

# The global polio eradication initiative in Pakistan: Lessons learnt and prospects for success

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**Cite this editorial as:** Naseem S. The global polio eradication initiative in Pakistan: Lessons learnt and prospects for success. *JSTMU*. 2019; 2(2):45-46.

**Keywords:** Poliomyelitis, GPEI, OPV, IPV

Poliomyelitis commonly called polio is a highly infectious disease caused by three sero types of polio virus 1, 2 and 3, which attacks the nervous system.<sup>1</sup> The virus is transmitted mostly through feco-oral route, less often it is transmitted through polluted food or water. Since there is no treatment or cure to poliomyelitis, this disease can be prevented only. The World Health Assembly in 1988 set the target to eradicate polio globally by the year 2000 through multiple doses of childhood vaccinations that protect a child for whole life.<sup>2</sup>

The global polio eradication initiative partnership was launched in 1988 and is led by five organizations: World Health Organization, United States Centers for Disease Control and Prevention, United Nations Children's Fund, Rotary International, and the Bill and Melinda Gates Foundation. This program follows four strategies: routine infant immunization, supplementary immunization activities (SIAs), in at-risk middle- and low-income countries, surveillance for acute flaccid paralysis (AFP), and mop-up campaigns.<sup>3</sup>

Two types of polio vaccines are available; live attenuated oral polio vaccine (OPV) and injectable inactivated polio vaccine (IPV). Efficacy of OPV is affected by enteric pathogens which has high prevalence in Pakistan, this raises concern regarding its use locally.<sup>4</sup> Since the overall cost of IPV is far more than OPV, therefore IPV was not added to the program until 2015. The WHO Strategic Advisory Group of Experts (SAGE) on immunization recommended introduction of  $\geq 1$ IPV dose into the EPI schedule. In Pakistan, one dose of IPV is given at 14 weeks of age in addition to OPV at birth and

6, 10, and 14 weeks of age.<sup>5</sup> The primary objective of the National Emergency Action Plan for polio eradication is to protect children from polio-paralysis, this focusses on a four-pronged strategy.<sup>6</sup>

- Routine immunization: accelerated catch-up activities using IPV in areas at risk and across the country
- Supplementary immunization: rapid response with at least two rounds of mOPV2 in areas with confirmed cVDPV2 circulation; and, strategic use of IPV in high risk areas
- Communication: focused on risk mitigation and in support of routine immunization
- Surveillance: enhanced early detection

High Risk Areas Affected by the Poliovirus have been divided into 4 tiers. These include Tier 1 with 11 core reservoirs in which the goal is to interrupt persistent local transmission using multiple strategies. Tier 2 with 30 high risk districts with a goal to Interrupt virus transmission, and if transmission is ongoing, decrease vulnerability. Tier 3 includes 32 vulnerable districts with a goal to decrease vulnerable districts, while Tier 4 has 79 low risk Districts and has a goal to maintain high population immunity.<sup>6</sup> Till the end of 2019, wild type 1 poliovirus (WPV1) disease is confined to two neighboring countries, Pakistan and Afghanistan. The number of cases has declined from 306 in 2014 to 54 in 2015, 20 in 2016, 8 in 2017 and 12 in 2018. So far in 2019, 136 cases have been reported including 92 cases from Khyber Pakhtunkhwa (KPK), 08 cases from Punjab, 11 cases from Baluchistan and 25

cases from Sindh province. As of 2020, only one case of WPV1 has been reported in KPK in Pakistan.<sup>7</sup>

### CHALLENGES TO ERADICATION<sup>2,6,7,8</sup>

1. Lack of internal political stability and commitment.
2. Lack of stability in this geographical region.
3. Religious and cultural opposition, resulting in lack of social mobilization.
4. Poor Quality campaign.
5. Community based immunization through workers with minimal incentive and life threat due to lack of appropriate security.
6. Surveillance gaps leading to virus circulation in the local environment.
7. Slow response to outbreaks.
8. Low OPV efficacy resulting from lack of maintenance of cold chain.
9. Hostility towards western funded projects due to repeated neighborhood western intrusion and anti-west feelings.
10. Extensive internal population.
11. Single epidemiological block of Pakistan and Afghanistan favoring vector transmission across borders.

A Cross border collaboration is needed to eradicate the epidemic of poliomyelitis in the two countries. This can be achieved through improving the current strategies and implementing strict surveillance while intensifying the health education and awareness campaigns.

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