Ministry of Health

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

Infectious Disease Protocol

Appendix 1: Case Definitions and Disease-Specific Information

Disease: Acute Flaccid Paralysis (AFP)

Effective: May 2022

Ontario

Acute Flaccid Paralysis (AFP)

☐ Communicable

☐ Virulent

Health Protection and Promotion Act (HPPA)

Ontario Regulation (O. Reg.) 135/18 (Designation of Diseases)

Provincial Reporting Requirements

☒ Confirmed case

☐ Probable case

The objective of AFP Surveillance is to rule out or detect poliovirus, wherever it may continue to circulate, and to maintain Canada's polio-free certification status by demonstrating (through the capacity to identify non-polio AFP cases) that the provincial surveillance system would be capable of detecting polio should cases arise in Ontario.

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;[5]
- The iPHIS User Guides published by Public Health Ontario (PHO); and
- Bulletins and directives issued by PHO.

If polio is identified as the causative agent of AFP, refer to the Disease-Specific Chapter for acute Poliomyelitis. Any causative agent that is reportable shall also be reported under the corresponding disease.

Type of Surveillance

Case-by-case

Case Definition

Confirmed Case

Acute onset of focal weakness or paralysis characterized as flaccid (reduced tone) without other obvious cause (e.g., trauma) in children < 15 years old. Cases of Guillain-Barré Syndrome (GBS) should be included as cases of Acute Flaccid Paralysis (AFP). Although this is categorized as "confirmed" it is actually a clinical case definition.

Transient weakness (e.g., postictal weakness) should not be reported.

Outbreak Case Definition

Not applicable.

If polio is identified as the causative agent of AFP, refer to the Disease-Specific Chapter for acute Poliomyelitis. As elimination of indigenous wild poliovirus transmission was certified in Canada in September 1994,[4] a single case of polio represents an outbreak and a public health emergency.

Clinical Information

Clinical Evidence

See confirmed case definition above.

Note: Other conditions present symptoms similar to paralytic poliomyelitis. A record is kept of all definitive diagnoses for all reported cases of AFP meeting the clinical case definition. GBS is the most common cause of AFP in childhood. Other differential diagnoses include, but are not limited to, transverse myelitis, peripheral neuropathy, enteroviruses, acute non-bacterial meningitis, brain abscess, China syndrome and post-polio sequelae. Poliomyelitis must be distinguished from other paralytic conditions by isolation of polio virus from stool.

Clinical Presentation

The most characteristic feature of AFP associated with paralytic polio is its

asymmetric distribution (not affecting both sides equally), which affects some muscle groups while sparing others, with fever present at onset. The most typical pattern is involvement of one leg only, or one arm, although this occurs less often. It is less common for both legs or both arms to be affected.[3]

AFP due to GBS may present as symmetrical paralysis and may progress for up to 10 days.[3]

Laboratory Evidence

Laboratory Confirmation

AFP is a constellation of symptoms, which can be caused by a number of pathogens. Laboratory testing is used to rule out and/or determine pathogens causing AFP.

- Stool samples: Collection of two stool samples within two weeks (up to six weeks) after the onset of paralysis for viral studies and campylobacter;
- Viral throat swab;
- Serology testing is not recommended for diagnosis of polio or non-polio enterovirus infection;
- Depending on the clinical presentation, a nasopharyngeal swab, and/or cerebrospinal fluid (CSF) may be collected to assist with the investigation; and
- Neurologic investigations, as appropriate, should take place (electromyography, nerve conduction studies, MRI, CT).

Approved/Validated Tests

Not applicable.

- The commercially available nucleic acid amplification test (NAAT) does not differentiate polioviruses from other enteroviruses.
- Laboratory testing (of stool, respiratory secretions, cerebrospinal fluid (CSF) and other appropriate clinical specimens) is used to rule out poliomyelitis

and/or determine pathogens causing AFP.

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. The following disease-specific information should also be obtained during case management:

- Verification that a stool specimen has been collected;
- Results of the laboratory investigation, including causative agent, if identified; and
- Cause of AFP, if identified.

An investigation to rule out paralytic polio should be undertaken as outlined in previous sections above.

Contact Management

Depends on causative agent, if one is identified.

Outbreak Management

Not applicable.

Prevention and Control Measures

In the event that publicly funded vaccine doses are needed for case and contact management, the board of health shall contact the Ministry of Health's (ministry)

immunization program at vaccine.program@ontario.ca as soon as possible.

Personal Prevention Measures

Depends upon the causative agent.

Infection Prevention and Control Strategies

Routine practices are recommended for hospitalized cases and additional precautions would depend 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 - Broad clinical syndrome, typically characterized by rapid onset weakness, which may include respiratory and bulbar weakness. AFP has an array of diagnostic possibilities and may be the result of infectious or non-infectious agents. Surveillance is conducted in an attempt to identify cases and to investigate all reported cases for evidence to rule out poliomyelitis (polio), which is essential for maintaining Canada's polio-free status.[1]

AFP may be caused by a number of agents. The immune-mediated condition Guillain-Barré Syndrome (GBS) is the most common cause of AFP in Canada.[2] The causes of AFP, some of which lead to GBS, include, but are not limited to, enteroviruses (including poliovirus*), echoviruses, adenoviruses, acute West Nile virus infection, *Campylobacter* spp., transverse myelitis, peripheral neuropathy, acute non-bacterial meningitis, brain abscess, China syndrome, post-polio sequelae, tick paralysis, myasthenia gravis, porphyria and botulism.[1-3]

* Poliomyelitis must be distinguished from other paralytic conditions by isolation of poliovirus from stool.

Modes of Transmission - Depends on causative agent

Incubation Period - Depends on causative agent

Period of Communicability - Depends on causative agent

Reservoir - Depends on causative agent

Host Susceptibility and Resistance - Depends on causative agent

Comments

Polio is targeted for eradication. As such, it requires highly sensitive surveillance for AFP, including immediate case investigation and specimen collection. The case definitions implemented by Canada's Working Group on Polio Eradication are standardized case definitions recommended by the World Health Organization (WHO).

Documenting polio-specific investigations, regardless of suspected diagnosis, is the means by which Canada maintains its polio-free certification. In addition, global surveillance indicators for certification include the detection of at least one AFP case in every 100,000 children under 15 years of age. Canadian data are reported regularly to the WHO.

Syndromic surveillance in Canada and Ontario on AFP is currently done by:

- Enhanced, active case-by-case notification by the Canadian Paediatric Surveillance Program (CPSP); and
- Enhanced, active case-by-case notification by paediatric tertiary care hospitals involved in the Immunization Monitoring Program, Active (IMPACT).[4]

References

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3. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.
4. Government of Canada. Poliomyelitis (Polio): Surveillance [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2014 [updated May 30, 2014; cited May 17, 2018]. Available from: https://www.canada.ca/en/public-health/services/diseases/poliomyelitis-polio/surveillance.html
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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.