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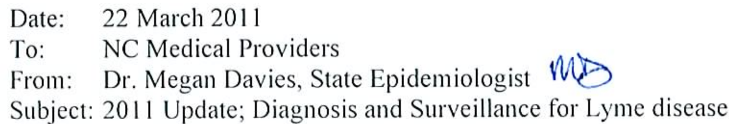

Date: 22 March 2011
To: NC Medical Providers
From: Dr. Megan Davies, State Epidemiologist
Subject: 2011 Update; Diagnosis and Surveillance for Lyme disease

In 2009 and 2010, over 150 cases of Lyme disease were reported in North Carolina. Of those, 9 reported events met the case definition criteria for confirmed Lyme disease (LD) as well as not having any history of travel outside the county of residence during the incubation period. Therefore, these events are considered to have been acquired in specific North Carolina counties. Historically, it was once thought that LD could not be acquired in NC. This is no longer a true statement. Due to active surveillance activities Wake County is now considered endemic for surveillance purposes (http://www.ncdhhs.gov/pressrel/2010/2010-3-17-wakelyme.htm). Lyme disease can be acquired in NC, and should be considered even if the patient has not travelled to a historically endemic area for Lyme disease. Diagnosis and surveillance for LD is challenging and published guidelines may present conflicting information. The Division of Public would like to ensure that health care providers consider the possibility of LD in the appropriate clinical scenario and treat potential cases of LD early if the disease is suspected based on clinical findings.

Clinical vs. Surveillance Diagnosis; Indications for Treatment

The clinical diagnosis of LD should take into account symptoms and probability of disease[1]. The 2006 IDSA guidelines[2], which were upheld by the 2010 IDSA review panel[3] provide assistance in establishing a diagnosis of LD and medical management of cases. Surveillance criteria required to confirm a case of LD are intentionally much more strict. Serology is often required to fulfill the surveillance criteria for LD yet must be interpreted with caution. In 1997 the FDA issued a medical bulletin titled, Lyme Disease Test Kits: Potential for Misdiagnosis[4], which states: "The tests should be used only to support a clinical diagnosis of Lyme disease and should never be the primary basis for making diagnostic or treatment decisions. Diagnosis should be based on a patient history, which includes symptoms and exposure to the tick vector and physical findings." Therefore DPH encourages health care providers to treat patients on the basis of clinical findings. Do not wait for confirmatory laboratory testing. Serologic testing is often too insensitive in the acute phase (the first two weeks of infection) to be helpful diagnostically. Appropriate antibiotic therapy and long-term outcomes in patients with early LD have recently been described.[5]

How Can You Help in Surveillance for Lyme Disease?

Health care providers can help establish a more comprehensive characterization of LD in North Carolina, improve surveillance information and help differentiate between LD and Southern Tick-Associated Rash Illness (STARI) by performing the appropriate serological testing. Serological testing for Lyme disease, , requires two-tier testing performed in accordance with CDC guidelines. The 2006 IDSA guidelines are: "First tier testing is most often performed using a polyvalent ELISA. If the first tier assay result is positive or equivocal, then the same serum specimen is retested by separate IgM and IgG immunoblots. For patients with symptoms in excess of 4 weeks to be considered seropositive, reactivity must be present on the IgG immunoblot specifically." Serologic testing for Lyme disease is not performed by the NC State Laboratory of Public Health but can be ordered through private laboratories. See attached table.

Please contact Carl Williams or Jodi Reber at 919-733-3410 with any questions or concerns that you have regarding surveillance of Lyme disease. Your time and consideration on this topic are greatly appreciated.

1. AFP 2005:72(2) 297-304
2. CID 2006:43 1089-1134 & http://www.idsociety.org/
3. http://www.idsociety.org/Content.aspx?id=16501
4. http://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/PublicHealthNotifications/UCM062429
5. Kowalski, et.al. "Antibiotic treatment duration and long-term outcomes of patients with early lyme disease from a lyme disease-hyperendemic area." Clin Infect Dis. 2010 Feb 15;50(4):512-20.

<table>
<tr><th>Laboratory</th><th>Tier 1 Test</th><th>Tier 2 Test</th></tr>
<tr><td rowspan="2">Mayo Clinic</td><td>#9129 Lyme Disease Serology, EIA, Serum http://www.mayomedicallaboratories.com</td><td>#9535, Lyme disease Antibody, Western blot, Serum</td></tr>
<tr><td colspan="2">If Lyme Disease Serology #9129 is positive, then #9535 "Lyme Disease Antibody, Western Blot, Serum" will be performed at an additional charge.</td></tr>
<tr><td>ARUP</td><td colspan="2">#0050267, Borrelia burgdorferi Antibodies, Total by ELISA (CPT code 86618) with Reflex to IgG & IgM by Western Blot (CPT code 86617) http://www.aruplab.com/guides/ug/tests/0050267.jsp</td></tr>
<tr><td>Quest Diagnostics (Chantilly VA location)</td><td colspan="2">#10672, CPT code 86618; Lyme disease C6 antibodies reflex to Western blot (IgG, IgM), http://www.questdiagnostics.com</td></tr>
<tr><td>LabCorp</td><td colspan="2">#258004, CPT code 86618(x2) Lyme disease antibodies, including reflex to Western blot on positives, https://www.labcorp.com</td></tr>
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