



Health Advisory #5: Increase in Transfusion-associated Babesiosis in NYC

- **Seven cases of transfusion-associated babesiosis have been identified among New York City (NYC) residents since September 2008; this is a notable increase over baseline as previously an average of one to two transfusion-associated cases were reported annually;**
- **The NYC Health Department is asking providers to consider babesiosis in the differential diagnosis of patients with fever and/or hemolytic anemia who have a history of transfusion or organ transplant within the preceding 3 months;**
- **Suspected cases should be tested for babesiosis (see below for details), and laboratory positive cases should be reported to the NYC Health Department as well as the New York State Department of Health (NYSDOH) Blood and Tissue Resources Program (see contact information below).**

Please distribute to staff in the Departments of Internal Medicine, Pediatrics, Family Medicine, Infection Control, Infectious Disease, Emergency Medicine, Critical Care, Hematology/Oncology, Pharmacy, Blood Bank and Laboratory Medicine.

February 23, 2009

Dear Colleagues,

Reported cases of transfusion-associated babesiosis among New Yorkers have increased during the previous 6 months. In the past, an average of 1-2 reports of transfusion-associated babesiosis was received by the Department annually; since September 2008, 7 cases have been identified. Patients receiving transfusions often have underlying illnesses, including immunosuppressive conditions, and providers may not suspect babesiosis, especially during winter months when travel to endemic areas is less common. This alert reminds providers 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 3 months.

Babesiosis is a rare, sometimes severe or fatal tick-borne disease caused by *Babesia microti*, a parasite that infects red blood cells. Symptoms occur most frequently in elderly, asplenic or immunocompromised individuals and may include fever, hemolytic anemia, thrombocytopenia, diarrhea, acute renal failure, DIC and ARDS. In healthy hosts, infection is often asymptomatic, or causes mild illness with fever, headache, myalgia and malaise. Untreated infections can persist for up to a year or longer.

Naturally acquired *Babesia* is transmitted by infected *Ixodes scapularis*, or blacklegged ticks, which are also known to transmit *Borrelia burgdorferi* (Lyme disease) and *Anaplasma phagocytophilum* (anaplasmosis). The blacklegged tick is only rarely found in NYC; however it is present in nearly all areas surrounding the City. Highly endemic areas for *Babesia microti* near NYC include Long Island (especially Fire and Shelter Islands), Connecticut, New Jersey and Massachusetts. Transmission risk is greatest during spring and summer, when nymphal ticks are abundant.

The number of cases of babesiosis reported among NYC residents has gradually risen since 1989 when 2 cases were reported. This trend has been seen in the surrounding region as well. This may in part explain the increased number of transfusion-associated cases. In 2002, 16 cases were reported, and provisional data for 2008 has 39 cases reported to date, see Table 1).

2002	2003	2004	2005	2006	2007	2008
16	25	16	18	38	25	39

Transmission through blood transfusion can occur when blood components collected from a parasitemic donor are transfused to a susceptible recipient. To date, transmission has been reported only with red blood cells (both fresh and frozen) and platelets. According to the FDA, since 1979 over 80 cases of transfusion-associated babesiosis have been reported in the US, the majority of which occurred during the past decadeⁱ. Currently, there is no laboratory screening of the blood supply for evidence of infection with *Babesia*. Donors are deferred if they have a fever at the time of donation or report a history of *Babesia* infection, but this practice alone is unable to prevent asymptomatic individuals with low levels of parasitemia from serving as donors.

Clinicians in NYC should consider transfusion-associated babesiosis in any patient presenting with unexplained febrile illness and/or hemolytic anemia who received blood components or organ transplantation in the preceding three months. The incubation period for tick-associated babesiosis can range from 1 to 4 weeks; for transfusion-associated babesiosis, 2 to 9 weeks.

Diagnosis can be made by identifying ring forms (which closely resemble *Plasmodium falciparum*) and tetrad forms within red blood cells on a Giemsa or Wright stained blood smear. *Babesia* polymerase chain reaction (PCR) and serologic tests are available commercially to assist with the diagnosis. Confirmatory testing, including review of blood smears and submission to NYS for PCR, if deemed necessary, is available through the NYC Public Health Laboratory. A request form must be completed for specimen submissions. For more information, call the Parasitology Laboratory at (212) 447-2972 during business hours. Forms can be found online at http://www.nyc.gov/html/doh/html/labs/labs_forms.shtml.

Treatment is generally not recommended for asymptomatic or mild self-limiting infections. For patients in whom illness is more severe, combination drug therapy has been successful. While the combination of clindamycin and quinine for 7 days was used historically, side effects including tinnitus and gastroenteritis can be problematic. More recently, the combination of atovaquone and azithromycin has been favored as this regimen is equally effective and results in fewer side effectsⁱⁱ. In rare instances, an exchange transfusion may be indicated. For additional information on treatment options, refer to the Medical Letter, Drugs for Parasitic Infections. See http://www.dpd.cdc.gov/dpdx/HTML/PDF_Files/MedLetter/Babesiosis.pdf.

Additional information is available on the DOHMH website at: <http://www.nyc.gov/html/doh/html/cd/cdbab.shtml> or the CDC website at: <http://www.cdc.gov/ncidod/dpd/parasites/babesia/default.htm>

Please call the Bureau of Communicable Disease at 212-788-9830 with any questions regarding testing, diagnosis, reporting or management of suspected cases of babesiosis. Cases of transfusion-associated babesiosis must also be reported to the NYSDOH Blood and Tissue Resources Program at 518-485-5341. A report must also be made to your hospitals' transfusion service so they can notify the blood center that supplied the blood components.

Cases can be reported to the DOHMH by telephone (212-788-9830) or facsimile transmission (212-788-4268) using the paper or electronic Universal Reporting form (URF). **The URF and instructions can be obtained from your hospital's Infection Control Practitioner or downloaded from the DOHMH 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 in order to submit a URF online.**

As always, we greatly appreciate your cooperation and collaboration in our efforts to detect, investigate and prevent infectious diseases in New York City.

Sincerely,

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ⁱ Gubernot D et al. Babesia Infection through Blood Transfusions: Reports Received by the US Food and Drug Administration, 1997-2007. CID 2009;48 (1 January):pps 25-30.

ⁱⁱ Krause PJ et al. Atovaquone and azithromycin for the treatment of babesiosis. NEJM 2000 Nov 16;343(20):1454-8.