Surveillance Case Definition
Babesiosis (*Babesia* spp.)

(Updated March, 2007)

CLINICAL DESCRIPTION

A tickborne illness caused by various *Babesia* species and associated with non-respiratory influenza-like symptoms (e.g., fever, chills, sweating, myalgias, and fatigue) and hemolytic anemia. Many infections are asymptomatic; infection may be more severe in the immunosuppressed, splenectomized and/or the elderly. Although the primary route of transmission is through a tickbite, the organism may also be spread by blood transfusion and in utero. *Babesia microti* is the species common to the Northeastern United States.

LABORATORY CRITERIA FOR DIAGNOSIS

- Identification of intraerythrocytic *Babesia* parasites by light microscopic examination of thick or thin smears of peripheral blood. The organisms resemble *Plasmodium falciparum*, but present several distinguishing features, including more variability in shape and size, are non-pigment producing and divide in a characteristic tetrad formation.
- Isolation of the parasite from a whole blood specimen by animal inoculation.
- Demonstration of a *Babesia*-specific antibody titer. For *B. microti,* the requirements are a titer of at least 1:256, by indirect fluorescent antibody (IFA) testing for total Ig or IgG, or an IgG-positive immunoblot.

NOTE: The results of IgM antibody testing are **not** considered confirmatory in the absence of positive results for total Ig or IgG (see above), because of the possibility of false-positive IgM results. PCR testing for Babesia is considered investigational and is **not** sufficient for confirmation of infection.

CASE CLASSIFICATION

- **Confirmed case**– a clinically compatible case, with identification of the parasite in a blood smear or by animal inoculation. Note: in cases with positive blood smears and a history of blood transfusion, or travel/ previous residence in a malaria-endemic country, the blood smear should be examined at the NJ Public Health and Environmental Laboratory to confirm infection with *Babesia* and exclude malaria.
- **Probable case** - a clinically compatible case with documented anemia and fever with demonstration of *Babesia*-specific antibody as noted above.
- **Possible case** – 1.) a clinically compatible case without documentation of anemia and fever and with demonstration of *Babesia* – specific IgG antibody of 1:256 or higher; 2.) clinically compatible case with documented anemia and fever and IgG 1:128 or higher, but less than 1:256; or 3) a positive blood smear from a person for whom no information on clinical signs is available, but there is a history of them visiting a physician or obtaining medical care for signs of illness.

COMMENT:

People can be asymptomatically infected with Babesia organisms, but will be considered a 'case of illness for surveillance purposes only if they have clinically compatible illness. Asymptomatically infected persons identified through various means (e.g., presurgical screening or blood donors) should **not** be submitted as 'cases' unless they develop a clinically compatible illness and have the requisite test results as noted above.

DIFFERENCES FROM CDC CASE DEFINITION:

There is no official CDC case definition for Babesiosis. It is not a nationally reportable disease. CDC experts assisted IZDP epidemiologists in the development of the NJ case definition.