

# Acute Flaccid Paralysis (AFP)

## Revision Dates

Case Definition	August 2011
Reporting Requirements	August 2011
Remainder of the Guideline (i.e., Etiology to References sections inclusive)	August 2011

## Case Definition

### Clinical Case

Acute onset of focal weakness or paralysis characterized as flaccid (reduced tone) without other obvious causes (e.g., trauma) in children less than 15 years old, including Guillain Barré Syndrome (GBS). Transient weakness (e.g., postictal weakness) should not be reported.

**NOTE:** The elimination of indigenous wild poliovirus transmission in Canada, and the rest of the American region, was certified in September 1994. However, until global polio eradication is attained, there remains an ongoing risk of wild poliovirus importation from polio-endemic regions to Canada. Consequently, active surveillance of acute flaccid paralysis (AFP) in children less than 15 years is used to monitor potential cases of paralytic poliomyelitis. Based on the World Health Organization (WHO) criteria for AFP, the estimated minimum number of cases expected to be identified in Alberta is 6 per year.

**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 but 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.

**NOTE:** The Expert Working Group on Polio Eradication has recommended that surveillance of AFP remain with the Canadian Paediatric Surveillance Program (CPSP). CPSP is undertaken by the Canadian Paediatric Society under contract with Public Health Agency of Canada (PHAC).

## Reporting Requirements

### 1. Physicians, Health Practitioners and others

Physicians, health practitioners and others listed in Sections 22(1) or 22 (2) of the *Public Health Act* shall notify the Medical Officer of Health (MOH) (or designate) of all clinical cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two days).

Public Health Agency of Canada (PHAC) requests that the physician caring for the case completes the Canadian Paediatric Surveillance Program (CPSP) Acute Flaccid Paralysis Reporting form. <http://www.cps.ca/English/Surveillance/CPSP/Studies/Questionnaire/AFP.pdf>

### 2. Alberta Health Services and First Nations Inuit Health

- The MOH (or designate) of the zone where the case currently resides shall forward the preliminary Notifiable Disease Report (NDR) of all clinical cases to the Chief Medical Officer of Health (CMOH) (or designate) within two weeks of notification and the final NDR (amendment) within four weeks of notification.
- For out-of-zone reports, the MOH (or designate) first notified shall notify the MOH (or designate) of the zone where the case currently resides by mail, fax or electronic transfer.
- For out-of-province and out-of-country reports, the following information should be forwarded to the CMOH (or designate) by phone, fax or electronic transfer within 48 hours (two days) including:
  - name,
  - date of birth,
  - out-of-province health care number,
  - out-of-province address and phone number and
  - attending physician (locally and out-of-province).

## Etiology

Acute Flaccid Paralysis (AFP) may be caused by a number of agents including enterovirus, echovirus or adenovirus. Acute West Nile infection and campylobacter have also been associated with AFP.

## Clinical Presentation

Focal weakness or paralysis characterized as flaccid (reduced tone) without other obvious cause (e.g., trauma) in children less than 15 years old.

## Diagnosis (1)

Surveillance is conducted in an attempt to identify cases of AFP (including GBS, transverse myelitis, myelopathy, West Nile virus infection, etc.) and to investigate all reported cases for evidence to rule out or to confirm paralytic poliomyelitis. Refer to the link for details:

<http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98vol24/dr2404ea.html>

The following are considerations to determine the causative agent and to rule out or confirm polio:

- Stool samples
  - Collection of one stool sample within two weeks (up to six weeks) after the onset of paralysis for:
    - viral studies, and
    - campylobacter.
  - A rectal swab is acceptable in the absence of a stool sample.
- Serum samples
  - Sample should be collected immediately for polio serology.
  - A second serum specimen should be collected two weeks later if the patient presents in the acute phase of the illness, or one month later if the patient presents in the convalescent phase.
  - Samples should be tested in parallel for poliovirus antibody titres and polio-specific IgG and IgM evaluations.
- Nasopharyngeal swabs and CSF may be collected to assist with the investigation.
- All samples should be sent to the Provincial Laboratory for Public Health (PLPH) and may be forwarded to the National Reference Centre for Enteroviruses (National Microbiology Laboratory, Winnipeg, Manitoba) for further investigation when needed.
- Neurologic investigations, as appropriate, should take place (electromyography, nerve conduction studies, MRI, CT).

## Epidemiology

### Reservoir

This will depend on the etiologic agent.

### Transmission

This will depend on the etiologic agent.

### Incubation Period

This will depend on the etiologic agent.

### Period of Communicability

This will depend on the etiologic agent.

### Host Susceptibility

This will depend on the etiologic agent.

### Occurrence

**General (1;2)**

The objective of AFP surveillance is to detect poliovirus wherever it may still circulate. This is the key to identifying areas which may require supplementary polio immunization. The WHO has estimated that despite the absence of wild poliovirus transmission, there is an annual incidence of one case of AFP per 100,000 population less than 15 years old.

**Canada (2-6)**

The last case of reported wild paralytic polio in Canada occurred in 1977. There have been paralytic and non-paralytic cases of polio reported since that time but all have been associated with wild virus importation. The active surveillance of AFP in children less than 15 years old has played an important role in monitoring suspected cases of paralytic polio. It has also provided evidence of the elimination of indigenous wild poliovirus transmission in Canada.

Active surveillance for AFP in children less than 15 years old began through PHAC's Immunization Monitoring Program ACTIVE (IMPACT) in 1991 to screen for potential cases of poliomyelitis following the certification of Canada as polio free. Since 1996, CPSP has carried out surveillance based on voluntary reporting by physicians/paediatricians and IMPACT. Between 2005 and 2009 the number of cases has ranged from 27 to 57. The CPSP believes the AFP incidence rate has been artificially low due to delayed reporting.

Between 1996 and 2002, the final diagnosis in more than 85% of Canadian cases reported was listed as GBS, transverse myelitis or encephalitis/encephalopathy. None of the clinical specimens tested were positive for poliovirus infection.

**Alberta (3)**

AFP became reportable in Alberta in June 2002. However, surveillance had been carried out since 1996 through the CPSP and IMPACT. Paediatricians are mailed a request (monthly) from CPSP for information and therefore, ensuring cases are reported to CPSP. In Alberta, a total of 18 AFP cases have been reported through the CPSP-IMPACT surveillance system from 2003 to the end of September 2010.

**Key Investigation**

**Single Case/Household Cluster (1;7)**

- An investigation done to rule out paralytic polio shall include:
  - Determine polio immunization status (total number of doses of oral and/or inactivated polio vaccine received).
  - Obtain relevant medical history including immunocompromised status or abnormal neurological history.
  - Determine receipt of oral polio vaccine (OPV) within 30 days prior to the onset of current illness.
  - Determine receipt of any other immunization within 30 days prior to the onset of current illness.
  - Identify household members or other close contacts who have received OPV within 90 days prior to the onset of this child's illness.
  - Determine travel to or residing in another country 7-30 days prior to the onset of illness.
  - Identify household members or other close contacts that have traveled to or resided in another country 7-30 days prior to the onset of this child's illness.
  - Assess for acute respiratory illness within 30 days prior to onset of current illness.

- Contacts include:
  - persons living in the same household or having close contact with the case (e.g., sharing sleeping arrangements, intimate relationships or playing together for more than four hours) within the 30 days before the case's onset of illness;
  - daycare and day home attendees; and
  - persons having contact with stool or fecal matter of the case within 30 days before the onset of illness without using infection control precautions (e.g., diapered children).

## Control

### Management of a Case (3)

Management will depend on the etiologic agent, if one is identified.

The majority of cases have been diagnosed as GBS.

### Treatment of a Case

Supportive/symptomatic treatment will depend on the etiologic agent, if one is identified.

### Management of Contacts

Management will depend on the etiologic agent, if one is identified.

Contacts with incomplete polio immunization will be offered Inactivated Polio Vaccine (IPV).

### Preventive Measures

IPV should be used as the immunizing agent, when indicated.

## References

- (1) Protocol for the investigation of acute flaccid paralysis and suspected paralytic poliomyelitis. Paediatr Child Health 1997 2(6):409-412.  
<http://www.cps.ca/english/surveillance/cpsp/studies/acute.htm>
- (2) Desai S. Acute Flaccid Paralysis. Canadian Pediatric Society 2010  
[www.cps.ca/english/surveillance/cpsp/studies/acute.htm](http://www.cps.ca/english/surveillance/cpsp/studies/acute.htm)
- (3) Canadian Pediatric Surveillance Program. Surveillance Studies in 2009/Acute Flaccid Paralysis. Canadian Pediatric Society 2009:16-18.  
[www.cps.ca/English/surveillance/CPSP/Studies/2009Results.pdf](http://www.cps.ca/English/surveillance/CPSP/Studies/2009Results.pdf)
- (4) Canadian Pediatric Surveillance Program. Surveillance Studies in 2008, Acute Flaccid Paralysis. Canadian Pediatric Society 2008:33-36.  
[www.cps.ca/English/surveillance/CPSP/Studies/2008Results.pdf](http://www.cps.ca/English/surveillance/CPSP/Studies/2008Results.pdf)
- (5) Canadian Pediatric Surveillance Program. Surveillance Studies in 2007, Acute Flaccid Paralysis. Canadian Pediatric Society 2007:19-22.  
[www.cps.ca/English/surveillance/CPSP/Studies/2007Results.pdf](http://www.cps.ca/English/surveillance/CPSP/Studies/2007Results.pdf)
- (6) Notifiable Diseases On-Line: Acute Flaccid Paralysis. Public Health Agency of Canada 2010 October 10.
- (7) Canadian Pediatric Surveillance Program. Acute Flaccid Paralysis Reporting Form. Canadian Pediatric Society 2010 January 7  
<http://www.cps.ca/English/Surveillance/CPSP/Studies/Questionnaire/AFP.pdf>