Wisconsin Department of Health Services
Division of Public Health
P-01977 (Rev 09/2017)

Communicable Disease Case Reporting and Investigation Protocol

POLIOVIRUS INFECTION

I. IDENTIFICATION AND DEFINITION OF CASES

A. **Clinical Description:** Poliomyelitis is a highly infectious disease caused by three serotypes of poliovirus. Infection with poliovirus results in a spectrum of clinical manifestations from inapparent infection to nonspecific febrile illness, aseptic meningitis, paralytic disease, and death. Two phases of acute poliomyelitis can be distinguished: a nonspecific febrile illness (minor illness) followed, in a small proportion of patients, by aseptic meningitis and/or paralytic disease (major illness). The ratio of cases of inapparent infection to paralytic disease among susceptible individuals ranges from 100:1 to 1000:1 or more. Poliovirus is transmitted by contact with feces and/or respiratory secretions. The incubation period for polio is commonly six to 20 days. The period of infectiousness is not well defined, presumably as long as virus is being excreted; may begin one to two days before clinical onset.

Polio has been eliminated from the U.S. and western hemisphere; the last U.S. cases of indigenous, wild poliovirus-associated disease were in 1979, and the last case in the Americas was detected in Peru in 1991. An active global eradication program is in progress, but there is still potential for importation of wild poliovirus in the U.S. until worldwide poliomyelitis eradication is achieved.

B. **Laboratory Criteria:**

1. Isolation of poliovirus from stool sample (preferred specimen), pharyngeal or spinal fluid (CSF). To increase the likelihood of virus isolation, at least two stool samples and two throat samples should be collected 24 hours apart from patients suspected of having poliomyelitis as soon in the course of the illness as possible (i.e., immediately after poliomyelitis is considered as a possible differential diagnosis), ideally within 14 days of onset.
2. Serologic testing is subject to several limitations, but may be helpful in supporting a diagnosis of poliomyelitis. An acute serum specimen should be obtained as early in the course of disease as possible, and a convalescent specimen should be obtained 3 weeks later.

C. **Wisconsin Surveillance Case Definitions:**

1. **Poliovirus infection, non-paralytic**
   Confirmed: Any person without symptoms of paralytic poliomyelitis in whom a poliovirus isolate was identified in an appropriate clinical specimen, with confirmatory typing and sequencing performed by the CDC poliovirus laboratory, as needed.

2. **Poliomyelitis, paralytic**
   Confirmed: Acute onset of flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss, AND in which the patient has:
   a. A neurologic deficit 60 days after onset of initial symptoms, or
   b. Died, or
   c. Unknown follow-up status.
   Probable: An acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss.

II. REPORTING

A. **Wisconsin Notifiable Disease Category I – Methods for Reporting:** This disease shall be reported **IMMEDIATELY BY TELEPHONE** to the patient's local health officer or to the local health officer's designee upon identification of a case or suspected case, per Wis. Admin. Code § DHS 145.04 (3) (a). In addition to the immediate report, complete and fax, mail or electronically report an Acute and Communicable Disease Case Report (DHS F-44151) to the address on the form, or enter the data into the Wisconsin Electronic Disease Surveillance System, within 24 hours.

B. **Responsibility for Reporting**: According to Wis. Admin. Code § DHS 145.04(1), persons licensed under Wis. Stat. ch. 441 or 448, laboratories, health care facilities, teachers, principals, or nurses serving a school or day care center, and any person who knows or suspects that a person has a communicable disease identified in Appendix A.

C. **Clinical Criteria for Reporting**: Clinically compatible illness. Cases should be reported immediately upon consideration of poliomyelitis in the differential diagnosis.

D. **Laboratory Criteria for Reporting:** Laboratory evidence of infection. All positive results should be reported.

III. CASE INVESTIGATION

A. **Responsibility for case investigation**: It is the responsibility of the local health department (LHD) to investigate or arrange for investigation of suspected or confirmed cases as soon as is reasonably possible. A case investigation may include information collected by phone, in person, in writing, or through review of medical records or communicable disease report forms, as necessary and appropriate.

B. **Required Documentation:**
1. Complete the Wisconsin Electronic Disease Surveillance System (WEDSS) disease incident investigation report, including appropriate, disease-specific tabs.
2. Complete Appendix 14: Suspected Polio Case Worksheet – Investigation of Suspected Case of Poliomyelitis (https://www.cdc.gov/vaccines/pubs/surv-manual/appendix/html)
3. Upon completion of investigation, set WEDSS disease incident process status to "Sent to State."

C. **Additional Investigation Responsibilities:** Contact your Immunization Program Regional Representative: https://www.dhs.wisconsin.gov/lh-depts/counties.htm

IV. PUBLIC HEALTH INTERVENTIONS AND PREVENTION MEASURES

A. In accordance with Wis. Admin. Code § DHS 145.05, local public health agencies should follow the methods of control recommended in the current editions of *Control of Communicable Diseases Manual*, edited by David L. Heymann, published by the American Public Health Association, and the American Academy of Pediatrics' *Red Book: Report of the Committee on Infectious Diseases*, unless otherwise specified by the state epidemiologist.

B. Implement control measures before laboratory confirmation. If the laboratory results are negative, the decision to continue control measures should be made in consultation with the treating physician, the LHD, and the Bureau of Communicable Diseases..

C. Clinical specimens should be sent to the Wisconsin State Laboratory of Hygiene. Virus isolates will be forwarded to the Centers for Disease Control and Prevention (CDC) for sequencing to determine whether the poliovirus is wild or vaccine-related.

D. Collect all demographic, clinical, laboratory, vaccine, and epidemiologic information required on the Suspected Polio Case Worksheet.

E. Immunization of close contacts is recommended but may not control further spread as most susceptible close contacts have been infected by the time the initial case has been identified.

F. Actively search for individuals who may have initially been diagnosed with acute flaccid paralysis (AFP), Guillain-Barre Syndrome, polyneuritis, or transverse myelitis.

G. Vaccination with inactivated polio virus (IPV):
1. Children should routinely receive four doses of IPV at ages 2, 4, and 6-18 months and 4-6 years. The final dose in the IPV series should be administered at age >4 years regardless of the number of previous doses. The minimum interval between dose 3 and dose 4 is six months.
2. Routine poliovirus vaccination of adults (i.e., persons aged >18 years) residing in the U.S. is not necessary. Most adults have a minimal risk of exposure to poliovirus in the U.S. and most are immune as a result of vaccination in childhood or exposure to wild virus in the pre-vaccination era.

H. Vaccination is recommended for adults who are at greater risk of exposure to poliovirus than the general population, including the following persons:
   1. Travelers to areas or countries where polio is epidemic or endemic.
   2. Member of communities or specific population groups in which polio disease is present.
   3. Laboratory workers who handle specimens that might contain poliovirus.
   4. Health care workers who have close contact with patients who might be excreting wild polio virus.
   5. Unvaccinated adults whose children will be receiving oral poliovirus vaccine.

V. CONTACTS FOR CONSULTATION

A. Local health departments and tribal health agencies: https://www.dhs.wisconsin.gov/lh-depts/index.htm

B. Regional Immunization Program representatives: https://www.dhs.wisconsin.gov/lh-depts/counties.htm

C. Bureau of Communicable Diseases, Immunization Program: 608-267-9959. After hours number: 608-258-0099.

D. Wisconsin State Laboratory of Hygiene: 1-800-862-1013. After hours emergency number: 608-263-3280.

VI. RELATED REFERENCES

A. Heymann DL, ed. Poliomyelitis. In: *Control of Communicable Diseases Manual*. 20th ed. Washington, DC: American Public Health Association, 2015: 477-484.

B. Pickering LK, ed. Poliovirus Infections. In: *Red Book*: *2015 Report of the Committee on Infectious Diseases*. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2015: 376-379.

C. Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Hamborsky J, Kroger A, Wolfe S, eds. 13th ed. Washington D.C. Public Health Foundation, 2015.

D. Centers for Disease Control and Prevention. Manual for the Surveillance of Vaccine-Preventable Diseases Polio website: https://www.cdc.gov/vaccines/pubs/surv-manual/chpt12-polio.html

E. Centers for Disease Control and Prevention. Polio Surveillance Worksheet. Retrieved July 24, 2017, from https://www.cdc.gov/vaccines/pubs/surv-manual/appx/appendix14-2-polio-wrsht.pdf

F. Wisconsin Immunization Program Polio webpage: https://www.dhs.wisconsin.gov/immunization/polio.htm