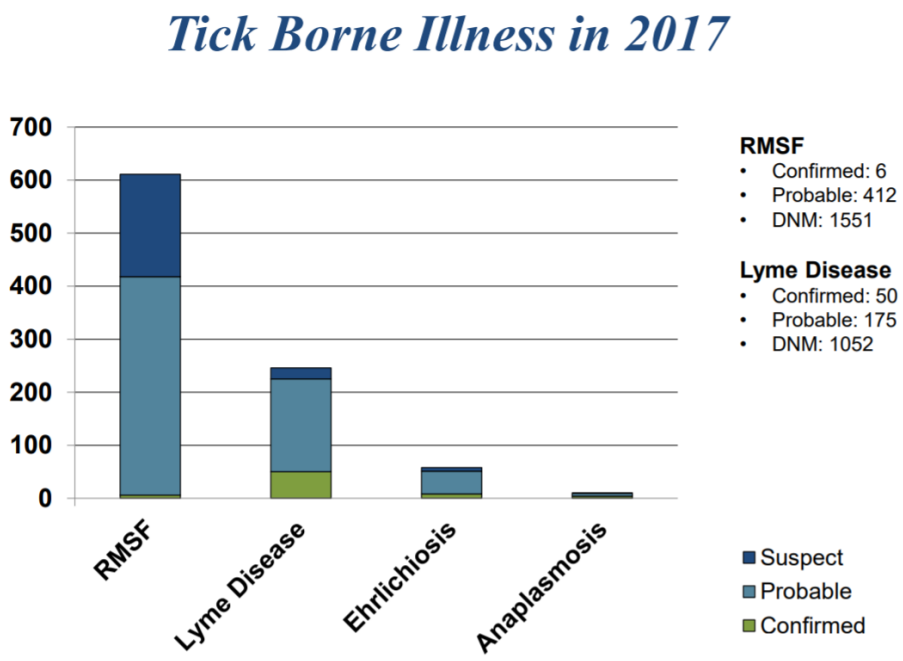
Note: Surveillance case definitions establish uniform criteria for disease reporting and should not be used as the sole criteria for establishing clinical diagnoses, determining the standard of care necessary for a particular patient, setting guidelines for quality assurance, or providing standards for reimbursement.

Accessed and copied 15 August 2017.

NC EDSS Event Data – Cases Submitted to CDC

Disease	Total Cases/Confirmed cases by year of report 2016†	Total preliminary confirmed and probable Events in NCEDSS created between 1/2/2017 - 10/19/2017*	Total Events Reviewed and closed by NC DPH 1/2/17 - 10/19/2017	Total Events Still Under Investigation by LHD 1/2/17 - 10/19/2017	Total Events created in NCEDSS 1/1/17 - 10/19/2017
Lyme Disease	274/32C	225/50C	1318	122	1440
RMSF	682/6C	418/6C	2039	282	2321
Ehrlichiosis	61/10C	51/8C	192	18	210
Anaplasmosis	16/1C	9/4C	29	4	33

Report from the Vectorborne Disease Work Group meeting

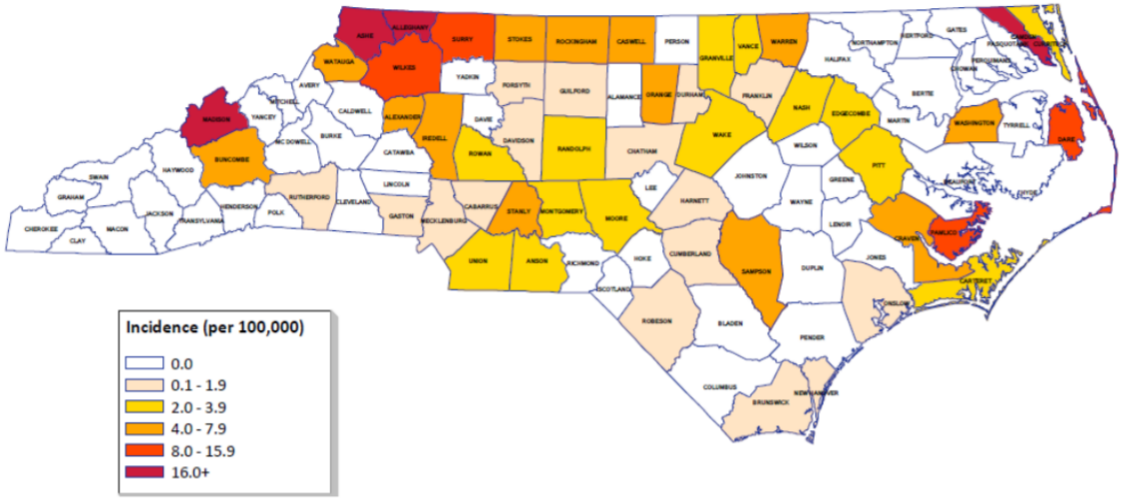


Source:

NC Nothing Compares NORTH CAROLINA

Vector-borne Disease Working Group (VBWG)

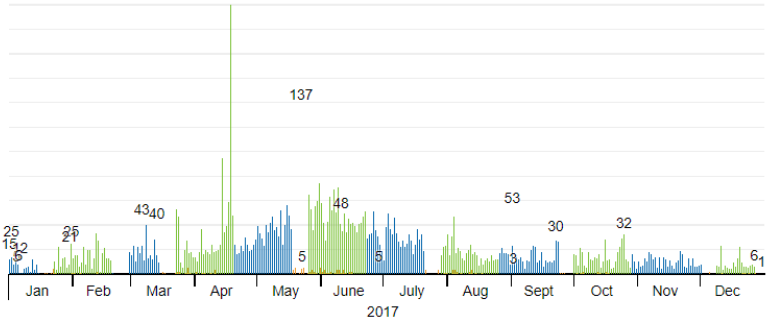
Vector-borne Disease Working Group
Quarterly Meeting
October 20, 2017



Future Directions

- CDC ELC funding ~$5,300 for tick surveillance
- Contract with UNC-G – Begins November 15, 2017
- Tick Surveillance plan
  - Five counties – Ashe, Allegheny, Surry, Wilkes, Yadkin
  - Send to CDC for testing

אא TIC-NC Activities אא



Website page 'hits' for 2017. Since data collection began in August 2015, we have had almost 50,000 views.

TIC-NC Talks and Materials Distributed

Brochures/booklets:
Fearrington Village Club Fair
Carolina Women's Show, Pittsboro

אא North Carolina and South אא

Most common wildlife ticks in Florida are the lone star and the black-legged

Distribution and host associations of ixodid ticks collected from wildlife in Florida, USA

A tick survey was conducted to document tick-host associations with Florida (USA) wildlife, and to determine the relative abundance and distribution of ixodid ticks throughout the state. The survey was conducted using collection kits distributed to licensed Florida hunters as well as the examination of archived specimens from ongoing state wildlife research programs. Collected tick samples were obtained from 66% of Florida counties and were collected from nine wildlife hosts, including black bear, bobcat, coyote, deer, gray fox, Florida panther, raccoon, swine, and wild turkey. In total, 4176 ticks were identified, of which 75% were *Amblyomma americanum*, 14% *Ixodes scapularis*, 8% *A. maculatum*, 3% *Dermacentor variabilis*, and < 1% were *I. affinis* and *I. texanus*. *americanum*, *D. variabilis*, and *I. scapularis*had the broadest host range, while *A. maculatum*, *D. variabilis,* and *I. scapularis* had the widest geographic distribution. While the survey data contribute to an understanding of tick-host associations in Florida, they also provide insight into the seasonal and geographic distribution of several important vector species in the southeastern USA. Hertz, et al. Exp Appl Acarol (2017). https://link.springer.com/article/10.1007%2Fs10493-017-0183-1

◘◘ National Section ◘◘

TICKING TIME BOMB: AN UPDATE ON THE LYME AND TICK-BORNE DISEASE EPIDEMIC IN NEW YORK STATE

TASK FORCE ON LYME AND TICK-BORNE DISEASES Senator Sue Serino, Chair
SENATE STANDING COMMITTEE ON HEALTH Senator Kemp Hannon, Chair
October 2017

Excerpted from the Executive Summary:

This year was particularly bad for ticks and tick-borne diseases (TBDs), with Lyme and other TBDs, including deadly cases of Powassan, reaching new areas of the state. The Senate Majority Coalition Task Force on Lyme and Tick-Borne Diseases, in conjunction with the Senate Standing Committee on Health, held a hearing in August to focus on the ongoing battle with Lyme and TBDs, as well as the dangers and steps to avert greater problems.

…Given the serious consequences of infection, the wider geographic spread, and the need for consensus and advancements in the field, the August 2017 hearing brought together local and state officials, and other experts, to call for increased efforts on Lyme and tick-borne infections at all levels. Senators heard from the Commissioner of Health, local health officials, patients, physicians, and researchers.

Note: The Centers for Disease Control were invited to participate in the August 2017 hearing and the invitation was declined. See footnote, p5.

Entire report: https://www.nysenate.gov/sites/default/files/article/attachment/revised_final_lyme_report.pdf

CDC report on the spread of Lyme disease

Lyme disease increases in states that neighbor hot spots including North Carolina

In its latest report on Lyme disease patterns, the US Centers for Disease Control and Prevention (CDC) said that illness levels are stable or slightly lower in areas that have typically reported the most cases—the Northeast, mid-Atlantic, and upper Midwest—but activity is increasing in neighboring states.

Cases confirmed in 48 states

Based on data from 2008 through 2015, the report covers 275,589 confirmed and probable cases. The 208,834 confirmed cases were reported in 48 states, and 41 states reported at least one probable case. The CDC noted that the goal of Lyme surveillance system isn't to record every case, but rather to show trends over time.

The number of Lyme cases fluctuated from a low of 30,158 in 2010 to a high of 38,468 in 2009. However, the CDC said the number of reported cases each year stayed above 30,000, making Lyme disease the most commonly reported vector-borne disease in the country.

Of the 14 states classified as high-incidence areas, 7 saw an overall decreasing trend. Of 11 states classified as neighboring areas, however, 8 showed an overall increasing trend in the number of confirmed cases.

In its analysis, the CDC said the decline in high-burden states might mean that disease incidence has stabilized or could be an artifact from changes in case verification practices to minimize the demands

of conducting Lyme disease surveillance.

Higher numbers from neighboring states is consistent with a documented increase in the number of counties with established populations of *Ixodes scapularis* (called deer ticks or black-legged ticks).

Illness and epidemiology
For all years, illness-onset peaked in the first week of July. Erythema migrans (an expanding red rash, oval or circular, sometimes clearing in the center) was the most common clinical signs in people who were sick from April to November, but in those whose symptoms began during the coldest months, from December to March, arthritis was the most frequently reported symptom.

That the hallmark rash is reported for two thirds of the year is a reminder that adult ticks seek hosts during the fall months and that prevention messages should not focus just on spring and summer when nymphal ticks are feeding, the CDC said.

Though no major demographic or clinical changes were noted, the CDC researchers did see some differences between confirmed and probable cases compared with earlier reports for example, confirmed cases in high-incidence and neighboring states commonly involved male patients and young children, while those in low-incidence states were more likely to be female or a higher age.

The CDC said many of the confirmed cases in low-incidence states probably reflect travel to states where the disease is more common. Adapted from http://www.cidrap.umn.edu/news-perspective/2017/11/lyme-disease-increases-states-neighbor-hot-spots. Entire CDC report: www.cdc.gov/mmwr/volumes/66/ss/ss6622a1.htm

Federal antitrust lawsuit about denial of Lyme disease coverage, filed in November 2017

Texas (Court House News) – Twenty-eight people including Lisa Torrey claim in a federal antitrust lawsuit that Lyme disease victims are being forced to pay hundreds of thousands of dollars for treatment because health insurers are denying coverage with bogus guidelines established by their paid consultants, who falsely say the disease can always be cured with a month of antibiotics…

…Torrey says she suffers every day from the disease that can kill its victims.

Other plaintiffs are suing for the estates of Al Barnes, who developed paralysis before dying from untreated Lyme disease, and David Kocurek, who was an aerospace engineer and worked for NASA. Kocurek suffered from symptoms akin to the trembling and jerky movements caused by Parkinson's disease.

"He visited more than 25 doctors and was told he did not have Lyme disease. He even tested negative for Lyme disease based on the IDSA testing guidelines," the lawsuit states. "He was only diagnosed with Lyme disease after he researched the issue himself and convinced his doctor to test him again." Kocurek paid for his treatments and died from the disease in April 2016.

Torrey and her co-plaintiffs seek treble damages for RICO Act and Sherman Act antitrust violations.

To back their RICO claims, they say the insurers formed an enterprise rife with mail fraud and wire fraud with the IDSA and its panelists, by mailing fees over state lines to the panelists to pay for their allegedly fraudulent Lyme disease treatment guidelines.

IDSA spokeswoman Jennifer Morales declined to comment on the lawsuit, but defended its Lyme

disease guidelines in a statement Tuesday… Entire article: www.courthousenews.com/insurers-accused-conspiring-deny-lyme-disease-coverage/

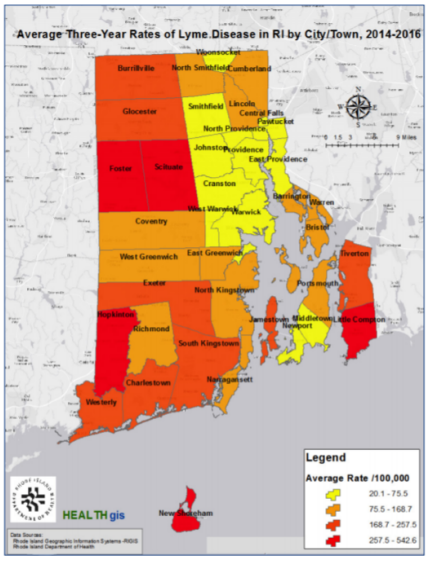
West Virginia study helps confirm utility of using dogs as a marker for human Lyme disease occurrence

Evaluating the utility of companion animal tick surveillance practices for monitoring spread and occurrence of human Lyme disease in West Virginia, 2014-2016

Domestic dogs and cats are potentially effective sentinel populations for monitoring occurrence and spread of Lyme disease. Few studies have evaluated the public health utility of sentinel programmes using geo-analytic approaches. Confirmed Lyme disease cases diagnosed by physicians and ticks submitted by veterinarians to the West Virginia State Health Department were obtained for 2014-2016. Ticks were identified to species, and only Ixodes scapularis were incorporated in the analysis… Statistically significant associations were identified between average numbers of Ix. scapularis collected from dogs and human Lyme disease. Hendricks et al. Geospatial Health 2017; 12:582 doi:10.4081/gh.2017.582

Lyme Disease Data from Rhode Island

Rhode Island Lyme Disease Surveillance Summary 2014–2016



In 2015, Rhode Island had the fourth highest rate of confirmed Lyme disease, behind Vermont, Maine, and Pennsylvania.2 However, surveillance data used to determine these rates can depend on a state's ability to capture and classify cases, which is dependent on personnel and other resources. Since May 2013, funding to enhance Lyme surveillance has enabled RI to actively reach out to providers to obtain additional clinical information necessary to classify cases as "Confirmed" or "Probable" based on the national Centers for Disease Control and Prevention (CDC) case definition. Barkley et al. Rhode Island Medical Journal. 2017 Nov 1;100(11):41-44. /rimed.org/rimedicaljournal-2017-11.asp. https://www.ncbi.nlm.nih.gov/pubmed/29088576

Table 1. Clinical characteristics of Lyme disease cases,[1] Rhode Island, 2014–2016.

	2014 (N=570)		2015 (N=564)		2016 (N=535)	
Clinical Characteristics	N	% of confirmed cases	N	% of confirmed cases	N	% of confirmed cases
Erythema migrans	313	54.9	289	51.2	242	45.2
Arthritis	198	34.7	212	37.6	255	47.7
Bell's Palsy	50	8.8	52	9.2	41	7.7
Radiculoneuropathy	19	3.3	21	3.7	16	3.0
Lymphocytic meningitis	10	1.8	11	2.0	5	0.9
Encephalitis	6	1.1	7	1.2	1	0.2

[1]Based on CDC Lyme disease case definition for confirmed cases.

Ed. note: An erythema migrans (EM) rash was reported in 45 to 55% of the confirmed cases, which is lower than the 70–80% reported by the CDC.

NSF, NIH and USDA make new awards to combat infectious diseases

Ecology and Evolution of Infectious Diseases program focuses on diseases that affects plants, humans, other animals November 2017

Another project, based at Old Dominion University in Norfolk, Virginia, will perform geospatial analyses of a class of tick-borne pathogens and their diseases along the U.S. East Coast and in South Africa. The research team will compare results from these regions to learn more about what drives the spread of such pathogens.

Entire article: www.nsf.gov/news/news_summ.jsp?cntn_id=243614&org=NSF&from=news

International & General Section

Geographic distribution and incidence of Lyme borreliosis in the west of Ireland

Lyme borreliosis is caused by Borrelia burgdorferi and is the most common tick-transmitted infection in temperate regions. Infection often presents with erythema migrans and/or other clinical features in early infection. Blood samples are submitted for testing for antibodies to Borrelia burgdorferi by enzyme immunoassay and positive samples are confirmed by a reference laboratory by IgG and IgM line immune assay. A retrospective extraction of all laboratory requests and results for Lyme borreliosis from 2011 to 2014 was performed. Even though the number of requests increased over the years, there was no significant increase in the number of positives. Incidences per 100,000 population for requests and positives were calculated at LEA level and showed considerable variation. The highest incidence was shown in one LEA (Connemara) with nearly 500 requests and 43 positives per 100,000 population per year. Increased awareness may explain the increase in requests. There is no indication of an increase in incidence. As many GPs treat suspected Lyme borreliosis empirically without testing and as antibody may be undetectable early in the course of illness, the true incidence of infection is likely to exceed the number of laboratory-confirmed cases. Vellinga et al. Ir J Med Sci https://doi.org/10.1007/s11845-017-1700-2

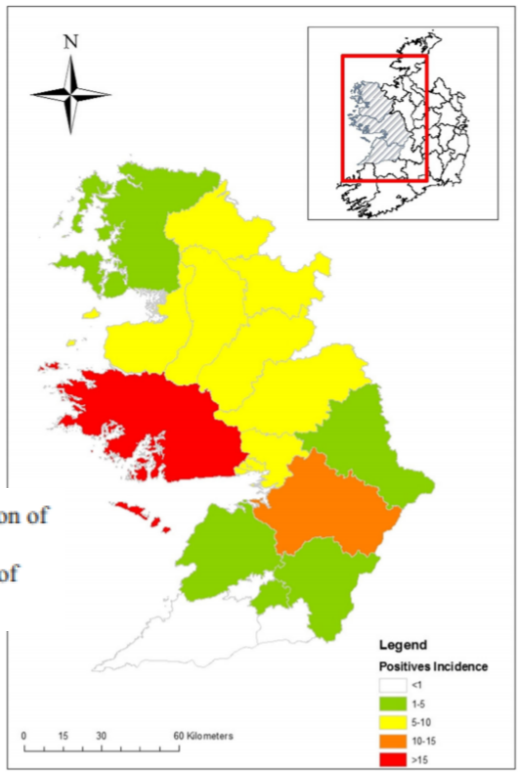


Fig. 3 The spatial distribution of the mean incidence per year (2011–2015) of the number of positives per LEA

Polish study: New unknown and rare pathogens could be responsible for some symptoms after tick-bites

Tick-borne infections and co-infections in patients with non-specific symptoms in Poland

The aim of the study was the evaluation of the frequency of infections and co-infections among patients hospitalized because of non-specific symptoms after a tick bite. 118 patients hospitalized for non-specific symptoms up to 8 weeks after tick bite from 2010 to 2013 were examined for tick-borne infections. Control group included 50 healthy blood donors. All controls were tested with PCR and serology according to the same procedure as in patients.

Out of 118 patients 85 (72%) experienced headaches, 15 (13%) vertigo, 32 (27%) nausea, 17 (14%) vomiting, 37 (31%) muscle pain, 73 (62%) fever and 26 (22%) meningeal signs. 47.5% were infected with at least one tick-borne pathogen. Borrelia burgdorferi sensu lato infection was confirmed with ELISA, Western blot in serum and/or (PCR (fla gene) in whole blood in 29.7% cases. In blood of 11.9% patients Anaplasma phagocytophilum DNA (16S rRNA gene) was detected; in 0.9% patients 1/118 Babesia spp. DNA (18S rRNA gene) was also detected. Co-infections were observed in 5.1% of patients with non-specific symptoms. B. burgdorferi s.l. A. phagocytophilum co-infection (5/118; 4.2%) was most common. In 1/118 (0.8%) A. phagocytophilum – Babesia spp. co-infection was detected. All controls were negative for examined pathogens.

Conclusions: Non-specific symptoms after tick bite may be caused by uncommon pathogens or co-infection, therefore it should be considered in differential diagnosis after tick bite. © 2017 Medical University of Bialystok.
In 52.4% of our patients no infections were detected. We postulate that new unknown and rare pathogens could be responsible for the symptoms. It is also imaginable that the symptoms were not linked to the reported tick bites at all and instead were due to a non-tick-borne infection, such as internal diseases. Further studies are needed. Dunaja et al. Advances in Medical Sciences. Volume 63, (1) 2018, 167–172. https://doi.org/10.1016/j.advms.2017.09.004

Aim of this Polish study is the estimation of the cognitive and affective disorders occurrence in patients with Lyme borreliosis

Estimation of cognitive and affective disorders occurrence in patients with Lyme borreliosis

Lyme borreliosis (LB) is a disease caused by the bacteria Borrelia burgdorferi. The most common symptoms are related to the skin, musculoskeletal system, central and peripheral nervous system, rarely to the heart muscle and the eye, and may occur in the multistage course of the disease. LB may additionally be accompanied by psychopathological symptoms.

The study examined 121 patients (61 females, 60 males) aged 18–65; mean age 46 years. All patients were diagnosed with late-stage of LB: 46 patients (38%) with Lyme arthritis and 75 patients (62%) with neuroborreliosis. Evaluation of the cognitive and affective functioning of patients was performed on the basis of a standardized interview and test methods: the Mini-Mental State Examination (MMSE), Clock Drawing Test (CDT) and the Beck Depression Inventory (BDI).

Cognitive disorders occurred statistically significantly more often in patients with neuroborreliosis

(14.7%) than in patients with Lyme arthritis (4.3%). A group of females with neuroborreliosis and a group of males with the same diagnosis demonstrated cognitive deficits significantly more often (23.3% and 8.9%, respectively), compared to groups of patients with Lyme arthritis (6.5% in females and no cognitive deficits in males). A significantly higher percentage of depressive disorders was also noted in the group of males and females with neuroborreliosis (50.7%), compared to the group of patients with Lyme arthritis (39.1%). The symptoms of depression were particularly frequent in the females with neuroborreliosis (60%). The severity of depression measured by BDI was mild or moderate in most cases. In the examined groups, more patients with neuroborreliosis (44%), both in females (36.7%) and males (48.9%), demonstrated anxiety disorders. The obtained results showed a higher frequency of affective disorders compared to cognitive deficits, both in patients with Lyme arthritis and neuroborreliosis.

An increased frequency of depressive and neurotic disorders was observed in patients with LB, particularly in patients with neuroborreliosis. Neurotic disorders, mainly adaptive, were most common in males with LB, while depressive disorders were more frequent in females. An increased frequency of cognitive deficits was observed in patients with neuroborreliosis, particularly in females. Oczko-Grzesik et al. Ann Agric Environ Med. 2017; 24(1): 33–38. doi: 10.5604/12321966.1229002.

Switzerland's rural and urban ticks carry a number of human pathogens including Lyme disease

Prevalence of tick-borne pathogens in questing *Ixodes ricinus* ticks in urban and suburban areas of Switzerland

Three hundred fifty eight out of 1078 *I. ricinus* ticks (33.2%) tested positive for at least one pathogen. Thereof, about 20% (71/358) were carrying two or three different potentially disease-causing agents. 18.0% were positive for *Borrelia burgdorferi* (*sensu lato*).

This study's data document the presence of pathogens in the (sub-) urban *I. ricinus* tick population in Switzerland, with carrier rates as high as those in rural regions. Carriage of multiple pathogens was repeatedly observed, demonstrating the risk of acquiring multiple infections as a consequence of a tick bite. Oechslin et al. *Parasites & Vectors* 2017,**10**:558. https://doi.org/10.1186/s13071-017-2500-2.

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☼☼☼

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

Tick-Borne Infections Council of North Carolina is a non-profit 501(c)3 organization formed to improve the recognition, treatment, control, and understanding of tick-borne diseases in North Carolina. We are all-volunteer and appreciate donations.

Disclaimer

TIC-NC's newsletter content, including text, graphics, images and information is for general informational purposes only. The contents are not intended to be a substitute for professional medical advice, diagnosis or treatment.

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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