

Summary and Action Items

West Nile virus (WNV), Lyme disease, and Spotted Fever Group Rickettsioses (SFGR) are the most commonly reported human vectorborne diseases (VBDs) in Illinois. Rocky Mountain Spotted Fever (RMSF) is the most commonly reported species of SFGR in Illinois, followed by an emerging species known as *Rickettsia parkeri* Rickettsiosis. As summer approaches and more people are inclined to engage in outdoor activities, tick and mosquito vectors are also becoming more active, increasing the risk of disease transmission to humans. IDPH sends this health alert to urge health care providers (HCPs) to consider and test for VBDs in their differential diagnoses. This alert addresses the following items:

1. Common exposures and provide additional details on the regional distribution of common VBDs.
2. Reporting requirements, including the significance of exposure and travel history.
3. Public webpage updates for tickborne illnesses – data, maps, and educational materials.

Background

The spread of vectorborne diseases is a significant public health challenge because of the elements it is influenced by, including climate, environment, and human behavior, which require both environmental and human interventions. Warmer temperatures and higher humidity can increase the breeding and survival rates of ticks, while extended periods of hot, dry weather increases viral replication in mosquitoes, both leading to increased human disease transmission.

Lyme disease, SFGR, and WNV are the three most reported VBDs in Illinois, and account for a significant portion of Illinois' vectorborne disease burden. In 2022, Illinois' human case counts with deaths and rates (provisional) for these VBDs include WNV (32) with 7(22%) deaths, Lyme disease (263) no deaths, and RMSF (16) with 1(6%) death. WNV and SFGR (RMSF species) are endemic to Illinois and though they can be fatal, early medical intervention can decrease risk of death. One of the best ways to combat VBDs is to educate the public to recognize their symptoms, seek early treatment from their healthcare provider, and ascertain ways to reduce the risk of being bitten.

Potential Exposures

Ticks and mosquitoes have distinct habitats, although both vectors are most active during the warmer months until the temperatures drop below freezing. As noted in the [Illinois Tick Surveillance Map](#), the IDPH Vector Control Program has identified established populations of ticks throughout Illinois that can transmit pathogens which may cause illness in humans. Below are links to additional websites that detail information on the prevalence of ticks and mosquitoes throughout Illinois, and the geographic distribution of common VBDs.

- Illinois data on Lyme and RMSF exposure areas: [IDPH Lyme disease webpage](#) (bottom of the page)
- Common Ticks and Tick Habitat information: [IDPH Common Ticks](#)
- National data on the geographic distribution of Lyme Disease [Data Dashboard](#)
- National data on the geographic distribution of SFGR: [CDC RMSF Data Dashboard](#)
- [Mosquitoes - Data on reported human and environmental surveillance](#)

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Symptoms

In many cases the symptoms of VBDs are similar and include fever, rash, headache, arthralgia, myalgia, and neurologic symptoms. VBDs may have highly distinct symptoms that are not seen in other illnesses. The following is a list of all the VBDs that are reported to the local health department (LHD), along with CDC links to the symptoms page:

Tickborne Diseases: [Anaplasmosis](#), [Babesiosis](#), [Ehrlichiosis](#), [Lyme disease](#), [RMSF](#), [other spotted fever group rickettsioses](#), [Powassan virus](#), [Heartland virus](#), and [Bourbon virus](#).

Mosquito-borne Diseases: [California serogroup virus](#) diseases (includes California encephalitis, [Jamestown Canyon](#), [Keystone](#), [La Crosse](#), [Snowshoe hare](#), and [Trivittatus](#)), [Chikungunya](#), [Dengue](#), [Eastern Equine Encephalitis](#), [Malaria](#), [St. Louis encephalitis](#), [West Nile virus](#), and [Yellow Fever](#).

Transmission

The bite of an infected mosquito or tick transmits VBDs to humans. Blood transfusion, organ or tissue transplant, and possibly laboratory exposure are other possible modes of transmission. Zika can be passed from a pregnant woman to her baby during or shortly after birth.

Diagnosis

IDPH Labs do not perform testing of VBD specimens, with the exception of Malaria, primarily when the specimen has not been speciated. Healthcare providers must contact their LHDs to request authorization prior to Malaria specimen submission to the Springfield IDPH Laboratory.

Testing for other VBD pathogens should be done via commercial labs. In select cases where the infecting pathogen cannot be determined, e.g., due to high cross-reactivity, testing of acute and convalescent-phase VBD specimens can be performed at CDC. Physicians should consider testing for Heartland, Bourbon and Powassan viruses at CDC if patients who have been treated for tick-borne illness show no clinical response. Testing of tick-borne pathogens at CDC requires IDPH to obtain prior approval from CDC, so LHDs should contact IDPH CD VBD program staff to facilitate testing approval and specimen submission.

Prevention

Preventing tick and mosquito bites is the greatest approach to avoid contracting VBDs. For more info, please visit the [CDC Division of Vector-Borne Diseases](#) website.

IDPH and LHD Response

Healthcare professionals suspecting a VBD in their patients should contact their LHD to report cases using the steps highlighted in the [Communicable Disease Code, Section 690.200](#), and to discuss consideration of confirmation testing at IDPH or CDC. In addition to full patient demographic information and clinical information, travel history (with departure and return dates) as well as exposure history should be reported to respective LHDs.

To help educate healthcare providers and the public on VBDs, IDPH has updated the public tick web pages with [reported tickborne cases from 2011-2021](#), [information for clinicians](#) on the Lyme Disease web page, and multiple maps for [reported cases and rates of Rocky Mountain spotted fever in Illinois, 2005-2021](#). Additionally, IDPH has created and posted printable pocket cards for [Lyme disease](#) and [Rocky Mountain Spotted fever](#) and the [Don't Let a Tick Make You Sick](#) downloadable/printable flyer with crossword puzzle for kids on the public tick web pages.

Contact

For additional information regarding human vector-borne disease surveillance, local health departments should contact Debbie Freeman (Debbie.Freeman@Illinois.gov) or Jonathan Popovitch (Jonathan.Popovitch@Illinois.gov) at IDPH Communicable Disease Control Section.

Additional Resources

For additional information on vector-borne diseases, visit the following links:

[CDC Tickborne Diseases of the United States, A Reference Manual for Healthcare Providers](#)

[CDC Division of Vector-Borne Diseases \(DVBD\) A-Z Topics Index](#)

Target Audience

Local Health Departments, Infectious Disease Physicians, Family Practice and Internal Medicine Physicians, Pediatricians, Geriatric Physicians, Nurse Practitioners, Physician Assistants, Hospital Emergency Departments, Infection Control Preventionists, and Laboratories

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