Wisconsin Department of Health Services
Division of Public Health
P - 01919 (Rev 08/2017)

Communicable Disease Case Reporting and Investigation Protocol

LYMPHOCYTIC CHORIOMENINGITIS

I. IDENTIFICATION AND DEFINITION OF CASES

A. **Clinical Description:** A rodent-borne viral infectious disease caused by the lymphocytic choriomeningitis virus (LCMV). The illness is often biphasic. The initial phase, which may last as long as a week, typically begins with any or all of the following signs and symptoms: fever, malaise, lack of appetite, muscle aches, headache, nausea, vomiting, thrombocytopenia, and leukopenia. Other symptoms appearing less frequently include sore throat, cough, joint pain, chest pain, testicular pain, and parotid pain. Following a few days of apparent recovery, a second phase of illness may occur and can result in meningitis, encephalitis, or meningoencephalitis. LCMV has also been known to cause acute hydrocephalus. Infection during pregnancy can result in transplacental transmission to the fetus. Infections occurring during the first trimester may result in fetal death and pregnancy termination, while in the second and third trimesters birth defects can develop. LCMV is frequently fatal in immunosuppressed patients, especially organ transplant recipients.

B. **Laboratory Criteria:** Confirmatory laboratory findings are one of more of the following:
- Detection of LCMV RNA in the cerebrospinal fluid and/or blood by PCR assay, **OR**
- Isolation of LCMV from CSF, blood, or tissue, **OR**
- Detection of LCM antigen by immunohistochemistry in tissues **OR**
- Detection of IgM (early sample), or IgM and IgG (late sample) antibodies to LCMV in CSF or serum, **OR**
- Detection of IgG antibodies to LCMV in bloods of mother and newborn born with a compatible clinical syndrome.

C. **Wisconsin Surveillance Case Definition: Confirmed:** A clinically compatible illness with laboratory confirmation.

II. REPORTING

A. **Wisconsin Disease Surveillance Category II – Methods for Reporting:** This disease shall be reported to the patient's local health officer or to the local health officer's designee within 72 hours of recognition of a case or suspected case, per Wis. Admin. Code § DHS 145.04 (3) (b). Report electronically through the Wisconsin Electronic Disease Surveillance System (WEDSS), or mail or fax a completed Acute and Communicable Disease Case Report (F-44151) to the address on the form.

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 with confirmatory laboratory evidence of LCMV infection.

D. **Laboratory Criteria for Reporting:** Any laboratory evidence of infection.

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.

A basic source investigation should be performed to determine rodent exposure. Although the wild house mouse (*Mus musculus*) is the natural reservoir for the virus, hamsters and other pet rodents can acquire the virus through exposure to infected mice and become an important source of human exposure.

B. **Required Documentation:**
   1. Complete the WEDSS disease incident investigation report, including appropriate, disease-specific tabs. Scan any notes from the source investigation interview into the WEDSS file cabinet.
   2. Upon completion of investigation, set WEDSS disease incident process status to "Sent to State."

C. **Additional Investigation Responsibilities**
   1. Contact and work with Bureau of Communicable Diseases staff on the investigation.
   2. Ascertain all contact with rodents or rodent-contaminated areas during the four weeks preceding onset. Obtain detailed travel history. Environmental assessment may be indicated. If contact with pet rodents occurred, determine source(s) of the animals.
   3. Determine if patient is immunosuppressed and whether patient had an organ transplant procedure. Cases have occurred in recipients who received a transplant from an infected organ donor.
   4. Coordinate submission of the positive patient specimen to the Centers for Disease Control and Prevention (CDC) via the Wisconsin State Laboratory of Hygiene (WSLH) for LCMV confirmatory testing.

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. Educate the public about minimizing risk when entering or during cleanup of rodent infested areas (see the Division of Public Health fact sheet at https://www.dhs.wisconsin.gov/publications/p42053a.pdf) and the safe handling of pet rodents guidance (https://www.cdc.gov/healthypets/pets/small-mammals/petrodents.html).

C. Do not allow pet rodents to come into contact with wild rodents.

D. Immune suppressed persons, pregnant women, or women trying to become pregnant should avoid all rodent contact.

V. CONTACTS FOR CONSULTATION

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

B. Bureau of Communicable Diseases, Communicable Diseases Epidemiology Section: 608-267-9003

C. Wisconsin State Laboratory of Hygiene: 1-800-862-1013

VI. RELATED REFERENCES

A. Heymann DL, ed. Lymphocytic Choriomeningitis. In: *Control of Communicable Diseases Manual*. 20th ed. Washington, DC: American Public Health Association, 2015:367-369.

B. Pickering LK, ed. Lymphocytic Choriomeningitis. In: *Red Book*: *2015 Report of the Committee on Infectious Diseases*. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2015: 527-528.

C. Centers for Disease Control and Prevention website: https://www.cdc.gov/vhf/lcm/index.html