



# Department of Health

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**TO: Healthcare Providers, Hospitals, and Local Health Departments (LHDs)**

**FROM: New York State Department of Health (NYSDOH)  
Bureau of Communicable Disease Control (BCDC)**

## HEALTH ADVISORY: POWASSAN VIRUS

*Please distribute to the Infection Control Department, Emergency Department, Infectious Disease Department, Obstetrics/Gynecology (including Nurse Practitioners and Midwives), Family Medicine, Travel Medicine Service, Pediatrics, Director of Nursing, Medical Director, Laboratory Service, Pharmacy, and all patient care areas.*

NYSDOH is advising healthcare providers on the procedures to test and report suspected cases of Powassan virus (POW). There have been 26 reported cases in the state since 2004. In 2017, to date, three cases of POW have been reported among residents of Saratoga County.

### **SUMMARY**

- Health care providers should consider POW in the differential diagnosis of any adult or pediatric patient with encephalitis, meningitis, or meningoencephalitis. Other symptoms may include fever, headache, vomiting, generalized weakness, and seizures.
- Public health testing is available for POW; however, specimens should not be sent to NYSDOH without first consulting the LHD of the patient's county of residence or BCDC. Commercial testing is not available.
- Providers should immediately report any patient with suspected viral encephalitis to the LHD of the patient's county of residence. Viral meningitis is also reportable but immediate notification is not required.
- Clinicians are encouraged to review "Tickborne Diseases of the U.S.: A Reference Manual for Providers", published by the Centers for Disease Control and Prevention (CDC) and available at <http://www.cdc.gov/lyme/resources/TickborneDiseases.pdf>. The manual is also available as an app for select mobile devices at <http://www.cdc.gov/mobile/applications/MobileFramework/tickborne-diseases.html>.

### **BACKGROUND**

Powassan (POW) virus is a flavivirus that is related to some mosquito-borne viruses such as West Nile virus and dengue virus. Two types of POW virus have been found in North America, lineage 1 and lineage 2 (deer tick virus). POW can be transmitted to people via the bite of an infected tick. Lineage 2 POW virus is transmitted by the blacklegged tick (deer tick) while lineage 1 is transmitted by the woodchuck tick. Cases of POW are reported in New York State each year; there have been 26 reported cases since 2004. In 2017, to date, three cases of POW have been reported among residents of Saratoga County. In previous years, cases have been identified in Dutchess, Putnam, and Westchester counties in the Hudson Valley, and in Cortland, Lewis, and Madison counties in Central New York. There was also a case in a prior year in Saratoga County.

Initial symptoms of POW disease include fever, headache, vomiting, and generalized weakness. The disease usually progresses to meningoencephalitis, which may include meningeal signs, altered mental status, seizures, aphasia, paresis, movement disorders, or cranial nerve palsies.

Cerebrospinal fluid (CSF) findings include lymphocytic pleocytosis of less than 500 white blood cells/mm<sup>3</sup> in most POW virus encephalitis cases; granulocytes can predominate early in the disease. CSF protein is generally normal or mildly elevated, while glucose concentration is normal. Electroencephalography (EEG) in patients with POW virus encephalitis reveals generalized slow wave activity and results can resemble those seen in herpes simplex virus encephalitis. MRI of the brain in patients with POW virus encephalitis shows changes consistent with microvascular ischemia or demyelinating disease in the parietal or temporal lobes; results of brain CT scans have not been particularly useful.

There is no specific antiviral treatment for POW. Patients diagnosed with POW should receive supportive care as appropriate.

### **DIAGNOSIS AND LABORATORY TESTING**

Preliminary diagnosis is often based on the patient's clinical features, activities, and epidemiologic history of the location where infection occurred.

The NYSDOH's Wadsworth Center (WC) laboratories offer testing for POW; commercial laboratory testing is not available. However, specimens should not be sent to WC without first consulting the LHD of the patient's county of residence or BCDC.

CSF testing by polymerase chain reaction (PCR) is more sensitive early in infection, while serology testing (for antibody) will better detect cases that are beyond the early acute phase. Ideally, both CSF and acute/convalescent serum specimens should be submitted for testing when neuroinvasive disease is suspected. Otherwise, acute and convalescent serum specimens can be used for diagnosis. Convalescent specimens should be drawn at least 3 weeks after acute specimens.

Instructions on the collection and submission of clinical specimens is available at <https://www.wadsworth.org/programs/id/virology/services/encephalitis> and <http://www.wadsworth.org/programs/id/virology/services/arbovirus-testing>.

Further information on accessing public health testing for POW can be obtained by calling your LHD. LHD contact information is available at [https://www.health.ny.gov/contact/contact\\_information/](https://www.health.ny.gov/contact/contact_information/).

If you are unable to reach the LHD where the patient resides, please contact the NYSDOH Bureau of Communicable Disease Control at 518-473-4439 during business hours or 866-881-2809 evenings, weekends, and holidays.

### **REPORTING CASES OF ARBOVIRAL AND TICK-BORNE ILLNESS**

Under NYS Public Health Law 2012 and 10NYCRR 2.10, health care providers must ***immediately report*** by telephone any patient with suspected viral encephalitis. The report

should be made to the LHD of the patient's county of residence. Viral meningitis is also reportable under public health law but immediate notification is not required.

Provider reporting requirements also apply to patients who are diagnosed and treated based solely or in part on clinical presentation and history.

**ADDITIONAL INFORMATION**

Additional information on POW can be found at:

<https://www.cdc.gov/powassan/>