

## Heartland and Bourbon Virus Testing Guidance for Healthcare Providers

Heartland virus is an RNA virus believed to be transmitted by the Lone Star tick (*Amblyomma americanum*). Most patients reported tick exposure in the two weeks prior to illness onset. While no cases have been reported in Louisiana, this tick is found in Louisiana. First discovered as a cause of human illness in 2009 in Missouri, more than 40 cases have been reported from states in Midwestern and southern U.S. to date.

Initial symptoms of Heartland virus disease are very similar to those of ehrlichiosis or anaplasmosis, which include fever, fatigue, anorexia, nausea and diarrhea. Cases have also had leukopenia, thrombocytopenia, and mild to moderate elevation of liver transaminases. Heartland virus disease should be considered in patients being treated for ehrlichiosis who do not respond to treatment with doxycycline.

**For several years, CDC has been working under IRB-approved protocols to identify additional cases and validate diagnostic test for several novel pathogens. Now the CDC Arboviral Diseases Branch offers routine diagnostic testing for Heartland and Bourbon viruses (RT-PCR, IgM and IgG MIA, PRNT). There is no commercial testing available.**

Treatment of Heartland virus disease is supportive only. Many patients diagnosed with the disease have required hospitalization. With supportive care, most people have fully recovered; however, a few older individuals with medical comorbidities have died.

The best way to prevent Heartland virus infection is to avoid exposure to ticks.

### **When to Consider Testing:**

Contact Infectious Disease Epidemiology at (800) 256-2748.

Serum testing should be considered for patients with an acute febrile illness within the past three months AND one of each criteria:

#### Epidemiologic Criteria:

- Known tick bite, finding tick on body, or potential exposure to ticks through outdoor activities in the three weeks prior to illness onset during April-October; OR
- Resides in or recently traveled to an area with previous evidence of Heartland or Bourbon virus.

#### Clinical Criteria:

- Leukopenia (WBC<4500 cells/ $\mu$ L) or thrombocytopenia (platelets<150,000 cells/mL) not explained by another condition; OR
- Suspected tickborne disease (ehrlichiosis, Rocky Mountain spotted fever) with no clinical response to appropriate treatment.

#### CDC Lab Submission Form (50.34 Form)

- Test Order: Arbovirus Serology CDC-10282 “HEARTLAND VIRUS” in comment section
- Make sure to enter:
  1. patient name, date of birth, sex,
  2. onset date,
  3. collection date,

4. immunocompromising conditions
  5. travel dates & locations within three months prior to symptom onset
- Serum should be submitted.

<https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10282>

Ship to: CDC-DVBD

ATTN: Arbovirus Diagnostic Laboratory

3156 Rampart Road

Fort Collins, CO 80521

DVBD Arbovirus Diagnostic and Reference Laboratory at 970-221-6400