

## Frequently asked questions

***The World Health Organization (WHO) launched its global polio eradication initiative in 1988. Polio cases have been reduced by virtually 85% since the inception of the initiative.***

## General

***What is poliomyelitis (polio)?***

Polio is an infectious disease caused by a virus. The disease can strike at any age, but affects mainly children less than three years of age. Polio infection causes paralysis which is irreversible.

***What causes polio?***

Polio is caused by infection with any one of three closely related polioviruses (types 1, 2 or 3). The virus usually enters through the mouth and then multiplies in the intestines.

***What are the main symptoms of polio?***

Initially, minor symptoms occur that are common to many diseases e.g. fever, fatigue, headache, vomiting, stiffness in the neck and pain in the limbs. In those cases where paralysis develops (only one case in 200 or more infections), onset is rapid, progressing in a few hours to complete loss of motion, most often in the legs. 5-10% of polio cases die from respiratory insufficiency due to paralysis of the respiratory muscles.

***How is polio transmitted?***

Polio is transmitted from person to person through fecal-oral contact. Transmission is most intense under where population density high and sanitation levels are low.

***How can polio be treated?***

There is no cure for polio. The only treatment is supportive and symptomatic, and involves physiotherapy to strengthen and train other muscles. If respiratory difficulties develop, temporary respiratory support through assisted breathing may become necessary.

The only effective preventive action is to immunize children against polio. All children should be fully immunized against polio by the end of their first year of life.

***How many cases of polio still occur?***

In 1997, approximately 5000 cases were reported. In 1988, when the polio eradication initiative began, the number of polio cases reported was over 35 000; since then, numbers of reported cases have dropped by virtually 85%.

***Where is polio still present?***

The main areas where polio is still widely endemic are South Asia and Sub-Saharan Africa. Polio has already been eradicated from North and South America, most of North and Southern Africa, almost all countries of Eastern and Western Europe, China, and South East Asia.

## Frequently asked questions

### Polio eradication

#### ***When and why did WHO launch the polio eradication initiative?***

The World Health Assembly in 1988 launched the polio eradication initiative as a result of the successful global eradication of smallpox and set a goal of complete eradication by the year 2000

#### ***Why can polio be eradicated?***

There are several reasons why polio can be eradicated:

- There are no known, long-term human, animal or insect carriers of the disease.
- The virus can only survive for a very short time in the environment.
- There is a cheap, effective vaccine which can be given orally - oral polio vaccine (OPV) – and usually produces lifelong immunity to polio.
- There is social and political commitment to achieve polio eradication.

#### ***How is polio being eradicated?***

The eradication strategy being used worldwide today was initially developed in the Americas. WHO is now recommending this four-pronged strategy:

- a) **routine immunization** - ensure that every child born is routinely immunized against childhood diseases, including four doses of OPV, within the first year of life;
- b) **National immunization Days** - organise special campaigns (national immunization days – NIDs, sub-national immunization days – SNIDs), to provide supplementary immunization against polio to every child aged under five years, irrespective of previous immunization status; NIDs are usually needed for at least 3-5 years in a polio-endemic country;
- c) **surveillance** - establish efficient surveillance for all cases of acute floppy paralysis (AFP) to detect and investigate all new polio cases;
- d) **“mopping up”** - use house-to-house “mopping up” immunization campaigns, to halt virus

circulation during the final phase of the eradication effort.

#### ***Can polio be eradicated by the year 2000?***

Based on the rapid progress achieved to date, the World Health Organization believes that poliovirus circulation can be interrupted in all remaining areas of transmission by the end of the year 2000. This can only be achieved if strong political commitment must be maintained, and sufficient funding and technical support ensured.

#### ***How strong is the political commitment to eradicate polio?***

The World Health Organization is fully committed to the eradication of polio, as are its more than 170 member states and its partners. National and local governments in polio-endemic countries demonstrate their ongoing commitment, by devoting often scarce resources to National Immunization Days and surveillance systems. Funding from an increasing number of partner organizations and many non-endemic countries ensures that the campaign will continue until the successful eradication of polio.

#### ***Will there be a need to continue immunization after polio is eradicated***

As in the case of smallpox eradication, it is anticipated that immunization against polio can eventually stop worldwide, with enormous savings resulting from no longer having to immunize all infants. However, immunization must continue even after the last virus is found; immunization against polio will probably stop by 2010.

#### ***Have any diseases already been eradicated?***

The World Health Organization launched the smallpox eradication programme in 1967. At that time, some 10-15 million cases of smallpox were reported each year. By 1979, the eradication of the disease was completed. There is an ongoing initiative to eradicate guinea worm (onchocerciasis).

## Frequently asked questions

### Polio eradication

#### **Which vaccines against polio exist?**

Two different vaccines exist: oral polio vaccine (OPV) developed by Dr. Albert Sabin and inactivated polio vaccine (IPV) developed by Dr. Jonas Salk.

#### **What is the difference between OPV and IPV?**

Oral polio vaccine (OPV) is a live attenuated (weakened) poliovirus that is given by mouth to stimulate the immune system. It produces antibodies in the blood and in the lining of the intestines, the primary site of poliovirus multiplication in the case of infection ('gut immunity'). OPV is relatively cheap (current price is around 8 US cents per dose when purchased by national governments through UNICEF) and does not have to be administered by a trained health worker.

Inactivated poliovaccine (IPV) is a killed poliovirus that is injected and produces protective antibodies (defense) in the blood. It must be administered with sterile equipment by a trained health worker. IPV does not produce 'gut immunity' and is less effective compared to OPV in interrupting the transmission of wild poliovirus. IPV is more than four times as expensive as OPV.

#### **How much polio vaccine is used worldwide each year**

More than 1 billion doses of OPV are administered worldwide each year, of which one billion are administered during National Immunization Days (NIDs), the biannual mass campaigns conducted to eradicate polio in addition to routine immunization

#### **Which vaccine does WHO recommend?**

WHO recommends OPV as the vaccine of choice for the eradication initiative since OPV interrupts transmission much more effectively than IPV. WHO's goal is to completely eradicate polio by the year 2000 and this can only be done with OPV.

#### **Why does WHO recommend OPV?**

WHO recommends OPV for the polio eradication initiative because:

- a) it is effective in preventing polio;
- b) its cost is low and therefore OPV is accessible to resource-poor countries;
- c) it provides gut immunity (IPV does not);
- d) OPV is easily administered, as drops, by volunteers and does not require highly trained health workers.

#### **Can OPV cause polio paralysis?**

In extremely rare cases (one in 2.5 million doses of oral polio vaccine) OPV can result in a polio-like illness ('vaccine-associated paralysis') because OPV consists of attenuated, live viruses. This risk is well known in all countries using OPV, and is far outweighed by the benefits of preventing thousands of polio cases every year. Although this risk does not exist for IPV, global eradication cannot be achieved with IPV.

**Frequently asked questions****Benefits of the polio eradication initiative*****How is the polio eradication initiative structured***

The World Health Organization works closely with national Ministries of Health, UNICEF, other international organisations, government agencies and private sector partners, through Interagency Coordinating Committees (ICCs). The ICCs ensure that there is transparency throughout the global polio eradication initiative.

***How is the polio eradication campaign financed?***

The polio eradication campaign is funded by WHO, member states, national governments and independent third party organizations involved in development work. National governments of polio-endemic countries pay for 50-80% of all costs within their own countries. UNICEF and the US Centers for Disease Control and Prevention have led the technical partnership, while Rotary International has been an instrumental partner in terms of funding, advocacy and volunteers. Other major partners in the polio eradication initiative are government agencies in Australia (AusAID), Canada (CIDA), Denmark (DANIDA), Germany (KfW), Japan (JICA), the United Kingdom (DFID) and the United States (USAID).

***What will be the annual savings for national economies following eradication?***

WHO estimates that once polio is eradicated and immunization against polio can safely be halted, global savings from no longer having to immunize infants, or to treat or rehabilitate persons affected by polio will amount to over USD 1.5 billion per year.

***What are the additional benefits of an eradication campaign***

There are several additional benefits derived from polio eradication: improved healthcare infrastructure (especially in countries affected by conflict or civil strife), improved primary healthcare, better overall health surveillance systems, and good virology laboratory networks with up to date technology and trained staff. The systems put into place can be used for other healthcare initiatives.

***Does the polio eradication initiative interfere with other healthcare programmes***

No. On the contrary, there is increasing evidence that the polio eradication initiative strengthens other primary healthcare programmes, by improving primary healthcare structures, mobilizing communities around healthcare, improving laboratory and surveillance networks and strengthening the cold chain infrastructure.

***Is the polio eradication initiative a “vertical” effort?***

No. The initiative is implemented through the same health workers and infrastructures as other primary health care programmes. While the polio eradication initiative has a target date for eradication and certification, the systems within the campaigns must work will remain even after the target has been reached.

**At a Glance**  
**(30 January 1999)**

<b>Number of new cases of polio reported (in 1997)</b>	5196
<b>Number of new cases of polio reported (in 1998, to date)</b>	3624
<b>Probable actual number of polio cases occurring in 1997</b>	20-25'000
<b>Number of polio-related deaths prevented since the polio eradication initiative began (1988)</b>	100-200'000
<b>Number of people living with polio paralysis (estimated for 1998)</b>	10-20 million
<b>Number of new polio cases prevented since the polio eradication initiative began in 1988</b>	10-20 million <sup>1</sup>
<b>Number of children immunized during National Immunization Days (1997/98)</b>	10-20 million
<b>Largest number of children immunized during NIDs (in one day)</b>	134 million (India 1997)
<b>Largest number of children immunized during NIDs in Africa (in one day)</b>	20 million (Nigeria 1997)
<b>Number of supplementary doses of oral poliovaccine (OPV) administered through the polio eradication initiative</b>	>1 billion annually
<b>Areas where polio is still widely endemic</b>	South Asia, sub-Saharan Africa
<b>Number of polio-endemic countries (1998)<sup>1</sup></b>	<50
<b>Number of endemic countries when the polio eradication initiative began in 1988</b>	<100
<b>Main reservoirs / countries where poliovirus is still circulating widely (as of mid 1998)</b>	India, Pakistan, Nepal, Bangladesh, Democratic Republic Congo, Nigeria, Ethiopia
<b>Main countries afflicted by conflict where eradication is threatened</b>	Afghanistan, Angola, Liberia, Sierra Leone, Democratic Republic Congo, Tajikistan, Sudan, Somalia
<b>WHO regions and areas that are now polio-free following polio eradication effort</b>	The Americas (North and South America), Western Pacific Region including China, Eastern and Western Europe, parts of Northern and Southern Africa

**At a Glance**  
(30 January 1999)

<b>Number of virology laboratories in the Global Polio Laboratories Network</b>	133
<b>Number of WHO international staff dedicated to polio eradication/immunization (1998)</b>	88
<b>Number of countries that have ever conducted NIDs (as of Jan. 1999)</b>	113
<b>Countries that have not yet conducted full NIDs (as of Jan. 1999)</b>	Sierra Leone, Liberia, DR Congo
<b>Number of volunteers mobilized for NIDs worldwide (1998)</b>	10 million
<b>Number of immunization teams required for National Immunization Days (NIDs)</b>	1 team per 250 children
<b>Largest internationally coordinated immunization day</b>	Operation MECACAR – synchronised NIDs in 19 countries
<b>Additional intervention most frequently administered during NIDs</b>	Vitamin A drops, which can be administered orally
<b>Total funds required (est. 1999-2001)</b>	US\$ 700 million
<b>Funding shortfall (est. 1999-2001)</b>	US\$ 370 million
<b>Main technical partners</b>	CDC, Rotary International, Unicef
<b>Main funding partners</b>	AusAid, CDC, CIDA, DANIDA, DFID, JICA, USAID, KfW Rotary International, Unicef
<b>Funding received from partners (1998)</b>	US\$ 160 million
<b>Estimated annual savings once polio immunization is no longer necessary</b>	US\$ 1.5 billion
<b>Target date for certification of a “world free of polio”</b>	2005

## Chronology of the fight against polio

### 1998

- Dr. Gro Harlem Brundtland, Director-General of WHO, appeals to governments and donors to accelerate polio eradication.
- Polio cases have been reduced by 85% since 1998; polio is now virtually confined to South Asia and sub-Saharan Africa.
- Over 1 billion doses of OPV are given to children each year, of which 900 million are through NIDs. A Global Polio Laboratory Network of 133 facilities works in close collaboration with epidemiologists and collaborates to pinpoint the last reservoirs of poliovirus transmission.
- The Rotary International Network of Polio Eradication Advocacy Advisors expands to Europe and Asia.

### 1997

- An estimated 450'000'000 children under five are immunized, of which 250'000'000 are vaccinated during synchronized National Immunization Days (NIDs) in China, India, Bhutan, Pakistan, Bangladesh, Thailand, Vietnam and Myanmar. 134'000'000 children are immunized in one day alone in India.
- Second WHO Region becomes polio-free as the last case of wild-virus associated polio in WHO's Western Pacific Region is found in Cambodia on March 19, 1997.

### 1996

- Nelson Mandela officially launches the "Kick polio out of Africa" campaign.
- The Organization of African Unity (OAU) adopts the "Yaounde declaration of support" for the Expanded Programme on Immunization, including polio eradication.
- A record 420'000'000 children are immunized during National Immunization Days (NIDs) – almost two-thirds of the world's children under five years of age.
- A large polio outbreak in Albania, which had been free of wild poliovirus for 18 years, spreads to neighbouring countries, demonstrating the need to continue high quality immunization and surveillance worldwide.
- The last case of polio is identified in China.

### 1995-1997

- Operation MECACAR (Mediterranean, Caucasus, Central Asian Republics and Russia) is launched: NIDs are coordinated in 19 adjacent countries of the European and Eastern Mediterranean Region of WHO, immunizing more than 56 million children.
- Cease-fires are negotiated in Afghanistan for three subsequent years to allow children to be immunized during NIDs.
- In 1995, the first meeting of the Global Commission for the certification of polio eradication takes place. India organises its first NIDs, immunizing 87 million children.

### 1994

- North, Central and South America are certified polio-free by the Regional Polio Certification Commission.
- China launches its first NIDs, immunizing 80'000'000 children. Prime Minister Jiang Zemin personally administers polio vaccine to some of the children.

**Chronology of the fight against polio****1992-1993**

- Outbreak of polio among a population group refusing immunization in the Netherlands, proving that imported poliovirus still constitutes a threat wherever immunity levels are low, even in industrialized countries.
- The Global Polio Laboratory Network is formally established.

**1991**

- The last case of polio occurs in the Americas, involving a three-year old boy in Northern Peru.

**1990**

- World Summit for Children: WHO, UNICEF, partner organizations and the heads of state of many countries affirm their commitment to the eradication of polio.
- The Universal Childhood Immunization Initiative achieves its goal of 80% immunization coverage worldwide.

**1989-1990**

- Polio outbreaks in China; 5000 cases are reported.

**1988**

- The World Health Assembly resolves to eradicate polio globally by the year 2000. Initial funding partners are Rotary International and the Japanese and United States governments.
- Rotary International announces that the initial fundraising campaign to raise US\$120 million has raised US\$ 247 million.

**1985**

- Rotary International launches a campaign to raise US\$ 120 million to fight against polio, providing the necessary impetus to begin the polio eradication initiative.
- The Pan American Health Organization (PAHO) launches an initiative to eradicate polio in the Americas by 1990.
- In the same year, the Universal Childhood Immunization Initiative is launched, jointly with UNICEF and WHO, with the aim to reduce child mortality through effective immunization.

**Chronology of the fight against polio****1970S-1980S**

- Lameness surveys demonstrate that polio is widespread in many developing countries, leading to the introduction of routine immunization with OPV in many national immunization programmes.

**1974**

- The World Health Assembly passes a resolution to create the Expanded Programme in Immunization (EPI). EPI aims to build on the success of smallpox eradication and make immunization for children's diseases available worldwide.

**1961**

- Immunization campaigns in Cuba and in Eastern Europe demonstrate that wild poliovirus could be eliminated in large geographic areas, providing a basis for eradication.
- Dr. Albert Sabin develops the first oral vaccine against polio, OPV. OPV rapidly becomes the vaccine of choice for most national immunization programmes in the world.

**1955**

- Dr. Jonas Salk develops the first vaccine against polio, an inactivated (killed), injectable polio vaccine (IPV).

**1948**

- Thomas Weller and Frederick Robbins succeed in growing poliovirus in live cells. Six years later they receive the Nobel Prize for this work, which lays the foundation for the development of a vaccines against polio.
- The World Health Organization is established.

**1938**

- The National Foundation for Infantile Paralysis is established in the United States, later to become the 'March of Dimes', a fundraising organisation focused on research supporting the fight against polio.

**1931**

- Sir Macfarlane Burnet and Dame Jean MacNamara identify several types of poliovirus – Types 1,2, and 3.

**1916**

- An epidemic of polio ("infantile paralysis") breaks out in New York, heightening concern on both sides of the Atlantic and accelerating research into how the disease is spread.

## Chronology of the fight against polio

### 1908

- First hypothesis that polio may be caused by a virus, by Austrian physicians Karl Landsteiner and Erwin Popper.

### 1907

- Dr. Ivar Wickman, a Swedish pediatrician categorises the different clinical types of polio.

### 1894

- The first significant outbreak of “infantile paralysis”, subsequently identified as poliomyelitis, is documented in the United States.

### 1840

- Dr. Jacob von Heine conducts the first systematic investigation of poliomyelitis, for the first time developing the theory that the disease may be contagious. Von Heine’s treatments are used well into the 20th century.

### 1789

- Dr. Michael Underwood, a British physician, attempts the first known clinical description of polio, entitled “Debility of the Lower Extremities”.

### 1580-1350BC

- An Egyptian stele portraying a priest with a withered leg, leaning on a staff, suggests that polio has been endemic for thousands of years.

Polio  
E r a d i c a t i o n