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| DATE: | July 27, 2017 |
| TO: | Health Alert Network |
| FROM: | Rachel Levine, MD, Acting Secretary of Health and Physician General |
| SUBJECT: | Powassan Virus Disease Case Reported |
| DISTRIBUTION: | Statewide |
| LOCATION: | Statewide |
| STREET ADDRESS: | Statewide |
| COUNTY: | Statewide |
| MUNICIPALITY: | Statewide |
| ZIP CODE: | Statewide |

This transmission is a “Health Advisory”: provides important information for a specific incident or situation; may not require immediate action.

The Pennsylvania Department of Health (PADOH) has confirmed a Powassan (POW) virus disease case in Susquehanna County, the second case ever documented in Pennsylvania. The first POW virus disease case identified in Pennsylvania occurred in 2011 in Lackawanna County. Since this is a rarely identified arboviral infection that is unfamiliar to most clinicians, PADOH is distributing information on Powassan virus and encouraging health care providers to consider this diagnosis when seeing patients with meningoencephalitis. This health advisory provides healthcare providers with background information on POW virus disease including transmission, clinical signs and symptoms, diagnosis, and prevention.

Main points:

POW virus disease is a rare, but serious arboviral illness transmitted by infected ticks.

Healthcare providers should be aware of the following:

1. POW virus disease is a reportable disease in Pennsylvania and suspected cases should be reported to your local health department or PADOH.
2. Health care providers should consider the diagnosis of POW virus disease in patients with meningitis, encephalitis or other non-specific febrile illness occurring when ticks are active, especially if the patient has a history of tick exposure or bite.
3. POW virus disease cannot be clinically distinguished from other arboviral diseases. The most common diagnostic approach is detection of POW virus-specific IgM antibodies.
4. POW virus testing is not commercially available; please contact your local health department or PADOH for assistance with POW virus disease diagnostic testing.

In June 2017, an elderly Susquehanna County resident was hospitalized with meningoencephalitis. The patient had no history of travel outside of his home area. Testing of serum collected one week after onset of illness was negative for West Nile IgM antibodies. The serum specimen was forwarded to the Centers for Disease Control and Prevention (CDC), where the specimen tested positive for POW virus-specific IgM and neutralizing antibodies.

POW virus is transmitted by the bite of an infected tick. More than 100 cases have been documented in the United States, mostly in the northeast and Great Lakes regions. The deer tick (*Ixodes scapularis*), also known as the blacklegged tick, is capable of being infected with POW virus. This tick species is also the primary vector of Lyme disease and several other tickborne pathogens. Deer ticks can be found throughout Pennsylvania. POW virus infection rates in Pennsylvania ticks are poorly understood, but studies performed in neighboring states with human POW virus cases suggest tick infection rates are low ($\leq 4\%$). Studies suggest that ticks may transmit POW virus to humans in as little as 15 minutes after attachment. This is different from other tickborne diseases such as Lyme disease, which require much longer attachment times to transmit disease (usually 36-48 hours or more).

Most people infected with POW virus are asymptomatic. Illness, if it develops, appears one week to one month after the tick bite. Symptoms are typical of neuroinvasive arboviral disease and include (but are not limited to) fever, headache, vomiting, weakness, altered mental status, loss of coordination, speech difficulties, memory loss, encephalitis and meningitis. Non-neuroinvasive POW virus disease has been documented and manifests as a febrile flu-like illness. Infection can be fatal in 10% of neuroinvasive cases.

There is no specific treatment, such as antivirals, for POW virus disease. Supportive care is appropriate. The best way to prevent POW virus disease is to prevent tick bites. Effective strategies include avoiding tick habitat such as wooded and bushy areas with high grass, and consistently using an effective insect repellent such as DEET when outdoors. In addition, after being outdoors, showering or bathing along with a full-body tick check is recommended. Any attached ticks should be removed immediately. Deer ticks may be very small (nymphs are the size of a poppy seed), so careful scrutiny is required.

Health care providers should consider the diagnosis of POW virus disease in patients with meningitis, encephalitis, or other non-specific febrile illness occurring during the warmer months of the year, especially if the patient has a history of tick exposure or bite. POW virus disease cannot be clinically distinguished from other arboviral diseases and requires testing to confirm the diagnosis. POW virus disease is most often diagnosed through the identifying the presence of antibodies in CSF or serum. These tests are not currently available through commercial laboratories; specimens must be sent to the state Bureau of Laboratories (BOL) for POW testing. The BOL specimen submission form and instructions for diagnostic testing for POW and other causes of arboviral encephalitis can be found at <http://www.westnile.state.pa.us/action/WNVSubmissionForm.pdf>. Please contact your local health department or PADOH for assistance with testing.

POW virus disease is reportable in Pennsylvania. Suspected cases should be reported to your local health department or to PA-NEDSS, the Department's electronic reportable disease surveillance system. PADOH can be contacted at 1-877-PA-HEALTH.

Categories of Health Alert Network messages:

Health Alert Requires immediate action or attention; highest level of importance

Health Advisory May not require immediate action; provides important information for a specific incident or situation

Health Update Unlikely to require immediate action; provides updated information regarding an incident or situation

HAN Info Service Does not require immediate action; provides general public health information

This information is current as of July 27, 2017, but may be modified in the future.