

Update on Pakistan Polio Eradication Initiative

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Background

The dream to see a future world free of poliomyelitis began to take shape in 1988 with establishment of a public-private partnership in the form of Global Polio Eradication Initiative (GPEI). This was the result of declaration of commitment by World Health Assembly (WHA) and included partners like World Health Organization (WHO), United Nations Children's Fund (UNICEF), Rotary International, US Centers for Disease Control and Prevention (CDC), Bill & Melinda Gates Foundation (BMGF) and Gavi, The vaccine alliance (previously Global Alliance for Vaccines and Immunization).¹⁻² In Pakistan, this initiative was led by the Government as Pakistan Polio Eradication Programme. The National Emergency Action Plan was coined [NEAP] to make policies and strategies to take this task further, in line with international requirements.³

At the time of GPEI establishment, there were more than thousand children a day who were being paralyzed worldwide by polio virus, with reporting of more than 350,000 annual cases. Since the inception of this initiative, polio incidence has fallen by 99% due to immunization offered to 2.5 billion children. This drastic fall in number of polio cases is the result of cooperation between more than 200 countries, involving a group of 20 million workers and funding of more than US\$ 11 billion.⁴

To date, the main achievement of GPEI is that out of the three known serotypes of polio virus (PV) two are not in circulation anymore. The last case of wild polio virus type 2 (PV2/WPV2) was in 1999 while its eradication was declared in 2015. Similarly, the most recent case of polio due to wild poliovirus type 3 (PV3/WPV3) was reported in 2012. However, wild polio virus type 1 (PV1/WPV1) transmission is still going on although its incidence has reduced to more than 90% as compared to year 2014.⁴

Current situation in epidemiological context

In Pakistan, there is the circulation of wild PV1 and of vaccine-derived polio virus strains (VDPV) due to usage of oral polio vaccine (OPV). Later are the poliovirus strains that have genetically mutated from the oral polio vaccine. In the month of April and May 2022, three cases of acute flaccid paralysis (AFP) due to wild PV1 have been reported from the same district in KPK province. These are first of the two cases seen after a 15-month gap. This has come as disturbing news for all stakeholders who are in the process of making polio affliction a history. For giving perspective to the readers, number of cases of both wild PV1 and VDPV reported over a period of 7 years is shown in Table 1 & 2.⁵

Final Comments

There are two countries where polio transmission has not ceased: Pakistan, and Afghanistan. The eradication of the last one per cent of polio cases has been a rather daunting task due to many challenges. Poor health infrastructure, conflict, political instability, hard-to-reach and populations-on-the move continue to pose challenges in eradicating the disease.⁶ It is important to understand that Pakistan and Afghanistan are considered one hub epidemiologically: Genetic sequencing of isolates and environmental sampling has revealed that there are two border crossing corridors from where the virus spreads.⁶ For both countries, the goal of eradication efforts must now be to focus on stopping transmission of the wild PV1 and secondly to stop outbreaks of VDPV. Three years are required before certification of eradication can be confirmed for a region if no detection of wild polio virus isolate has occurred through surveillance. The certification of cessation of strains from the OPV will need to be done separately. Therefore, time is of essence.

In Pakistan, polio eradication initiative has come to a point where hopefully it's not far from making polio extinct. However, continued and focused efforts are required in face of the real and complex challenges. The usage of tools and strategies that have resulted in success of GPEI Programme so far needs to be redressed as time frame shifts towards post-certification phase. Once completely eradicated, the risk of reintroducing poliovirus into communities is a real one and therefore stringent post-eradication and post-certification strategies need to be implemented side by side.

At the heart of this also lies the concept of global health equity so that no child rich or poor suffers from the disabilities of poliomyelitis. In Pakistan, we have to strive to ensure that children are not missing their immunizations and must be a part of the global end-game strategy to reap benefits of extinction of poliomyelitis. To sustain wild PV eradication status and put an end to VDPV circulation should be the final focus for policy developers.

Table 1: Wild Polio Virus cases across Pakistan's provinces

PROVINCES	2015	2016	2017	2018	2019	2020	2021	2022
Punjab	2	0	1	0	12	14	0	0
Sindh	12	8	2	1	30	22	0	0
Khyber Pakhtunkhwa	33	10	1	8	93	22	0	3
Balochistan	7	2	3	3	12	26	1	0
Gilgit-Baltistan	0	0	1	0	0	0	0	0
Azad Jammu-Kashmir	0	0	0	0	0	0	0	0
Islamabad Capital Territory(Ict)	0	0	0	0	0	0	0	0
Total Polio Cases	54	20	8	12	147	84	1	3

Table 2: Vaccine Derived Polio Virus cases across Pakistan's provinces

PROVINCES	2015	2016	2019	2020	2021	2022
Punjab			1	25	1	0
Sindh			0	45	2	0
Khyber Pakhtunkhwa	2		16	42	1	0
Balochistan		1	0	23	4	0
Gilgit-Baltistan			4	0	0	0
Azad Jammu-Kashmir			0	0	0	0
Islamabad Capital Territory(Ict)			1	0	0	0
Total Polio Cases	2	1	22	135	8	0

Conflict of Interest: (The author is a member of the Pakistan National Certification Committee (NCC) for polio eradication under the auspices of the World Health Organization)

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