Communicable Disease Case Reporting and Investigation Protocol
Congenital Cytomegalovirus Infection and Disease

I. Identification and definition of cases

A. Clinical description

Cases should be assessed according to absence or presence of clinical evidence as defined below and the clinical data should be included in the case investigation. In the absence of a more likely alternative etiology:

- An infant with at least one of the following clinical signs during the neonatal period:
  - Hepatomegaly
  - Splenomegaly
  - Petechial rash or purpura

Or

- A child aged 6 years or younger with one or more of the following permanent conditions:
  - Microcephaly (defined as head circumference measurement >2 standard deviations below the mean (or <3rd percentile) for the same age and sex, notation in the medical record, or diagnostic code of microcephaly (e.g., ICD-10 code Q02),
  - Brain imaging abnormalities consistent with cCMV, such as intracranial calcifications, periventricular calcifications, leukomalacia, polymicrogyria, lissencephaly, pachygyria, schizencephaly, or ventriculomegaly
  - Sensioneural hearing loss
  - Seizures
  - Cerebral palsy
  - Chorioretinitis
  - Vision impairment, resulting from conditions consistent with cCMV, such as retinitis, retinal scarring, optic neuritis, optic atrophy, or brain damage resulting in cortical vision impairment.

B. Laboratory criteria

Confirmatory laboratory evidence of CMV

- Absence of a negative test (CMV DNA by Nucleic Acid Amplification Test (NAAT) or culture) on a urine specimen collected within 21 days of life, **and**
- Detection of CMV DNA by NAAT from urine, whole blood (including dried blood spot), or cerebrospinal fluid (CSF) collected from an infant within 21 days of life, **or**
- Detection of CMV DNA by NAAT from amniotic fluid specimen, **or**
- Isolation of CMV in viral culture from urine, whole blood, or CSF collected from an infant within 21 days of life, **or**
- Isolation of CMV in viral culture from amniotic fluid specimen, **or**
- Demonstration of CMV antigen in an autopsy specimen by immunohistochemistry (IHC), **or**
- Detection of CMV antigen by antigenemia test in whole blood collected from an infant within 21 days of life.

Presumptive laboratory evidence of CMV:

- Absence of a negative test (CMV NDA by NAAT or culture) on a urine specimen collected within 21 days of life, **and**
- Detection of CMV DNA by NAAT from saliva collected from an infant within 42 days of life, **or**
- Isolation of CMV in viral culture from saliva collected from an infant within 42 days of life, **or**
- Detection of CMV DNA by NAAT from urine, whole blood, or CSF collected from an infant within 22-42 days of life, **or**
- Isolation of CMV in viral culture from urine, whole blood, of CSF collected from an infant within 22-42 days of life.

C. Wisconsin surveillance case definition

Congenital cytomegalovirus disease

- Probable: Meets clinical criteria **and** presumptive laboratory evidence.
- Confirmed: Meets clinical criteria **and** confirmatory laboratory evidence

Congenital cytomegalovirus infection

- Confirmed: Meets confirmatory laboratory evidence

D. Criteria to distinguish a new case

A case should be enumerated as a new case if not previously reported.
Note: If a case was previously reported as cCMV infection but later meets criteria for cCMV disease the case would not be counted as a new case but a re-classification.

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 daycare center, and any person who knows or suspects that a person has a communicable disease identified in Appendix A.

C. Clinical criteria for reporting

None

D. Laboratory criteria for reporting

Confirmatory laboratory evidence of CMV:

- Absence of a negative test (CMV DNA by Nucleic Acid Amplification Test (NAAT) or culture) on a urine specimen collected within 21 days of life, **and**
- Detection of CMV DNA by NAAT from urine, whole blood (including dried blood spot), or cerebrospinal fluid (CSF) collected from an infant within 21 days of life, **or**
- Detection of CMV DNA by NAAT from amniotic fluid specimen, **or**

- Isolation of CMV in viral culture from urine, whole blood, or CSF collected from an infant within 21 days of life, **or**
- Isolation of CMV in viral culture from amniotic fluid specimen, **or**
- Demonstration of CMV antigen in an autopsy specimen by immunohistochemistry (IHC), **or**
- Detection of CMV antigen by antigenemia test in whole blood collected from an infant within 21 days of life.

Presumptive laboratory evidence of CMV:

- Absence of a of a negative test (CMV NDA by NAAT or culture) on a urine specimen collected within 21 days of life, **and**
- Detection of CMV DNA by NAAT from saliva collected from an infant within 42 days of life, **or**
- Isolation of CMV in viral culture from saliva collected from an infant within 42 days of life, **or**
- Detection of CMV DNA by NAAT from urine, whole blood, or CSF collected from an infant within 22-42 days of life, **or**
- Isolation of CMV in viral culture from urine, whole blood, of CSF collected from an infant within 22-42 days of life.

III. Case investigation

A. Responsibility for case investigation

The Wisconsin Department of Health Services Birth Defect Prevention and Surveillance Program will investigate or arrange for investigation of presumed or confirmed cases as soon as reasonably possible. A case investigation may include information collected by phone, in-person, in writing, or a thorough 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 infant disease-specific tabs and sections.
2. Upon completion of investigation, set WEDSS disease incident process status to "Sent to State."

C. Additional investigation responsibilities

None.

IV. Public health interventions and prevention measures

- In accordance with Wis. Admin. Code § DHS 145.05, local public health agencies should follow the methods of control recommended in the current edition the American Academy of Pediatrics' Red Book: Report of the Committee on Infectious Diseases, unless otherwise specified by the state epidemiologist.
- Educate people who are pregnant or who could become pregnant about the risk of transmission of cytomegalovirus, especially with young children.
- Individuals who are or could become pregnant should be additionally diligent to:
    - Thoroughly handwash with soap and water after contact with bodily fluids.
    - Avoid sharing food, drinks, utensils, or pacifiers with children.
    - Avoid kissing children on the lips.
    - Regularly clean toys, countertops, and other surfaces that come into contact with children's saliva or urine.

V. Contacts for consultation

- Bureau of Communicable Diseases, Communicable Diseases Epidemiology Section: 608-267-9003
- Bureau of Community Health Promotion, Birth Defect Prevention and Surveillance Program: 608-266-6967

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

VI. Related references

- Cheeran MC, Lokensgard JR, Schleiss MR. Neuropathogenesis of congenital cytomegalovirus infection: disease mechanisms and prospects for intervention. Clin Microbiol Rev 2009; 22(1): 99-126.
- Swanson EC, Schleiss MR. Congenital cytomegalovirus infection: new prospects for prevention and therapy. Pediatr Clin North Am 2013; 60(2): 335-349.
- American Academy of Pediatrics (2024). Red Book: 2024 Report of the Committee on Infectious Diseases (33rd ed.). American Academy of Pediatrics. 344-352.
- Centers for Disease Control and Prevention website
- Council of State and Territorial Epidemiologists (CSTE) position statement (full text)