

## Identification, Timely Preventive Treatment and Testing for Tick/Lyme Disease

Each year, there are roughly 1,500 new cases of Lyme disease diagnosed in Maine. With summer underway and tick season in full-swing, we have some important information on recommendations from the CDC and The Infectious Diseases Society of America (IDSA) regarding preventive treatment of Lyme Disease and testing if deemed appropriate. The local rate of nymphal Ixodes scapularis (deer) tick infection with *B. burgdoferi* is > 20 percent (known to occur in southern Maine).

### Identification and Timely Preventive Treatment

The Infectious Diseases Society of America (IDSA) recommends prophylactic treatment with one dose of antibiotics in people who have a known tick bite and meet **ALL of the following criteria:**

- Attached tick identified as an adult or nymphal Ixodes scapularis (deer) tick
- Tick is estimated to have been attached for > 36 hours (based on how **engorged** the tick appears or the amount of time since outdoor exposure)
- The antibiotic can be given within 72 hours of tick removal
- The person can take doxycycline (e.g. the person is not pregnant, breastfeeding or a child <8 years of age)

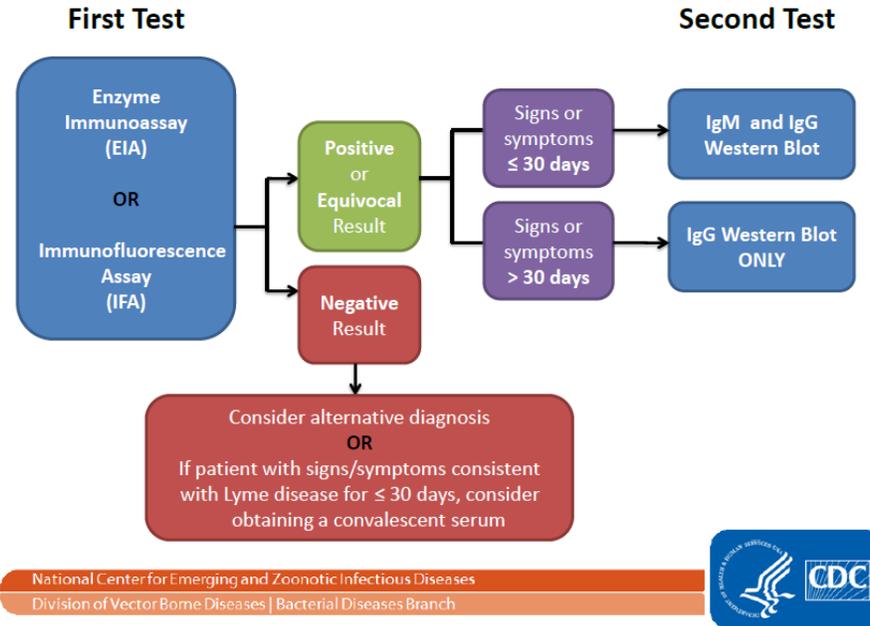
If the person meets ALL of the above criteria, the recommended single dose of doxycycline is a **200 mg for adults and 4mg/kg**, up to a maximum dose of 200 mg, in children > 8 years, may be given.

**If the person cannot take doxycycline, the IDSA does not recommend prophylactic treatment with an alternate antibiotic** for several reasons: there are no data to support a short course of another antibiotic, a longer course of antibiotics may have side effects, antibiotic treatment is highly effective if Lyme disease were to develop, and the risk of developing a serious complication of Lyme disease after a recognized bite is extremely low.

### CDC Recommends a Two-Tiered Testing Approach

The CDC recommends a two-tiered testing approach for Lyme: first, a screening ELISA (Lyme serology). Second, if the screening test is positive or equivocal, a confirmatory immunoblot test (Western blot). NorDx laboratory will automatically reflex an order for the immunoblot test if the Lyme serology screening test is positive or equivocal. The immunoblot test should not be ordered independently of the Lyme serology screen because the screening test is much more sensitive than the immunoblot. Internal studies at NorDx have shown that the probability of a positive immunoblot in the absence of an appropriate screening test is 2%, whereas the probability of a positive immunoblot with a positive /equivocal screening serology is 65%.

## Two-Tiered Testing for Lyme Disease



Other tests that are neither validated nor recommended for the initial diagnosis of Lyme disease are: lymphocyte transformation test, quantitative CD57 assays, joint fluid antibody measurement or PCR for *Borrelia burgdorferi*.

Two other tick borne diseases also appear in Maine during the summer and are much less common than Lyme disease: Anaplasmosis (100 new cases/yr) and Babesiosis (30 new cases/yr).

Since the incidence of these diseases is so low, and the PCR test to diagnose them is expensive, the following diagnostic approach is recommended. Screen first using CBC with differential and CMP. If either of these tests show any pathognomonic abnormalities, add on a "Tick Panel PCR". The common abnormalities are:

- Babesia
- Anemia (normocytic, normochromic)
- Thrombocytopenia
- Leukopenia
- Elevated transaminases
- Elevated alkaline phosphatase
- Anaplasma
- Mild anemia
- Thrombocytopenia
- Leukopenia with left shift
- Lymphopenia
- Elevated transaminases

NorDx keeps CBC specimens on hand for 7 days, and the CBC sample is adequate for PCR testing.

Should your patient's blood show results that could be consistent with either Anaplasma or Babesia infection, you can easily add-on a "Tick Panel PCR" to the patient's blood that has been collected. For your information, the "Tick Panel" test is the Anaplasma and Babesia PCR test PLUS screening serology for Lyme.

