

Ontario Public Health Standards:
Requirements for Programs, Services and Accountability

Infectious Disease Protocol

Appendix 1:

Case Definitions and Disease-Specific Information

Disease: Meningitis, acute:
i) bacterial; ii) viral, and iii) other

Effective: May 2022

Disease: Meningitis, acute: i) bacterial; ii) viral, and iii) other

Communicable

Virulent

[Health Protection and Promotion Act \(HPPA\)](#)

[Ontario Regulation \(O. Reg.\) 135/18 \(Designation of Diseases\)](#)

Provincial Reporting Requirements

Confirmed case

Probable case

As per Requirement #3 of the "Reporting of Infectious Diseases" section of the *Infectious Diseases Protocol, 2018* (or as current), the minimum data elements to be reported for each case are specified in the following:

- [O. Reg. 569](#) (Reports) under the HPPA;#
- The iPHIS User Guides published by Public Health Ontario (PHO); and
- Bulletins and directives issued by PHO.

"Meningitis, i) bacterial; ii) viral, and iii) other" should be used to report only cases that meet the case definition below.

Cases of meningitis that are due to specific diseases of public health significance should be reported under that disease. This includes meningitis due to a reportable organism such as:

- *Haemophilus influenzae*,
- *Neisseria meningitidis*,
- *Streptococcus pneumoniae*,
- Group B streptococcus,

- *Listeria monocytogenes*,
- West Nile virus,
- *Salmonella*,
- Measles virus, or
- Mumps.

Type of Surveillance

Case-by-case

Case Definition

Confirmed Case

Clinically compatible (see Clinical Evidence section) signs and symptoms of meningitis with:

- Culture isolation of an organism (i.e., bacterial, viral or other) from an appropriate clinical site (e.g., cerebrospinal fluid [CSF], blood)

OR

- Detection of antigen (i.e., bacterial, viral or other) from an appropriate clinical site (e.g., CSF, blood)

OR

- Detection of nucleic acid (i.e., bacterial, viral or other) from an appropriate clinical site (e.g., CSF, blood)

OR

- Serologic confirmation of infection with an organism known to cause meningitis

Probable Case

Clinically compatible signs and symptoms of meningitis in the absence of laboratory

confirmation of a causative organism.

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Please refer to the *Infectious Diseases Protocol, 2018* (or as current) for guidance in developing an outbreak case definition as needed.

The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified, if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (*i.e.*, confirmed and/or probable).

An outbreak under the category of "Meningitis, i) bacterial; ii) viral, and iii) other" would be defined as more than the usual number of cases meeting the case definition as defined in this appendix.

Clinical Information

Clinical Evidence

Clinically compatible signs and symptoms are characterized by fever, headache, stiff neck, and pleocytosis.

Note: Cases that present with clinical manifestation that meet the case definition for encephalitis shall be reported as encephalitis (see [Appendix 1: Case Definitions and Disease Specific Information; Disease: Encephalitis a\) Primary, viral; b\) Post-infectious; Vaccine-related; Subacute sclerosing panencephalitis, and Unspecified](#)).

Clinical Presentation

Meningitis usually has a very sudden onset, with symptoms that include high fever, severe headache, vomiting, confusion, seizures, progressive lethargy, drowsiness,

stiff neck, and skin rash which may be on the hands and feet depending on the causative agent. Petechial rashes and other types of rashes may also occur depending on causative agent.²

Newborns and infants may not have all the classic symptoms above. They may present with irritability, may refuse meals, have unusual sleep patterns and constant crying; newborns and infants may also have bulging of the soft spots on their heads (fontanelle) and a lower-than-normal body temperature.²

Laboratory Evidence

Laboratory Confirmation

Given the variability of etiological organisms, consult with laboratory about appropriate specimens and testing methodologies.

Approved/Validated Tests

Given the variability of etiological organisms, appropriate specimens and existing and emerging testing methodologies, consult with laboratory.

Indications and Limitations

Indications and limitations will be based on clinical presentation and be test specific due to the variability of the etiological organism. As noted in the Laboratory Evidence sections above, this should be discussed with the laboratory.

For further information about human diagnostic testing, contact the [Public Health Ontario Laboratories](#).

Case Management

In addition to the requirements set out in the Requirement #2 of the "Management of Infectious Diseases – Sporadic Cases" and "Investigation and Management of Infectious Diseases Outbreaks" sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall investigate cases to determine the source of infection. Refer to Provincial Reporting Requirements above for relevant data to be

collected during case investigation.

Contact Management

Contact identification and tracing is dependent on the causative organism. For viral meningitis, contact tracing is generally not indicated.

Outbreak Management

Please see the *Infectious Diseases Protocol, 2018* (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.

Prevention and Control Measures

In the event that publicly funded vaccine doses are needed for case and contact management, the board of health should contact the Ministry of Health's (ministry) immunization program at vaccine.program@ontario.ca as soon as possible.

Personal Prevention Measures

Personal prevention measures depends upon the causative agent.

Infection Prevention and Control Strategies

Appropriate precautions depending on causative agent while in hospital including appropriate hand washing.

For bacterial meningitis, routine infection prevention and control practices, as well as contact and droplet precautions should be in effect until at least 24 hours after beginning and complying with appropriate antimicrobial therapy although this may be dependent on the causative organism.

Refer to [PHO's website](#) to search for the most up-to-date information on Infection Prevention and Control (IPAC).

Disease Characteristics

Aetiologic Agent - Meningitis is defined as “any infection or inflammation of the membranes covering the brain and spinal cord”; it can be caused by various organisms including bacteria, fungi and viruses.^{1,2}

Some common causes of bacterial meningitis are *Neisseria meningitidis*, *Haemophilis influenzae* type b (Hib) and *Staphylococcus pneumoniae*.²

Viral meningitis (aseptic meningitis, nonbacterial meningitis) may be caused by a variety of viruses, many of which are also associated with other manifestations.² These include enteroviruses, coxsackievirus, echovirus, arboviruses and herpes simplex virus. Many of the cases of viral meningitis have no obvious causative agent.²

Other infectious agents and conditions may also cause the clinical presentation of meningitis, including pyogenic meningitis, tuberculosis, fungi and cerebrovascular syphilis.²

Modes of Transmission - Depends on causative infectious agent, however, transmission is usually by direct contact, or droplets, originating from respiratory secretions from the nose or throat.²

Incubation Period – Depends on causative agent for both bacterial and viral meningitis.²

Period of Communicability - For bacterial, usually as long as organisms are present; effective antibiotic treatment reduces communicability after 24-48 hours. For viral, it varies according to the causative agent.²

Reservoir - For bacterial causes, the reservoir is humans and for viral causes, the reservoir varies depending on specific infectious agent.²

Host Susceptibility and Resistance - Depends on the causative agent.

Please refer to [PHO's Reportable Disease Trends in Ontario reporting tool](#) for the most up-to-date information on infectious disease trends in Ontario.

For additional national and international epidemiological information, please refer to

the Public Health Agency of Canada and the World Health Organization.

References

1. O'Toole MT, editor. Mosby's Dictionary of Medicine, Nursing & Health Professions. 9 ed. St. Louis, MO: Elsevier; 2013.
2. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.
3. Health Protection and Promotion Act, R.S.O. 1990, Reg. 569, Reports, (2018). Available from: <https://www.ontario.ca/laws/regulation/900569>

Case Definition Sources

Centers for Disease Control and Prevention. National Notifiable Disease Surveillance System: Meningitis, Other Bacterial - 2015 Case Definition [Internet]. Atlanta, GA: U.S. Department of Health & Human Services; 2015. Available from: [Meningococcal Disease Surveillance | CDC](#)

Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.

Document History

Revision Date	Document Section	Description of Revisions
April 2022	Entire Document	New template. Appendix A and B merged. No material content changes.
April 2022	Epidemiology: Occurrence section	Removed.
April 2022	ICD Codes	Removed.