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To: NC Health Care Providers

From: Jean-Marie Maillard, MD, MSc, Acting State Epidemiologist

Subject: Diagnosis and Surveillance for Tick Borne Rickettsial diseases (TBRD) and Arboviral diseases

Tick Borne Rickettsial disease:

Rocky Mountain Spotted Fever (RMSF) is a reportable disease in North Carolina and is the most common TBRD in the state. RMSF is a potentially severe or fatal disease caused by the bacterium *Rickettsia rickettsii*. In NC, the tick associated with transmission of *R. rickettsii* is *Dermacentor variabilis*, the American dog tick. The symptoms of RMSF generally include a sudden onset of fever, myalgia, and headache within 3 to 14 days following a tick bite.

Ehrlichiosis is also a reportable disease in NC. This group of diseases include human monocytotropic ehrlichiosis (HME), human granulocytotropic anaplasmosis (HGA), and ehrlichiosis caused by *Ehrlichia ewingii*. HME is caused by *E. chaffeensis* following the bite of an infected lone star tick (*Amblyomma americanum*). HGA is caused by the bacteria *Anaplasma phagocytophila* and is transmitted by the tick *Ixodes scapularis*, the same tick that transmits Lyme disease. *Amblyomma americanum* is the primary tick vector of *E. ewingii*.

Treatment for TBRD with doxycycline is very effective at reducing the severity of the disease. It is important that antibiotic treatment for TBRDs be started without delay when they are suspected. Laboratory testing for TBRD should consist of blood samples taken in the early stages of the illness (acute) and follow up (convalescent) specimens taken at least two to four weeks after the first specimen. Laboratory testing, though important for surveillance purposes and diagnostic confirmation, can take days to weeks for results to become available. If TBRD is suspected, it is important to start treatment with the appropriate antibiotics immediately. Treatment should not be delayed while waiting for laboratory confirmation. Definitive guidelines are available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5504a1.htm>.

Arboviral diseases:

Neuroinvasive domestic arboviral (arbo for arthropod-borne) diseases are also reportable conditions in NC. These conditions are transmitted by a variety of species of mosquitoes and can cause symptoms ranging from fever to altered mental status and other acute signs of central or peripheral neurologic dysfunction.

Diagnosis:

Serologic testing for TBRD and Arboviral diseases is offered at no charge from the SLPH. The submission form, DHHS 3445, is available at <http://slph.state.nc.us/virology-serology/special-serology.asp>. We encourage providers to collect acute AND convalescent specimens to assist in confirmation of these cases.

Education of patients, prevention of disease:

We encourage all providers to educate their patients about personal protective measures they can take to minimize their risk of acquiring these conditions. Information for patients can be found here: <http://www.cdc.gov/ticks/prevention.html>



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