

PUBLIC HEALTH REFERENCE SHEET

Poliomyelitis



Name	Poliovirus
Reservoir & Transmission	Humans Person-to-person by fecal-oral route or droplets
Incubation Period	7–14 days on average for paralytic cases with a range of 3–35 days
Common Symptoms	<u>Non-paralytic Poliomyelitis</u> : sore throat, fever, tiredness, nausea, headache, stomach pain, without symptoms of paralytic poliomyelitis <u>Paralytic Poliomyelitis</u> : Acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss
Gold Standard Diagnostic Test	Culture
Risk Groups	Those not immunized, migrants, refugees, in settings with poor access to handwashing and sanitation
Geographic Significance	Most common in Afghanistan and Pakistan

What is polio?

Polio, or poliomyelitis, is a disabling and life-threatening infectious disease caused by the poliovirus, which infects a person’s brain and spinal cord, causing paralysis.

What is the occurrence of polio?

Poliovirus is no longer endemic in the U.S.; however, the disease still occurs in other parts of the world. One person with polio traveling from another country could reintroduce polio into the U.S.

How is polio transmitted?

The poliovirus only infects humans. It is very contagious and spreads through person-to-person contact, usually by oral-fecal route. The virus lives in an infected person’s throat and intestines. It enters the body through the mouth and spreads through contact with the feces of an infected person and, though less common, through droplets from a sneeze or cough. An infected person may spread the virus to others immediately before and up to 2 weeks after symptoms appear. The virus can live in an infected person’s intestines for many weeks. It can contaminate food and water in unsanitary conditions. People who don’t have symptoms can still pass the virus to others and make them sick.

Who is at risk for polio?

Individuals who are not immunized and those in settings with poor access to handwashing and sanitation are at increased risk of contracting polio virus.

What are the signs and symptoms of polio?

About 72% of people infected with poliovirus will not have any notable signs or symptoms. About 25% of people infected with poliovirus will have flu-like symptoms that may include sore throat, fever, tiredness, nausea, headache, and stomach pain, which may last 2 to 5 days, then resolve without treatment. A smaller proportion of people infected with poliovirus will develop more serious symptoms that affect the brain and spinal cord including meningitis and paralysis or weakness in the arms, legs, or both. A clinically-compatible case with neurologic deficit 60 days after onset of initial symptoms indicates a confirmed case of paralytic polio.

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What are potential complications of polio?

Paralysis is the most severe symptom associated with poliovirus as this can lead to permanent disability and death. Acute flaccid paralysis that may be caused by polio virus must be distinguished from other conditions such as Guillain-Barre Syndrome (GBS) or tick paralysis. Children who seem to fully recover can develop new or progressive muscle pain, weakness, or paralysis as adults, called post-polio syndrome. Between 2% and 10% of people who have paralysis from poliovirus infection die because the virus affects the muscles that help them breathe.

How is polio diagnosed?

Poliovirus can be detected in samples from the throat, feces, and occasionally cerebrospinal fluid (CSF), by isolating the virus in cell culture or by detecting the virus by polymerase chain reaction (PCR). The CDC laboratories conduct testing for poliovirus to include culture, intratypic differentiation, genome sequencing, and serology.

How is polio treated?

Currently, there is not a cure for paralytic polio. Treatment is for symptoms such as pain and fever, and intubation and mechanical ventilation is for patients with respiratory insufficiency. Physical therapy is used to reduce long-term neuro-muscular effects of polio.

How can polio be prevented?

There are two types of vaccine that can prevent polio. In the U.S., inactivated poliovirus vaccine (IPV) is given as an intramuscular injection in the arm or leg and can be combined with other immunizations. Throughout much of the world, live attenuated oral poliovirus vaccine (OPV) is still used, particularly in underdeveloped countries and in response to outbreaks. OPV provides a more effective intestinal immunity to polio virus but has a risk of reversion to disease causing “wild type” polio virus. OPV is no longer used or licensed in the U.S. Almost all (99%) of children who receive all recommended doses of polio vaccine will be protected from poliomyelitis. High vaccination rates are needed to sustain eradication of the disease.

What are some public health considerations?

- Specify the clinical form of the disease as non-paralytic or paralytic.
- Document relevant travel and deployment history occurring within the incubation period (3–35 days).
- Note the patient’s poliomyelitis immunization history.

References:

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<https://www.health.mil/Reference-Center/Publications/2022/11/01/Armed-Forces-Reportable-Medical-Events-Guidelines>

Heymann, David L. ed. 2022. *Control of Communicable Diseases Manual*. 21st Edition. Washington, DC: APHA Press.

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