Alberta Public Health Disease Management Guidelines

Poliomyelitis

Alberta

This publication is available online at https://open.alberta.ca/publications/poliomyelitis

For further information on the use of this guideline contact:

Health.CD@gov.ab.ca

Health and Wellness Promotion Branch

Public Health Division

Alberta Health

Poliomyelitis | Alberta Health, Government of Alberta

Table of Contents

Revisions

Revision Date	Document Section	Description of Revision
August 2023	General	• Entire guideline has been updated to align with current information.
	Case definitions	• Case definitions have been updated to include confirmed paralytic and non-paralytic case. • Clinical illness for confirmed, probable and suspect cases has been updated. • Suspect case definition has also been updated. • Polio outbreak definition has been included
	Reporting requirement	• The Zone MOH (designate) should submit a notifiable disease report (NDR) and the an Adverse Event Following Immunization (AEFI) report should both be reported for individuals with appropriate Oral Poliovirus Vaccine (OPV) • Includes information on International Health Regulation (IHR) reporting requirements.
	Management of Cases	• Section has been updated and includes isolation requirements
	Management of Close Contact	• Section has been updated and includes exclusion requirements for close contacts of confirmed, probable and suspect cases

Case Definition

Confirmed Paralytic Case

Clinical illness[(A)] compatible with paralytic poliomyelitis with laboratory confirmation of wild-type, vaccine-derived or Sabin/Sabin-like poliovirus detected in a clinical specimen (e.g., stool)

OR

Clinical illness[(A)] compatible with paralytic poliomyelitis in a person who is epidemiologically linked to a laboratory-confirmed case.

Confirmed Non-Paralytic Case

Any person without symptoms of paralytic poliomyelitis[(B)] with laboratory confirmation of wild-type, vaccine-derived or Sabin/Sabin-like poliovirus detected in a clinical specimen (e.g., stool)

AND

Has not been vaccinated with Oral Polio Vaccine (OPV) within 6 weeks prior to specimen collection date.

Probable Case

Clinical illness[(A)] compatible with paralytic poliomyelitis without detection of poliovirus from an appropriate clinical specimen and without evidence of infection with other neurotropic viruses but with one of the following laboratory confirmations of infection:

- Significant rise in poliovirus antibody titre in paired sera;

  OR
- The presence of polio-specific IgM antibody in the absence of recent immunization with poliovirus-containing vaccine.

Suspect Case

A person with non-specific symptoms that may be consistent with polio (i.e. fever, sore throat, headache, abdominal pain, nausea, vomiting, and/or loss of appetite, aching muscles, stiff neck or back, weakness or inability to move muscles such as in the arms, legs or face) with:

- history of residence or travel 6 weeks before symptom onset, to an area where poliovirus is circulating or where there is a poliovirus outbreak

  OR
- an epidemiological link to a laboratory-confirmed case

  AND
- is determined to be highly suspicious for polio by Public Health

  AND

[(A)] Clinical illness: The presence of some or all of these clinical features may suggest paralytic poliomyelitis:
- acute flaccid paralysis of one or more limbs
- decreased or absent deep tendon reflexes in the affected limb(s)
- weakness of facial, oropharyngeal or respiratory muscles
- no sensory or cognitive loss accompanies the paralysis
- no other apparent cause (including laboratory investigation to rule out other causes of a similar syndrome)

[(B)] Person can be asymptomatic or have nonspecific symptoms such as: fever, sore throat, headache, abdominal pain, nausea, vomiting, and/or loss of appetite, aching muscles, stiff neck or back, weakness or inability to move muscles such as in the arms, legs or face.

- poliovirus testing has not yet been initiated OR is pending.

Poliovirus Outbreak Definition [C]

Detection of confirmed paralytic or nonparalytic case

OR

Any newly detected cVDPV in a person when a VDPV isolated in human stool can immediately be genetically linked to another VDPV in the community, thereby confirming circulation in the areas of detection

[C] Detection of poliovirus in environmental (wastewater) samples is considered a poliovirus event and should be reported. Refer to the Guidance for the response and management of a poliovirus event or outbreak in Canada for more details. **NOTE:** There currently is no validated poliovirus environmental (wastewater) testing in Alberta. Should a decision be made to conduct wastewater testing in the province, this guidance will be updated accordingly.

Reporting Requirements

Physicians/Health Practitioners and Others

- Physicians, Health practitioners and others shall notify the Medical Officer of Health (MOH) (or designate) of the zone, of all confirmed, probable and suspect cases in the prescribed form by the Fastest Means Possible (FMP).

Laboratories

- All laboratories shall report all positive laboratory results by FMP to the following:
  - MOH (or designate) of the zone and the
  - Chief Medical Officer of Health (CMOH) (or designate).

Alberta Health Services and First Nations Inuit Health Branch

- The MOH (or designate) of the zone where the case currently resides shall notify the CMOH (or designate) by FMP of all confirmed, probable and suspect cases.
- The MOH (or designate) of the zone where the case currently resides shall forward the initial Notifiable Disease Report (NDR) of all confirmed, probable, and suspect cases to the CMOH (or designate) within one week of notification and the final NDR (amendment) within two weeks of notification.
  - **NOTE:** The Zone MOH (or designate) shall forward completed Post Arrival Questionnaire to the CMOH (or designate) as needed based on direction from the CMOH, within one week using existing processes (e.g., CDOM or confidential fax).
- The Zone MOH (or designate) shall submit an Adverse Event Following Immunization (AEFI) Report as outlined in the Adverse Events Following Immunization (AEFI) Policy for an individual that meets the following:
  - Confirmed or probable case who received OPV in the six weeks before onset of paralysis OR
  - close contact with onset of paralysis six weeks after exposure to a confirmed or probable case where the confirmed/probable case had received OPV in the previous six weeks.
- For out-of-province and out-of-country cases/contacts, the following information should be forwarded to the CMOH (or designate) by FMP:
  - name,
  - date of birth,
  - out-of-province health care number,
  - out-of-province address and phone number,
  - positive laboratory report (if applicable), and
  - other relevant clinical/epidemiological information.

International Health Regulation Reporting

- Under the *International Health Regulations (IHR) (2005),* reporting of Polio to the World Health Organization (WHO) is mandatory.
- Polio is also nationally notifiable and must be reported to the Public Health Agency of Canada (PHAC) to meet compliance with IHR regulations.
- Alberta Health notifies the PHAC of every confirmed, probable or suspect case of Polio and PHAC notifies the WHO of all confirmed cases within 24 hours of initial notification via emails:
  - vpd-mev@phac-aspc.gc.ca and hpoc-cops@phac-aspc.gc.ca

Clinical Assessment and Epidemiology

Etiology

Poliovirus is a member of genus *Enterovirus,* family Picornaviridae. The virus is a single stranded non-enveloped RNA virus. There are different types of poliovirus, distinguished by genetic sequencing.[1,2] There are three serotypes of wild poliovirus (WPV) i.e. type 1, 2, and 3. WPV type 2 was eradicated in 2015 and type 3 was eradicated in 2019. WPV type 1 remains endemic in Pakistan and Afghanistan.[1,3]

Oral polio vaccine (OPV) or Sabin vaccine[D] and inactivated polio vaccine (IPV) are two types of polio vaccine. On rare occasions, vaccine-derived polioviruses (VDPVs) can develop. This occurs when the live attenuated OPV virus circulates over many months in communities with low polio vaccine coverage. It reverts through mutation to a virulent form of virus similar to WPV that can be just as pathogenic and transmissible. Circulating vaccine-derived poliovirus (cVDPV) occurs when there is evidence of person-to-person transmission of VDPV in a community.[4,5]

Clinical Presentation

The clinical presentation of poliovirus infection is variable and ranges from inapparent or asymptomatic infections to severe paralysis and death.[5] Asymptomatic infections occur in up to 70–75% of cases.[1,6]

Approximately 25% of cases will have non-specific symptoms such as fever, fatigue, malaise, headache, nausea and vomiting, pain in limbs, and stiffness in the neck. These symptoms usually disappear within 2–5 days.[3,7]

Less than 1% of cases will experience weakness or paralysis in their arms, legs, and/or respiratory muscles.[7] The duration of paralysis is usually short, lasting three to four days. Rarely will the paralysis remain, but if it extends beyond 60 days, it is usually permanent.[8,9] Paralytic polio has a case fatality rate that ranges from 15–30% for adults and 2–5% among children.[8,9]

Post-polio syndrome (PPS) affects polio survivors 10–40 years after recovery from an initial paralytic polio infection. This manifests as new onset of muscle weakness/pain, paralysis and fatigue. Symptoms usually appear in the muscle groups that were previously affected.[2,5,10] Individuals with PPS are not infectious and PPS is not usually fatal.[10]

Diagnosis

Poliovirus can be detected by molecular testing and viral culture of stool (most preferred specimen) and nasopharyngeal or oropharyngeal specimens obtained soon after symptom onset. The virus is rarely detected in blood or cerebrospinal fluid (CSF) specimens. Molecular testing (e.g., reverse transcriptase polymerase chain reaction [RT-PCR]) can be used to detect the nucleic acid of the virus. Assays designed for poliovirus can be used while less specific assays are also available (e.g., pan-enterovirus genus RT-PCR); if such less specific tests are positive, sequencing can be performed on the RT-PCR product to confirm the identity of the virus. However, viral culture is the standard method used to demonstrate the presence of poliovirus. After isolation, RT-PCR and genomic sequencing are used to determine the serotype (i.e., 1, 2, or 3), and whether the virus is WPV, VDPV or Sabin/Sabin like. [2,10]

Diagnosis of polio requires the collection of two stool specimens, at least 24 hours apart and within 14 days of onset of symptoms, is recommended. Rectal swabs are not recommended. Poliovirus can be detected in stool at least three days post exposure and persists for 3-6 weeks. Poliovirus may be detected in oropharyngeal specimens during the first 36 hours after exposure and lasts for up to one week.[2,4]

Refer to the Public Health Laboratory (ProvLab) guide to services for more information on specimen collection.

[D] Vaccine-associated paralytic poliovirus (VAPP): This is a rare adverse event that occurs after vaccination with OPV (generally in immunosuppressed individuals) that causes paralytic polio in someone who has received OPV or close contacts of someone who has received OPV.

Treatment

There are no specific antiviral medications available. Treatment is supportive to manage symptoms.[4]

Reservoir

Humans.[9]

Transmission

Wild-type polio is predominately transmitted person-to-person by the fecal-oral route and also via direct contact with oral secretions from an infected person. Less frequent transmission occurs via fomites, food or water contaminated with infectious fecal matter.[2,8,9] After infection, virus may be excreted in throat secretions for 1–2 weeks and in feces for 3–6 weeks, even in asymptomatic individuals.[11]

Vaccine virus can be present in the throat for 1 to 2 weeks following immunization with OPV and can remain in feces for several weeks. This results in excretion of virus in the stool and person to person transmission by the fecal-oral route. Individuals immunized with IPV who are exposed to poliovirus, can still transmit poliovirus by shedding the virus in their stool. This is because IPV is given by injection and does not induce immunity in the gut.[4,8]

Incubation Period

The incubation period is 3–6 days for non-specific symptom onset. For paralytic polio, the incubation period is commonly 7–21 days with a reported range of 3–35 days.[2,4] The incubation period for non-paralytic cases is up to six weeks. The guidance in this document is based on the longest incubation period of six weeks.

Period of Communicability

Poliomyelitis is highly communicable and is most infectious in the few days before and after the onset of symptoms. It can be detected in throat secretions for 1–2 weeks and in stool for up to six weeks after infection.[4]

Host Susceptibility

Host susceptibility is universal for anyone who does not have immunity to polio. Immunization or infection with one serotype does not confer immunity against the other serotypes.[5] However, infections have historically often occurred in children under 5 years of age.[1,3]

In Canada, the following individuals are at a higher risk of exposure to poliovirus:

- Travelers to, or persons receiving travelers from, areas where poliovirus is known or suspected to be circulating.
- Members of communities or specific population groups (e.g., refugees) with disease caused by circulating poliovirus.
- Health care workers who have close contact with patients who might be excreting wild type or vaccine-derived poliovirus.
- People who come in close contact with those who may be excreting poliovirus (e.g., people working with refugees; the military; people on humanitarian missions in polio-endemic countries).
- Laboratory workers handling specimens that may contain poliovirus.
- Family or close contacts of internationally adopted infants who may have been or will be vaccinated with OPV vaccine.[8]

Incidence

Introduction of polio immunization programs has greatly reduced the number of reported polio cases and outbreaks. In 1988, the Global Polio Eradication Initiative (GPEI) was launched to eradicate polio. Since then, there has been over 99% reduction in the global incidence, including the eradication of Type 2 and 3 wild polio virus.[3,5] At this time, type 1 wild poliovirus remains endemic in only two countries, Pakistan and Afghanistan.[9]

Surveillance for polio in Canada began in 1924 and Canada was certified Polio-free in 1994. More information on polio surveillance in Canada can be found on the Public Health Agency of Canada website. For more information on current confirmed cases and outbreaks and strategies to eradicate polio, refer to Polio Global Eradication Initiative.

Inactivated polio vaccine (IPV) was introduced in Alberta in 1956. In 1962, the administration of OPV became part of the routine immunization program. In 1994, Alberta routine immunization schedule replaced OPV with IPV in combination with Diphtheria, Tetanus and Pertussis vaccine.[12] Cases of imported wild type polio were last reported in Alberta in 1993 after 22 asymptomatic cases were identified in members of a southern Alberta religious group. Members were not immunized and had been in contact with infected individuals in Europe.[13]

Public Health Management

Key Investigation

- Confirm that the individual meets case definition.
- Obtain history of illness, including the date of onset of signs and symptoms (if any) and determine incubation and communicability period.
- Determine any abnormal neurological findings, and underlying medical conditions e.g., immunocompromised.
- Determine possible transmission settings (e.g., childcare settings, homeless shelters, overcrowded housing, refugee camp) during the communicability period.
- Determine the possible source of infection, including:
  - residence in or travel within the last six weeks to an area where poliovirus may be circulating and/or with known poliovirus outbreaks or an OPV campaign,
  - residence in areas with poor sanitation, including improper water treatment and sewage disposal (including recent immigration),
  - close contact (household or non-household) with a confirmed or probable case of polio or someone with symptoms of paralysis or being investigated for polio,
  - close contact to a symptomatic individual (e.g., travel companions or others) who within the last six weeks travelled to/had residence in an area where poliovirus may be circulating and/or with known poliovirus outbreaks or an OPV campaign.
- Determine occupation of the case including those who work in sensitive situations and occupations that pose a higher risk of transmission to others. Refer to Table 1: Sensitive Situations or Occupations (SSO) for definition.
- Determine polio immunization history including:
  - number of doses,
  - date administered,
  - where the person was immunized (e.g., out of country, out of province), and
  - if not immunized, determine reason why.
- In cases of vaccine-associated disease assess for:
  - receipt of OPV six weeks prior to onset of current illness,
  - travel to or residence within the last six weeks in an area where a mass OPV campaign had been in progress, and
  - household members or other close contacts who have received OPV six weeks prior to onset of illness in the case.
- Identify close contacts and determine risk of exposure during the period that the case was infectious, i.e. in the six weeks before symptom onset or lab positive result if asymptomatic.

Close Contacts with High-Risk Exposure [E] include:

- household contacts and those who stayed overnight in the same household as the case,
- sexual contacts,
- contacts in group living settings who shared a bathroom with the case or had close interactions with the case (for example, dormitories, shelters, detention centres, group homes, settlement houses),
- children who attended childcare with the case and the childcare workers;
- those who had contact with the feces or respiratory secretions of the case including health care workers (HCW)[F] WITHOUT the use of adequate personal protective equipment (PPE) and infection prevention and control (IPC) practices (i.e. determined to have breaches in PPE) and

[E] The transmission risk is dependent on the timing and nature of the exposure with the case and is not influenced by the contact's immunization status, since those immunized with IPV can still become infected and spread infection to others.

[F] HCWs are defined as: all health practitioners and all individuals (including nutrition and food services, housekeeping, recreation etc.) at increased risk for exposure to, and/or transmission of, a communicable disease because they work, study, or volunteer in one or more of the following health care environments: hospital, nursing home (facility living), supportive living accommodations, or home care setting, mental health facility, community setting (e.g. paramedics, EMS, firefighters, police officers), office or clinic of a regulated health professional (i.e., this includes professionals regulated under the *Health Professions Act* and the *Veterinary Profession Act*), or clinical laboratory.

- Laboratory workers who handled specimens(i.e. stool and respiratory) WITHOUT the use of adequate personal protective equipment (PPE) and infection prevention and control (IPC) practices (i.e. determined to have breaches in PPE).

Close Contacts with Low Risk Exposure [C] include:

- those who consumed food prepared by the case, especially if the food wasn't cooked after handling by the case,
- HCWs[D] who provided care for the case while using adequate personal protective equipment (PPE) and infection prevention and control (IPC) practices (i.e. with NO breaches in PPE),
- Laboratory workers who handled specimens (i.e. stool and respiratory) from the case while using adequate PPE and infection prevention and control (IPC) practices.

Table 1: Sensitive Situations or Occupations (SSO)

SSO	Definition
Food handler	Touches unwrapped food to be consumed, and/or Handles equipment or utensils that touch unwrapped food to be consumed*
Healthcare, childcare or other staff	Has contact through serving food to those who may be susceptible persons. Provides direct patient care and is involved in the care of young children, elderly or dependent persons.
Child attending a childcare facility or similar facilities	Is diapered or unable to implement good standards of personal hygiene.
Any individual (older child or adult)	Is unable to implement good standards of personal hygiene (e.g., with disabilities/challenges that may impact ability to perform good hand hygiene) and is involved in an activity that may promote disease transmission. Who may have contact with people outside of the household who are immunocompromised, unimmunized or partially immunized[G]

∗ *NOTE: Generally, food handlers who do not touch food, equipment or utensils in this way are not considered to pose a transmission risk; however, circumstances for each case should be assessed on an individual basis*.

Management of a Case

- All suspect, probable and confirmed cases should be advised of the following:
  - how the disease is transmitted, appropriate personal hygiene, routine infection prevention and control practices, and contact precautions.
  - avoid food preparation for others during the period of communicability.
- **Hospitalized Cases**:
  - All suspect, probable or confirmed cases should be managed in accordance with facility IPC precautions including isolation in a private room with access to their own bathroom.
- **Non-hospitalized Cases:**
  - Limit further transmission with other household members by doing the following:
    - where possible, sleep in own room and have access to own bathroom,
    - do not share personal items,
    - no food preparation,
    - practice hand hygiene,
    - clean and disinfect bathroom after use by the case.
- **Isolation of Suspect Case:**
  - The MOH shall isolate suspected cases pending lab results from all indoor public settings for example they cannot attend childcare, school or work outside the of the home.
  - If suspect case refuses laboratory testing/or testing is not done, they are to be isolated for six weeks from onset of symptoms.

[G] Unimmunized and partially immunized refers to individuals who have received less than four doses of IPV or trivalent OPV (in any combination). This includes children who are up to date for their age but have not received four doses.

- **Isolation of Probable and Confirmed Cases:**
  - The MOH shall isolate cases from all indoor public settings for example they cannot attend childcare, school or work outside of the home until determined to no longer be infectious i.e., based on three consecutive negative stool samples each collected at least 24 hours apart.
    - If case refuses repeat testing/or testing is not done, they are to be isolated for six weeks from onset of symptoms, or positive lab result if asymptomatic.
- The following apply to all cases:
  - Only essential visitors should be allowed to visit the case either in hospital or at home.
  - Regular surveillance by public health to ensure compliance with measures.
  - Once the case is no longer considered infectious and if they are unimmunized/not fully immunized,[F] they should be offered IPV vaccine according to *Alberta Immunization Policy (AIP)* recommendations

Management of Close Contacts of Suspect, Probable and Confirmed Cases

- All close contacts should be advised on how the disease is transmitted, appropriate personal hygiene, routine infection prevention and control practices, and contact precautions.
- All asymptomatic close contacts should monitor for symptoms and if symptoms develop, call 811 or their health care provider to make prompt arrangements for assessment and testing.
  - close contacts should inform 811/health care provider that they are close contacts of a polio case so that adequate precautions to care for them safely are in place in advance of arrival.
- Refer symptomatic close contacts to physician for assessment regardless of exposure risk.
- Identify close contacts of probable and confirmed cases with high-risk exposure that may require exclusion by order of the MOH.
- The MOH shall exclude close contacts of probable and confirmed cases with high-risk exposure from all public indoor settings for example they cannot attend childcare, school or work outside of the home until two consecutive negative stool samples taken at least 48 hours apart, with the first collected at least 4 days after the contact's last exposure to the probable/confirmed case before infection prevention and control measures were initiated.
  - If close contact with high-risk exposure refuses testing, they are to be excluded for six weeks from last date of exposure to the case.
  - The following also apply for close contacts with high-risk exposure:
    - If the close contact lives with the case, they should:
      - avoid sharing personal items with household members.
      - clean and disinfect the bathrooms at least daily.
      - use proper hand hygiene after using the bathroom/changing diapers, after cleaning the bathroom, and before preparing, serving or eating food.
    - If the close contact does NOT live with the case they should:
      - minimize contact with other household members,
      - where possible have access to their own bedroom and bathroom,
      - avoid contact with household members who are immunocompromised, unimmunized/partially immunized,
      - practice proper hand hygiene.
    - Only essential visitors should visit the close contact.
    - The following should NOT visit the contact:
      - anyone who is unable to perform good hand hygiene,
      - immunocompromised individuals,
      - unimmunized or partially immunized individuals.
    - Public health should conduct regular surveillance to assess for symptoms and if complying with exclusion measures.
- The MOH shall exclude close contacts of suspect cases with high-risk exposure who are symptomatic from SSO pending laboratory results of the suspect case.

- If laboratory results will not be available for the suspect case, testing of the close contact to rule out infection may be indicated and should be determined on a case-by-case basis.

- Close contacts of suspect cases with high-risk exposure who are asymptomatic AND who work in SSO should be managed on a case-by-case basis.
- All close contacts of suspect, probable and confirmed cases with low-risk exposure are generally NOT excluded. They and their household members should do the following,
  - practice hand hygiene:
    - after using the bathroom and changing diapers,
    - after cleaning the bathroom and
    - before preparing, serving, or eating food.
- Assess polio immunization history for all close contacts and offer vaccine if needed, according to the current *Alberta Immunization Policy (AIP).*

Preventative Measures

- Educate the public about the importance of immunization with polio containing vaccine and risks of polio disease.
- Remind individuals planning on taking a trip to seek travel advice 6–8 weeks prior to leaving, especially if going to a location with known polio cases/outbreak(s). Refer to the Government of Canada's Travel Advice and Advisories by destination website.
- Offer polio containing vaccine to eligible Albertans according to recommendations in the current AIP.

References

1. Government of Canada. Polio: For health professionals [Internet]. 2023 [cited 2023 Aug 9]. Available from: https://www.canada.ca/en/public-health/services/diseases/poliomyelitis-polio/health-professionals.html

2. Committee on Infectious Diseases AAP. Poliomyelitis. In: Kimberlin, David W. Barnett, Elizabeth D. Lynfield, Ruth. Sawyer MH, editor. Red Book: 2021–2024 Report of the Committee on Infectious Diseases. 32nd Editi. Itasca, IL: American Academy of Pediatrics; 2021.

3. World Health Organization (WHO). Poliomyelitis [Internet]. 2022 [cited 2023 Aug 9]. Available from: https://www.who.int/news-room/fact-sheets/detail/poliomyelitis

4. Government of Canada. Guidance for the response and management of a poliovirus event or outbreak in Canada - Canada.ca [Internet]. 2023 [cited 2023 Aug 9]. Available from: https://www.canada.ca/en/services/health/publications/diseases-conditions/guidance-response-management-poliovirus-event-outbreak-canada.html

5. European Centre for Disease Prevention and Control (ECDC). Disease factsheet about poliomyelitis [Internet]. 2021 [cited 2023 Aug 9]. Available from: https://www.ecdc.europa.eu/en/poliomyelitis/facts

6. Tesini BL. Poliomyelitis [Internet]. Merck Manuals Professional Edition. 2023 [cited 2023 Aug 9]. Available from: https://www.merckmanuals.com/en-ca/professional/infectious-diseases/enteroviruses/poliomyelitis

7. Centers for Disease Control and Prevention (CDC). Polio: For Healthcare Providers [Internet]. 2023 [cited 2023 Aug 9]. Available from: https://www.cdc.gov/polio/us/hcp/index.html

8. Government of Canada. Poliomyelitis (polio) vaccine [Internet]. Canadian Immunization Guide . 2015 [cited 2023 Aug 9]. Available from: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-17-poliomyelitis-vaccine.html

9. American Public Health Association. Poliomyelitis. In: Heymann DL, editor. Control of Communicable Diseases Manual. 21st ed. Washington D.C.: APHA Press; 2022. p. 503–13.

10. Estivariz CF, Link-Gelles R, Shimabukuro T. Poliomyelitis [Internet]. CDC-The Pink Book. 2021 [cited 2023 Jul 31]. Available from: https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html

11. Estivariz C, Routh J, Wassilak S. Poliomyelitis [Internet]. CDC Yellow Book 2024. 2023 [cited 2023 Aug 9]. Available from: https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/poliomyelitis

12. Government of Alberta. Alberta immunization policy [Internet]. 2023 [cited 2023 Aug 9]. Available from: https://www.alberta.ca/alberta-immunization-policy.aspx

13. Isolation of Wild Poliovirus Type 3 Among Members of a Religious Community Objecting to Vaccination -- Alberta, Canada, 1993 [Internet]. [cited 2023 Aug 9]. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/00020490.htm