

POLIO GLOBAL ERADICATION INITIATIVE

FACT SHEET: VACCINE-DERIVED POLIOVIRUS

Global efforts to immunise children with the oral polio vaccine (OPV) have **reduced wild poliovirus cases by 99.9%** since 1988. The vaccine is very safe and interrupts person-to-person spread of polio. However, on rare occasions, in under-immunised populations, the live weakened virus originally contained in OPV can mutate into circulating vaccine-derived poliovirus (cVDPV). As the world gets closer to ending transmission of wild polio altogether, the global polio programme will increasingly focus on eliminating the risk of cVDPV.



TYPES OF POLIOVIRUS	DEFINITION	RISK FACTORS	TO STOP TRANSMISSION	STRAINS	CASES IN 2016
WILD POLIOVIRUS (WPV)	Infectious virus that invades the nervous system. Can cause paralysis or death.	Low immunisation rates, poor sanitation, high population densities.	Increase immunisation rates with OPV.	Type 1: Caused 100% of 2016 cases Type 2: Eradicated in 1999 Type 3: Last seen in 2012	37
CIRCULATING VACCINE-DERIVED POLIOVIRUS (cVDPV)	Very rare, circulating virus genetically changed from the weakened virus originally contained in OPV, which can emerge under rare and specific conditions.	Low immunisation rates, poor sanitation, high population densities.	Increase immunisation rates with OPV.	Since 2000: Type 1: Causes 13% of cVDPV Type 2: Causes 86% of cVDPV Type 3: Causes 1% of cVDPV	5

ERADICATING POLIO FOR GOOD REQUIRES ELIMINATING BOTH WILD AND VACCINE-DERIVED POLIO

ONGOING

Continue to increase vaccination campaign quality and improve surveillance, the same tactics used to stop WPV.

COMPLETED

Switch from trivalent to bivalent OPV. Trivalent OPV contains weakened forms of all three strains of polio, including type 2. Wild poliovirus type 2 was eradicated in 1999. The weakened type 2 strain in trivalent OPV is no longer needed to protect children from wild polio, but causes nearly 90% of all cVDPV. In April 2016, all countries switched to bivalent OPV, which does not contain the type 2 component and will reduce the risk of cVDPV.

LONG-TERM

End all use of OPV after WPV transmission has been stopped. At that point, only IPV will be used to maintain population immunity levels.





POLIO VACCINES

OPV and IPV have important but distinct advantages, and **both vaccines are necessary to end polio for good**. Because OPV protects both the individual and the community, it is essential to stop wild poliovirus transmission. IPV is being introduced as part of preparations for OPV cessation and is vital to end polio once and for all.

As part of the **polio eradication endgame**, all countries will stop OPV use. At that point, only IPV will be used to maintain population immunity levels to sustain a polio-free world.

TYPES OF POLIO VACCINE

ORAL POLIO VACCINE (OPV)

INACTIVATED POLIO VACCINE (IPV)

	ORAL POLIO VACCINE (OPV)	INACTIVATED POLIO VACCINE (IPV)
CONTAINS	Mixture of live, weakened poliovirus strains. Trivalent OPV: All three poliovirus types Bivalent OPV: Types 1 and 3 Monovalent OPV: Any one individual type	Mixture of inactivated, killed strains of all three poliovirus types.
HOW IT WORKS	Body produces antibodies in the blood and gut in response to the weakened virus. Helps stop transmission by limiting the virus's ability to replicate in the gut and spread to infect others.	Body produces antibodies in the blood in response to the inactivated virus. Protects the individual, but the virus may still replicate in the gut and could spread to infect others.
ADMINISTRATION	Easy, oral administration can be conducted by volunteers and is part of many countries' routine immunisation programme. Used extensively in immunisation campaigns to root out poliovirus. Costs less than US\$0.15 per dose.	Vaccine injection is administered primarily through routine immunisation programmes by trained health workers. Per-dose cost starting at US\$1 for low-income countries, through Gavi-mechanisms.
USE	Extremely effective in protecting children from WPV and cVDPV. Nearly every country has used OPV to stop wild poliovirus transmission because it prevents person-to-person spread of the virus, protecting both the individual and the community.	Extremely effective in protecting children from polio disease due to WPV and cVDPV, but cannot stop spread of virus in a community.
CVDPV RISK	On very rare occasions, in areas with under-immunised populations, the live weakened virus originally contained in OPV can mutate and spread, causing cVDPV.	Cannot cause cVDPV.
VAPP RISK	Vaccine-associated paralytic polio (VAPP) occurs in approximately 1 in 2.7 million doses of OPV administered, usually at the first dose. There are no secondary cases or outbreaks associated with VAPP.	Cannot cause VAPP.