



## Buncombe County Health and Human Services

Aging and Veteran's Services ~ Social Work Services  
Public Assistance & Work Support Strategies ~ Public Health  
Amanda Stone, MSW  
Health and Human Services Director

**To:** Buncombe County Medical Providers  
**From:** Dr. Jennifer Mullendore, Medical Director  
**Date:** April 14, 2014  
**RE:** Health alert from the Buncombe Co. Dept. of Health: Info for medical providers on tickborne and arboviral diseases

As we enter the peak season for transmission of **tickborne and arboviral diseases**, please review the attached memos and the information below regarding these diseases.

- In 2013, we saw 9 confirmed cases of **Rocky Mountain Spotted Fever** (including 1 that resulted in the death of a child) and 5 confirmed cases of **La Crosse encephalitis** in Buncombe County residents.
  - Since these numbers only represent lab-confirmed cases (through acute & convalescent serology), it is highly likely that they underrepresent the actual burden of these diseases in our community.
- **We request your assistance to improve surveillance by obtaining both acute and convalescent (2-3 weeks after onset) serum samples from persons you suspect of having tickborne or arboviral diseases.**
  - **Per NC law, you must notify Disease Control staff at the Buncombe County Dept. of Health (#250-5109) of any suspected mosquito- or tick-borne infections.**
    - We can assist with obtaining diagnostic testing to confirm the diagnosis. Serologic testing for these infections is offered at no charge from the State Laboratory of Public Health.
- **Although we want you to order serologies, we also want to remind you that serologies are NOT helpful on initial presentation and you should NOT wait for results to begin appropriate treatment in patients who have symptoms of Rocky Mountain spotted fever (fever and headache) or acute Lyme disease (Erythema Migrans).**
  - **When patients in endemic areas like NC have fever and headache during tick season (typically April - September), RMSF should be in the differential diagnosis and doxycycline should be started *immediately*.**

Below are additional key points about some of the most common vectorborne diseases in our area as well as links to more in-depth information and continuing education opportunities.

HHS Administration p. 828.250.5700 f. 828.250.6235 PO Box 7408 Asheville, NC 28802	Aging & Veteran's Services p. 828.250.5726 f. 828.250.6235 PO Box 7408 Asheville, NC 28802	Social Work Services p. 828.250.5500 f. 828.250.6235 PO Box 7408 Asheville, NC 28802	Public Assistance p. 828.250.5500 f. 828.250.6235 PO Box 7408 Asheville, NC 28802	Public Health p. 828.250.5000 f. 828.250.6235 PO Box 7407 Asheville, NC 28802
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**\*\*I encourage you to check out this great resource for diagnosis and management of tickborne diseases -- <http://www.cdc.gov/lyme/resources/TickborneDiseases.pdf>**

**\*\*If you see pediatric patients, I strongly encourage you to review the attached journal article on RMSF in children, specifically pages 460-4 which focus on symptoms, diagnosis and treatment.**

Also, feel free to share the attached fact sheet on preventing infections from mosquitoes and ticks with your patients and staff.

As always, if you have any questions re: communicable diseases or need to reported suspected cases, please contact the Disease Control staff of the Buncombe County Department of Health at 250-5109.

Thanks,  
Jenni

Jennifer Mullendore MD, MSPH  
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## **La Crosse Encephalitis**

- La Crosse encephalitis is the most commonly diagnosed arboviral disease in NC.
  - Over 70% of cases reported from 2003 to 2013 were from residents of 4 Western NC counties: **Buncombe**, Haywood, Transylvania, and Jackson.
- **Symptoms:**
  - Many people infected with the La Crosse virus (LACV) have no symptoms.
  - Among people who become ill, symptoms include fever, headache, nausea, vomiting, and tiredness.
  - Severe LACV disease often involves encephalitis or meningitis.
    - Severe disease occurs most often in children under the age of 16.
    - In rare cases, long-term disability or death can result from La Crosse encephalitis.
- **Diagnosis:** Early diagnosis is critical to adapting therapy and eliminating unnecessary treatment. A sensitive & rapid arboviral panel is available through the State Lab via Mission Labs.
- **Treatment:** There is no specific treatment for LACV infection. Symptomatic care as needed.
- For more info: [www.cdc.gov/lac](http://www.cdc.gov/lac)

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## **Rocky Mountain spotted fever (RMSF) and other Tick-Borne Rickettsial Diseases (TBRD)**

**\*\*Early suspicion of RMSF and prompt treatment with doxycycline (in both children & adults) is critical to preventing serious illness and death.**

- **The absence of a history of a recent tick bite should not deter you from considering a diagnosis of TBRD.**
- **Symptoms:**
  - Sudden moderate or high fever, headache, myalgia, malaise, abdominal pain, and vomiting; usually occur within 2-14 days after the tick bite
  - A rash may also develop, but is **often absent in the first few days**. In some patients, it never develops.
- **Treatment:**
  - **If TBRD is suspected, patients of all ages, including children, should be treated immediately with doxycycline. Do not wait for lab results which can take weeks to return.**
    - **Adults & children  $\geq$ 100 lbs: doxycycline 100 mg PO/IV BID**
    - **Children < 100 lbs.: doxycycline 2.2 mg/kg/dose PO/IV BID; max 100 mg/dose**
    - **Treat for at least 3 days after fever subsides & patient is improved clinically; standard course is 7-14 days.**
  - **The use of doxy to treat suspected TBRD in children is recommended by both the CDC and the AAP. The recommended dose and duration of doxy needed to treat TBRD has not been shown to cause staining of permanent teeth.**
  - **TBRD can be a severe or even fatal illness if not treated in the first 5 days of symptoms.**
    - Fever will generally subside within 24-72 hours if doxy is started within the first 5 days of illness. If a patient does not become afebrile under these conditions, consider an alternative diagnosis.

The CDC has an archived web-on-demand CME presentation on tickborne diseases at [http://www.bt.cdc.gov/coca/calls/2014/callinfo\\_041014.asp](http://www.bt.cdc.gov/coca/calls/2014/callinfo_041014.asp)

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## Lyme disease and Southern Tick Associated Rash Illness (STARI)

- During 2013, a total of 179 (38 confirmed, 141 probable) cases of Lyme disease were reported in NC. From 2008 to 2013 the number of reported confirmed cases has more than doubled and the number of reported probable cases has increased almost 4 times.
  - *Keep in mind that cases are reported based on county of residence, which is not necessarily the county where infection is acquired.*
  - As of February 2014, 4 NC counties (**Haywood**, Allegheny, Guilford and Wake) were designated as **endemic** for surveillance purposes (at least 2 lab-confirmed cases of Lyme disease were assumed to be **acquired** in each of those counties).
  - In 2013, 2 Buncombe County residents had “probable” cases of locally-acquired Lyme disease (LD). To be called a confirmed case of early LD, the state requires documentation in the patient’s medical chart of a Erythema Migrans (EM) rash >5cm in size, positive lab findings and a provider diagnosis of LD.
    - **Because Buncombe County borders an endemic county, the state asks that you have Lyme disease on your radar and do not miss the opportunity to treat.**
- **If a patient has an Erythema Migrans rash:**
  - **Lyme disease should be in your differential**
  - **Document the size of any EM rash** in the patient’s medical chart.
  - **In the southern US, it has been recommended that Erythema Migrans rashes be treated presumptively as early Lyme disease.**
  - **Order a total EIA test with an automatic reflex to IgG and IgM western blot if the EIA is positive or equivocal.**
    - **If serologic testing is negative in the acute phase (first 2 weeks after onset; acute serologies most commonly are negative), consider reordering convalescent testing 2 weeks later.**
- **STARI** usually follows the bite of the lone star tick, which is the most common tick in NC.
  - The etiologic agent for STARI is unknown and there is no diagnostic test.
  - **STARI may cause an Erythema Migrans-like skin lesion.**
  - **Therefore, STARI is a confounder for Lyme disease surveillance and is the main reason why all cases of Erythema Migrans should be accompanied by lab evidence of infection to confirm diagnosis of Lyme disease.**

## Lyme Disease Diagnosis, Treatment and Testing

- [CDC’s Lyme disease treatment web page](#)
- [2006 IDSA Treatment Guidelines](#)
- [Two-tier testing explained](#)

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## CDC Expert Commentary Videos on Medscape (Free Medscape login required)



[Southern Tick-Associated Rash Illness -- When a Bull's-Eye Rash Isn't Lyme Disease](#)   
CDC Expert Commentary, March 2013



[PCR for Diagnosis of Lyme Disease: Is It Useful? An update on testing for Lyme disease is provided in this commentary from the CDC.](#)   
CDC Expert Commentary, June 2012

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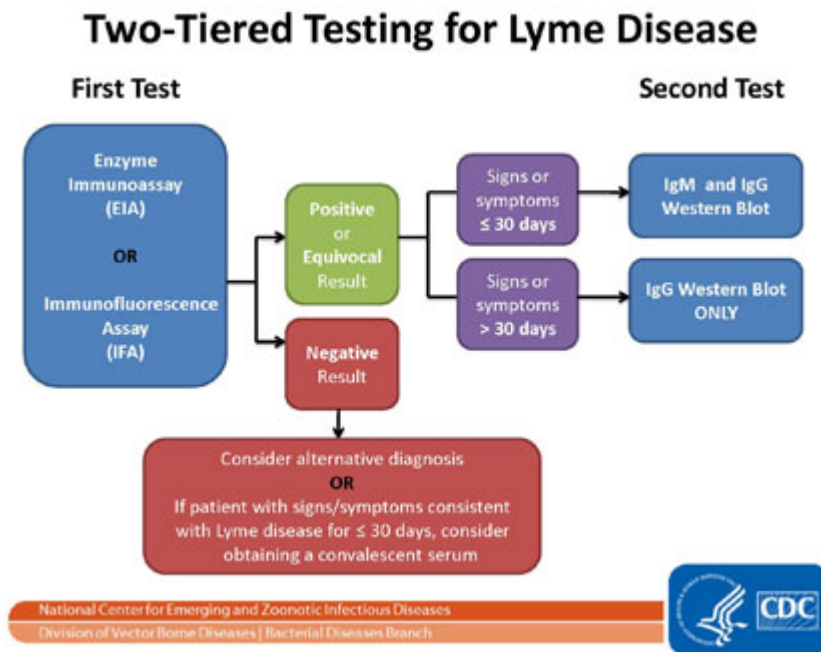
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[Testing for Lyme Disease: Follow the Steps When faced with a patient with potential Lyme disease, following the correct testing procedures will avoid false-negative and false-positive results.](#)

CDC Expert Commentary, March 2012

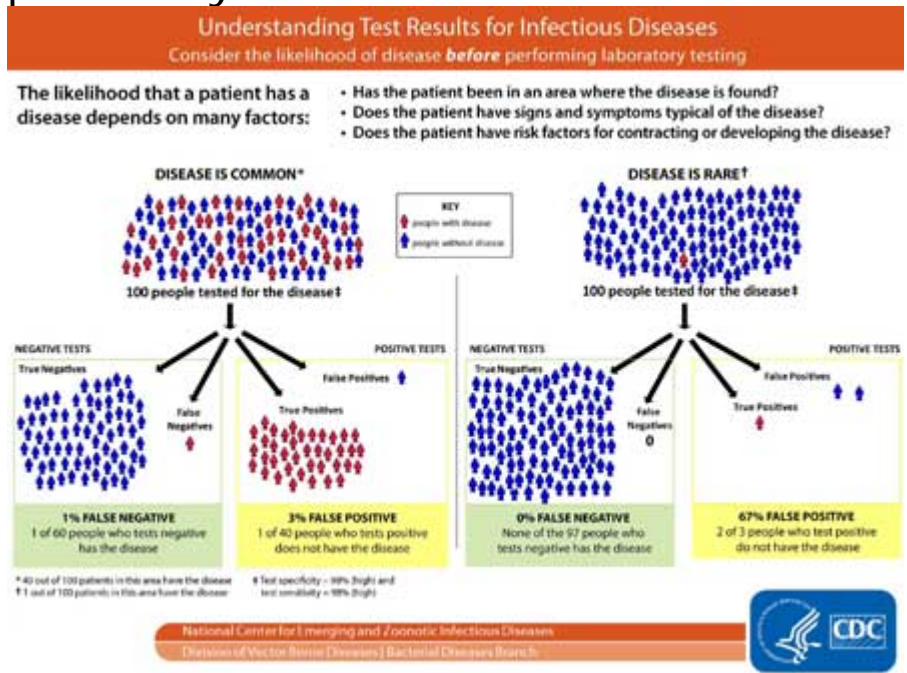
## Two-tier testing for Lyme disease decision tree



Describes the steps required to properly test for Lyme disease. [Click for larger image and to learn more.](#)

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# Understanding laboratory test results based on prior probability



The likelihood that a patient has a disease depends on many factors. The illustration depicts the likelihood of false positive and false negative test results based on whether a particular disease is common or rare in a given setting. [Click for larger image and to learn more.](#)

## Continuing Medical Education for Clinicians

- [CME Case Study Course on the Clinical Assessment, Treatment, and Prevention of Lyme Disease.](#) This free, interactive course consists of a series of case studies designed to educate clinicians regarding the proper diagnosis and treatment of Lyme disease. Each case is accredited for .25 CME credits, for a maximum of 1.5 CME.
- [Recognizing and Treating Tick-Borne Diseases,](#) a 1.25 CME credit webinar, is available from the Missouri Department of Health and Senior Services and DEET Education program.

## Lyme Disease Self-Assessment

From the American College of Physicians (ACP) Initiative on Lyme Disease--[an online quiz containing six clinical scenarios](#) regarding the evaluation and treatment of Lyme disease.

## Case Definition and Report Forms

- [Lyme Disease Surveillance Case Definition](#) (revised Jan 2011)

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