



## 2012 DOHMH Advisory #14: Tick-borne Disease Advisory

July 17, 2012

*Please share with your colleagues in Internal and Family Medicine, Pediatrics, Infectious Disease, Infection Control, Laboratory Medicine, Hematology, Cardiology, Neurology, Rheumatology, Critical Care and Emergency Medicine:*

- **The following tick-borne diseases are reportable in NYC: Lyme disease, Rocky Mountain spotted fever, babesiosis, ehrlichiosis, and anaplasmosis.**
- **Rocky Mountain spotted fever can be acquired locally in NYC; Lyme disease, babesiosis, ehrlichiosis, and anaplasmosis are primarily acquired during travel outside of NYC.**
- **New and updated resources for tick-borne diseases are available on the DOHMH website.**

Dear Colleagues,

From June through October, New York City clinicians should be on the alert for tick-borne diseases. This advisory presents key epidemiologic and clinical findings regarding reportable tick-borne diseases in New York City and reminds clinicians of available laboratory tests and reporting requirements.

### **Tick-borne diseases reportable in NYC:**

1. **Lyme disease:** caused by the bacterium *Borrelia burgdorferi* and transmitted by the *Ixodes scapularis* (black-legged or deer) tick
2. **Anaplasmosis:** caused by the bacterium *Anaplasma phagocytophilum* and transmitted by the *I. scapularis* tick
3. **Ehrlichiosis:** caused by the bacterium *Ehrlichia chaffeensis* and transmitted by the *Amblyomma americanum* (lonestar) tick
4. **Rocky Mountain spotted fever:** caused by the bacterium *Rickettsia rickettsii* and transmitted by the *Dermacentor variabilis* (American dog) tick
5. **Babesiosis:** caused by the parasite *Babesia microti* and transmitted by the *I. scapularis* tick

The most common tick-borne disease affecting New Yorkers is Lyme disease (Table). Among reportable tick-borne diseases, only Rocky Mountain spotted fever has been known to be transmitted within all five boroughs of New York City. Recent travel to upstate New York, Long Island, Connecticut, Massachusetts, Pennsylvania, or Rhode Island should prompt consideration of tick-borne diseases. A history of a tick bite is not a prerequisite for considering these diseases in the differential diagnosis for patients with compatible illness, since only a small proportion of patients with these diseases recall having been bitten by a tick.

### **NYC Tick Surveillance Data**

Information on tick populations present in New York City is limited. Periodic tick surveillance has been conducted since 1995, and annual surveillance by the Health Department starting in 2009 has identified *Ixodes scapularis*, some of which have been shown to carry *Borrelia burgdorferi*, in several NYC parks. *Dermacentor variabilis* (American dog tick) is the vector for Rocky Mountain spotted fever and has been detected in great abundance in all boroughs of NYC. *Amblyomma americanum* (lone star tick) is the vector for human monocytic ehrlichiosis. Surveillance data suggest that this tick is not established in NYC.

### **NYC Tick-borne Disease Epidemiology**

In 2011, there was an increase in the number of cases of tick-borne diseases compared to 2010, with the exception of ehrlichiosis. Additionally, 2011 had the highest number of cases of babesiosis and anaplasmosis reported in New York City to date (Figure).

Rates of Lyme disease, anaplasmosis, ehrlichiosis, and babesiosis are significantly higher in Manhattan residents than in residents of the other boroughs, and the majority of these cases reported a history of travel outside the city during the incubation period. Patients with these diseases had traveled most commonly to upstate New York, Long Island, Connecticut, New Jersey, and Massachusetts. In contrast, only 61% of Rocky Mountain spotted fever cases reported travel. Locally-acquired Rocky Mountain spotted fever cases between 1995 and 2010 were reported most frequently from Brooklyn, the Bronx, and Staten Island.

Reports of transfusion-associated babesiosis continue, with 7 cases identified in 2011. All seven cases had underlying illnesses. The incubation period for transfusion-associated babesiosis is two to nine weeks; the incubation period for tick-borne babesiosis ranges from one to four weeks. Clinicians are encouraged to consider babesiosis in the differential diagnosis for patients with febrile illnesses and/or hemolytic anemia who have received blood components or transplanted organs in the preceding three months. Because these patients often have co-morbidities, and the potential exists for infection with other pathogens, consideration of babesiosis as a possible etiology may be delayed. The 2009 NYC Health Advisory addressing transfusion associated cases can be found online at <http://www.nyc.gov/html/doh/downloads/pdf/cd/2009/09md05.pdf>. For non-transfusion-associated babesiosis, highly endemic areas for *Babesia microti* in the greater New York City region include Suffolk County (especially Fire Island and Shelter Island) and parts of Connecticut and New Jersey.

### **Clinical Description and Guidance on the Laboratory Diagnosis of Tick-borne Diseases**

Detailed guidance on identifying, diagnosing and treating tick-borne diseases can be found in our new brochure, *Tick-Borne Diseases in the NYC Area, A Physician's Reference Manual*, which can be found on the Health Department website at <http://www.nyc.gov/html/doh/html/ehs/ehstick.shtml>. Additionally, the Infectious Diseases Society of America treatment guidelines for Lyme disease, anaplasmosis, and babesiosis are available on the Health Department website at [http://www.nyc.gov/html/doh/downloads/pdf/zoo/idsa\\_guidelines.pdf](http://www.nyc.gov/html/doh/downloads/pdf/zoo/idsa_guidelines.pdf).

### **Tick Bite Management**

Attached ticks should be removed promptly with tweezers, ensuring that mouthparts have not been left in the skin. Testing ticks for disease agents has no diagnostic value because such testing lacks sensitivity for detecting pathogens. Additionally, detection of a pathogen in a tick does not necessarily signify transmission of that pathogen to the person bitten. Guidelines developed by the Infectious Disease Society of America support limited use of a single dose of doxycycline as prophylaxis for Lyme disease when all of the following conditions are met:

- The patient has traveled to a Lyme-endemic region
- Tick has been attached for ≥36 hours, based on engorgement or history
- Prophylaxis can be started within 72 hours of tick removal
- Tick can be reliably identified as *Ixodes scapularis*
- Patient does not have any contraindications to treatment with doxycycline

### **Tick Bite Prevention**

A tick bite prevention brochure from the Health Department is available in English and Spanish on the Health Department website at <http://www.nyc.gov/html/doh/downloads/pdf/zoo/zoo-preventing-tick-bites.pdf>. Copies may also be ordered by calling 311.

### **Additional Resources Available on the DOHMH Website**

- Information on ticks and tick-borne diseases in the New York City area  
<http://www.nyc.gov/html/doh/html/ehs/ehstick.shtml>
- NEW! *Tick-Borne Diseases in the NYC Area, A Physician's Reference Manual*  
<http://www.nyc.gov/html/doh/downloads/pdf/ehs/tick-borne-dx-physician.pdf>
- NEW! *City Health Information Bulletin on Preventing and Managing Lyme and Other Tick-Borne Diseases*  
<http://www.nyc.gov/html/doh/downloads/pdf/chi/chi31-3.pdf>

### **Reporting Cases**

Clinicians and laboratories must report all cases of Lyme disease, babesiosis, Rocky Mountain spotted fever, ehrlichiosis, and anaplasmosis to the Bureau of Communicable Disease. Cases of transfusion-associated babesiosis must also be reported to the NYSDOH Blood and Tissue Resources Program at 518-485-5341 and your hospital's transfusion service.

Cases may be reported by telephone (347-396-2600), mail (Bureau of Communicable Disease, 2 Gotham Center, CN# 22A, 42-09 28th Street, Queens, New York 11101-4132), or fax (347-396-2753) using the Universal Reporting form (URF), or the electronic URF. The URF and instructions may be downloaded from the Health Department website at

<http://home2.nyc.gov/html/doh/html/hcp/hcp-urf.shtml>. Visit <http://home2.nyc.gov/html/doh/html/hcp/hcp.shtml> to join NYC-MED to submit a URF online.

As always, we appreciate your continued collaboration with our efforts to monitor trends in these diseases in New York City.

Sincerely,

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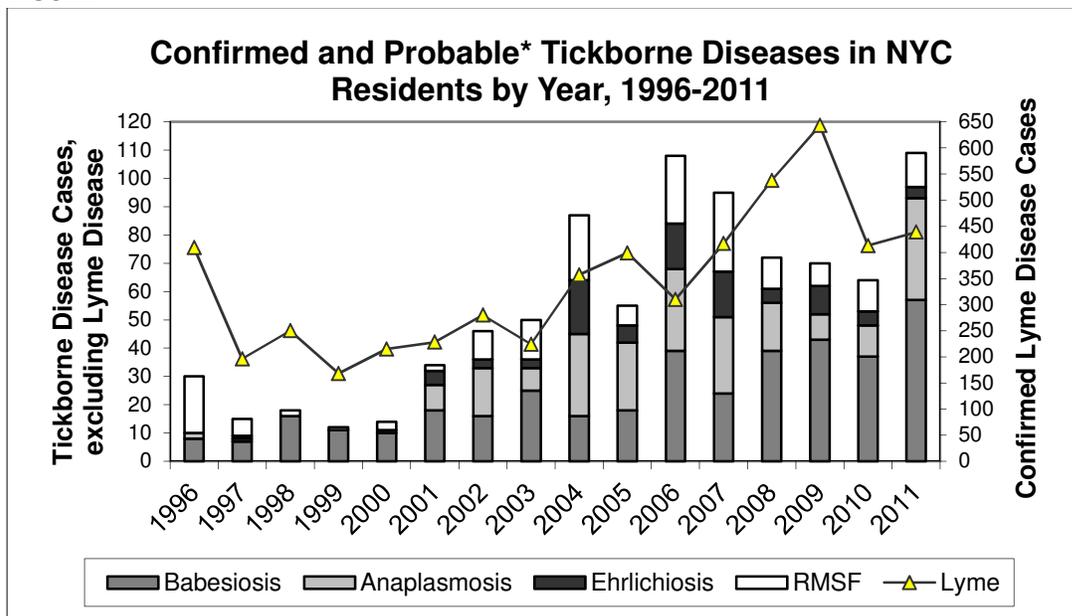
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**TABLE Confirmed and Probable\* Tick-borne Diseases in NYC Residents by Year of Diagnosis**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Rocky Mountain spotted fever	2	10	14	23	7	24	28	11	8	11	12
Babesiosis	18	16	25	16	18	39	24	39	43	37	57
Anaplasmosis	9	17	8	29	24	29	27	17	9	11	36
Ehrlichiosis	5	3	3	19	6	16	16	5	10	5	4
Lyme Disease	228	280	224	357	399	310	416	538	643	413	439

**FIGURE**



Note: The increase in tick-borne disease cases starting in 2004 is likely due to the initiation of electronic laboratory disease reporting but may also reflect a true increase in disease.

\*Number of confirmed Lyme disease cases and confirmed and probable cases for other tick-borne diseases