



# COMMONWEALTH of VIRGINIA

Department of Health

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Tickborne Illness Update 2017

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Dear Colleague:

As the weather warms and Virginians eagerly participate in long-anticipated outdoor activities, I am writing today to raise awareness about tickborne illness this season. Enclosed are important practice support resources including Virginia-specific information on tickborne illness.

Key components of this correspondence include:

- [Background information on tickborne illnesses](#)
- [Laboratory testing information](#)
- [Actions for healthcare providers](#)

## Background

- Lyme disease activity continues to expand its geographic range southwestward in Virginia. In 2016, public health identified 1,350 confirmed and probable cases of Lyme disease, *Virginia's second-highest annual count ever recorded*.
- Tickborne rickettsial diseases (TBRDs), such as ehrlichiosis, anaplasmosis, and Rocky Mountain spotted fever (RMSF) are also reported in the state
  - TBRDs cause many more fatalities and hospitalizations than Lyme.
  - TBRDs are characterized by acute onset of fever, headache, and myalgia. Other symptoms can include nausea, vomiting, diarrhea, thrombocytopenia, leukopenia and in some instances, a rash.
  - Many suspected cases of TBRD are reported in Virginia each year, but few are ever confirmed for surveillance purposes, mostly because of insufficient laboratory evidence.
- [Powassan \(POW\) virus disease](#) is a rare, but serious disease transmitted by the bite of an infected blacklegged tick.
  - Powassan is characterized by fever, headache, vomiting, and generalized weakness and neurological symptoms similar to those of West Nile virus. The disease usually progresses to meningoencephalitis.
  - Virginia has only had one confirmed case of POW in 2009.

## Diagnosis and Laboratory Testing

TBRDs can be difficult to diagnose as they can often be confused with other illnesses and serologic results are generally negative during the first 7 days of illness. Positive IgG results on serum samples collected earlier than 7 days after illness onset generally indicate an old exposure that is unrelated to the current illness. In recent years in Virginia, records show that more than 35% of IgG positive patients were tested too early in the course of illness to register a valid immune response. Serological assays for TBRDs are inadequate unless they can show a four-fold increase in titer from the acute to convalescent serum sample.

As most rickettsial disease cases in Virginia are due to ehrlichiosis, VDH recommends reliance primarily on the use of the “multiplex PCR” assay for diagnosis of ehrlichiosis and anaplasmosis because those pathogens can be detected in a patient’s whole blood sample from the first day of symptom onset up until shortly after the administration of doxycycline. Additionally, specific identification of the agents causing spotted fever rickettsiosis can only be accomplished through testing of special samples types at the CDC-Rickettsial Diseases Branch. Therefore, if patients appear to have dermal symptoms that are most characteristic of either RMSF or Tidewater spotted fever, contact [VDH Division of Environmental Epidemiology](#) to consult about sample collection methods and to arrange for sample transfer to the CDC. For Lyme disease, a [two-tiered testing](#) approach is recommended by the Centers for Disease Control and Prevention (CDC). POW virus is difficult to isolate from clinical samples, and IgM serology is cross-reactive with that of West Nile virus, however, serologic testing remains the primary method for diagnosing POW virus infection. POW virus specific tests are not commercially available but can be requested through the state health department and the CDC.

Laboratory testing for tickborne illnesses is complex but critical for accurate diagnosis, treatment, and surveillance purposes. Commercial laboratories offer a wide array of assays, but some assays are much more specific and reliable than others. To assist you in choosing the most useful assays, please review [CDC’s Tickborne Diseases of the United States: A Reference Manual for Healthcare Providers](#).

Please consider the following actions this tick season:

- Familiarize yourself with the clinical manifestations and evidence-based treatment of Tickborne illnesses, including Tickborne rickettsial diseases.
- Familiarize yourself with the best laboratory assays available to diagnose tickborne illness.
- Ask about tick exposure when evaluating patients with febrile illness with or without rash.
- Remind your patients to take preventive steps including recognizing and avoiding tick habitats, using insect repellent when in likely tick habitats, removing attached ticks promptly, and creating tick-safe zones in the yard.
- Report cases of these tickborne illnesses to your [local health department](#) promptly.

Should you have any further questions about this topic, please feel free to contact David Gaines, PhD, State Public Health Entomologist in the VDH Office of Epidemiology. He can be reached by telephone at (804) 864-8192 or by email at [david.gaines@vdh.virginia.gov](mailto:david.gaines@vdh.virginia.gov).

Please have a safe and “[Tick Free Summer](#).”

Sincerely,

Marissa J. Levine, MD, MPH, FAAFP

State Health Commissioner