NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
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Poliomyelitis
Frequently Asked Questions

1. What is poliomyelitis?

Poliomyelitis is a viral infection caused by poliovirus, belonging to the *Enterovirus* genus. Poliovirus is highly infectious; it invades the nervous system and can cause total paralysis in few hours. Poliovirus cases have decreased by more than 99% since 1988, from an estimated 350 000 cases a year in 1988 to 74 reported cases in 2015, worldwide. There are 3 strains of wild type poliovirus and all the 3 types causes paralysis. Wild poliovirus type 1 causes epidemics most frequently and is isolated from paralytic cases. The wild poliovirus type 2 has not been detected since October 1999, whereas wild poliovirus type 3 has been isolated less often in paralytic cases. The numbers of type 3 wild type poliovirus are also at the lowest. The reduction in the number of annual poliovirus cases reported globally is the result of the global effort to eradicate the disease. Paralytic polio cases due to outbreaks caused by circulating vaccine-derived poliovirus (cVDPVs) type 1-3 have been reported. Most cVDPVs are caused by type 2 poliovirus. Paralytic polio can also occur in association with vaccine (Vaccine-associated paralytic poliomyelitis) in vaccine recipients or their healthy contact at an estimated rate of approximately 1 in 2.5 million doses administered or 1 in 800, 000 first vaccinations.

2. Who can get poliomyelitis?

Poliomyelitis remains primarily a disease of infants and young children. It mainly affects children under 5 years old. The high risk groups are those who refuse immunisation, migrants, refugees, people living in areas that are in close geographic proximity to endemic countries and those that are inaccessible due to insecurity. The at risk population in South Africa are those who live in remote area that are difficult to access as they are in deep rural, mountainous areas with poor or no roads and have isolated communities; those who live in the inner city slums, informal settlements, nomads and high mobility groups; those who live in farm as the farmers may not release workers to take children for routine health services and those who live in provinces bordering neighbouring countries.

3. Where does poliomyelitis occur in South Africa?

The last confirmed case of wild type poliovirus in South Africa was in 1989. Based on the country reported South Africa presented to the Africa Region Certification Commission (ARCC) in 2006, the ARCC concluded that South Africa is free of indigenous poliovirus transmission. However, the risk of importation still remains high due to continued transmission in other countries, the high degree of movement and migration of people to South Africa and the sub-optimal immunisation coverage and surveillance indicators in some districts. There are three countries with poliovirus transmission that never stopped, that is Afghanistan, Parkistan and Nigeria. Nigeria reported three laboratory confirmed wild poliovirus type 1 case between July and August 2016 detected at Borno State in children between 2 and 5 years of age.

4. How is poliomyelitis transmitted?

Poliovirus is transmitted primarily by person-to-person spread mainly through the faecal-oral route. In rare occasions, the virus may spread by common vehicle such as contaminated water, food or other materials. The

incubation period is commonly 7-14 days for paralytic cases but a range of 3-35 days has been reported. The virus multiplies in the intestine and will be shed in the faeces. Transmission is possible for as long as the virus is excreted. The virus persists in the throat for approximately 1 week and in faeces for 3-6 weeks. Cases are most infectious during the days before and after onset of symptoms.

5. How does poliomyelitis affect animals?

Poliovirus is strictly a human pathogen, and does not naturally infect any other species (although chimpanzees and Old World monkeys can be experimentally infected).

6. What are the signs and symptoms of poliomyelitis in humans?

Initially, patients with poliomyelitis presents with non-specific symptoms such as fever, fatigue, headache, vomiting, sore throat, lethargy. If the disease progress, severe muscle pain, stiffness of the neck and back, and pain in the limbs with flaccid paralysis may occur. Globally, 1 in 200 infections leads to irreversible flaccid paralysis, usually paralysis of the legs, when the virus enters the central nervous system and replicates. An estimated 5-10% of those paralysed die when the breathing muscles are immobilised. Paralysis of respiratory and swallowing muscles can be life threatening. Majority (about 72%) of patients are asymptomatic.

7. How is poliomyelitis diagnosed?

A definitive laboratory diagnosis requires isolation of poliovirus from patient stool samples, cerebrospinal fluid or oropharyngeal secretions. Specialised laboratory methods can be used to differentiate “wild” from “vaccine-derived” and vaccine virus strains. Rises in antibody levels (>4fold) are less helpful in the diagnosis of wild poliomyelitis infection.

8. How is poliomyelitis treated?

Currently there is no cure for poliomyelitis but the disease can be prevented. Treatment during acute illness to complication of paralysis requires expert knowledge and equipment, especially for patients who need respiratory assistance. Physical therapy is used to attain maximum function after paralytic poliomyelitis and can prevent other deformities that occur as late manifestations of the illness.

9. How is poliomyelitis prevented?

Poliomyelitis can be prevented by vaccination. South Africa provides routine vaccination for poliovirus in the Expanded Programme on Immunisation (EPI-SA). Previously, polio vaccine was given at birth and at 6 weeks of age as a trivalent oral polio vaccine (tOPV), which is a live-attenuated poliovirus containing all the 3 serotypes (type 1-3). In April 2016, South Africa changed from a tOPV to a bivalent oral polio vaccine (bOPV) as part of the Global Polio Eradication Initiative Endgame Strategic Plan. The bOPV contains only serotype 1 and 3. In the revised EPI-SA childhood immunisation schedule from December 2015, OPV is given at birth and at 6 weeks of age as a hexavalent vaccine (hexavalent vaccine contains DTaP-IPV-Hib-HBV).

10. Where can I find more information?

Medical/clinical related queries: NICD Hotline +27 82 883 9920 (for use by healthcare professionals only).
Laboratory related queries: Centre for Vaccines and Immunology Laboratory: +27 11 386 6536.
Results inquiries: NICD Specimen Receiving Laboratory: +27 11 386 6404. Or Centre for Vaccines and Immunology Laboratory: +27 11 386 6536.
Guidelines and other documents: NICD website at www.nicd.ac.za under the ‘Diseases A-Z’ tab.