

Role of Global Alliance for Vaccines and Immunization (GAVI) in Accelerating Inactivated Polio Vaccine Introduction

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Global Alliance for Vaccines and Immunization (GAVI, the Vaccine Alliance) is an international organization built through public-private partnership. GAVI has supported more than 200 vaccine introductions in the last 5 years by financing major proportion of costs of vaccine to 73 low-income countries using a co-financing model. GAVI has worked in close co-ordination with Global Polio Eradication Initiative (GPEI) since 2013, to strengthen health systems in countries so as to accelerate introduction of inactivated polio vaccine (IPV). GAVI is involved in many IPV related issues like demand generation, supply, market shaping, communications, country readiness etc. Most of the 73 GAVI eligible countries are also high priority countries for GPEI. GAVI support has helped India to accelerate introduction of IPV in all its states. However, GAVI faces challenges in IPV supply-related issues in the near future. It also needs to play a key role in global polio legacy planning and implementation.

Keywords: GAVI, the Vaccine Alliance, Global Polio Eradication Initiative, IPV.

Global Alliance for Vaccines and Immunization (GAVI, the Vaccine Alliance) is an international organization, which was created as a public-private partnership. GAVI brings together United Nations Children's Fund (UNICEF), the World Bank, the vaccine manufacturers from resource rich and resource poor countries, donors from the resource rich countries, and representatives from governments of the low-income countries across the world and Civil Society Organizations (CSOs)[1]. Since its inception in 2000, GAVI's support has contributed to the immunization of an additional 500 million children in low-income countries and has averted 7 million deaths due to vaccine preventable diseases. GAVI has supported more than 200 vaccine introductions and campaigns in low-income countries during the 2011-2015 period [1].

The mission of GAVI is "Saving children's lives and protecting people's health by increasing equitable use of vaccines in lower-income countries" [1]. GAVI is dependent on the effectiveness of the countries health-system to deliver life-saving vaccines, thus GAVI supports countries to strengthen country health system by proving health system strengthening (HSS) grants. Both GAVI and GPEI have committed to strengthen immunization programs to introduce IPV and withdraw oral polio vaccine (OPV) as per the Polio Eradication Endgame Strategic Plan 2013-2018 [2]. The GAVI board and GPEI recognized the synergies to work together and

developed common goals, objectives, oversight mechanisms, accountability mechanism and common program management as shown in *Fig. 1*.

Basis of GAVI support to Countries. GAVI invites applications for support from governments of those countries whose gross national income per capita is below GAVI's eligibility threshold, this threshold was US dollar 1580 in the year 2015 [3]. Based on the eligibility threshold, 73 countries are eligible for GAVI support. GAVI purchases vaccines through UNICEF, and provides them to governments whose applications are approved [3,4].

GAVI ALLIANCE COMPLEMENTS POLIO ERADICATION EFFORTS

The overall objective of GAVI's engagement with polio eradication is a complimentary approach to the GPEI, which is "to improve immunization services in accordance with GAVI's mission and goals while supporting polio eradication by harnessing the complementary strengths of GAVI and GPEI in support of countries" [5].

The most important issues related to IPV introduction that GAVI is helping to resolve are: (a) demand, supply and market-shaping implications; (b) communications and country dialogue on IPV introduction; (c) IPV implementation including prioritisation of countries, country's readiness, and preparation for introduction, and

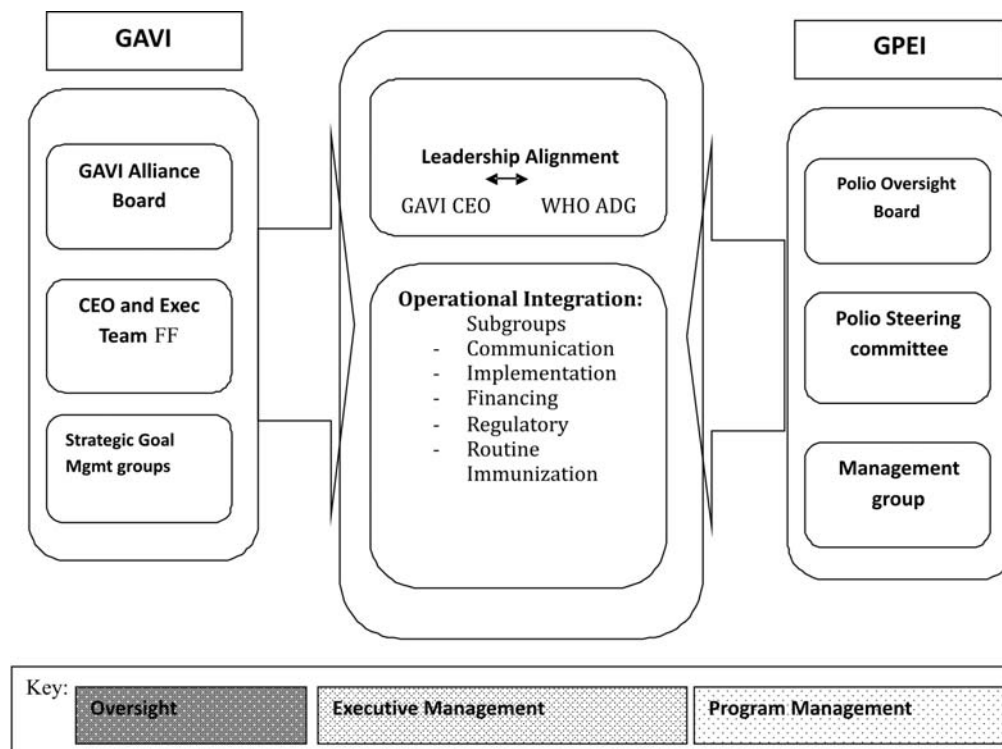


Fig.1 *GAVI's framework for co-ordination with Global Polio Eradication Initiative.

*Adopted from Document 11a-GAVI's complimentary role on Polio-approach available from http://www.polioeradication.org/Portals/0/Document/Resources/StrategyWork/PEESP_CH6_EN_US.pdf.

(d) initial projections of financial resource requirements [5].

GAVI's support to countries ensures that the countries with stretched and burdened healthcare and immunization systems receive technical assistance. To achieve this GAVI works with country partners WHO, UNICEF and CSO's to develop training material, train the healthcare workers to overcome communication challenges, develop immunization-tracking system, and strengthen cold chain and cold chain management capacity. GAVI has also encouraged countries to look at

IPV introduction in a larger global context of polio endgame strategy. GAVI has ensured that material and tools for the best practice for administration of multiple vaccinations are also provided to the countries with the help of UNICEF country offices.

For the introduction of IPV, GPEI has prioritized countries in four tiers, based on three criteria; endemicity of wild poliovirus, history of cVDPV emergence, and routine immunization coverage (**Table I**) [6]. Tier 1 contain the highest priority countries for IPV introduction

TABLE I PRIORITY OF COUNTRIES FOR IPV INTRODUCTION

Tier	Description of criteria	Number of countries	% of OPV birth control
Tier1	WPV endemic countries OR countries that have reported a cVDPV2 since 2011	14	61% (38% attributable to India and China.)
Tier 2	Countries who have reported a cVDPV1/cVDPV3 since 2001 OR large/medium2 sized countries with DTP3 coverage <80% in 2009,2010, 2011 as per WUNIC	19	11%
Tier 3	Large/ medium2 countries adjacent to Tier 1 countries that reported WPV since 2003 OR countries that have experience a WPV importation since 2011	14	11%
Tier 4	All other OPV only using countries	77	17%

and include the endemic countries. All tier 1 countries except China are GAVI countries. Most tier 2 countries are also GAVI eligible countries. The concentration of GAVI countries in tiers 1 and 2 affirms the importance of GAVI policies, which incentivize rapid introduction [6].

IPV Introduction in India

India has always been special for GAVI because with a birth-cohort of almost 27 million, India is the most populous GAVI-eligible country [7]. Also, India still accounts for one-fifth of child deaths worldwide and more than a quarter of all under-immunised children in GAVI-eligible countries [7]. India remains eligible for GAVI support based on its GNI level [7]. Yet, given the large birth cohort of the country, GAVI has limited its support to catalytic funding to India. Until 2011, there was a limit placed on GAVI support to India, which was removed with the condition that the Board continues to review any new support case-by-case [7].

The National Technical Advisory Group on Immunization (NTAGI), the apex body for decision-making on immunization related issues in India, recommended a comprehensive IPV introduction plan to the Government of India (GoI) [8]. India applied for funding to GAVI in September 2014, for the period of September 2015 to 2018 at an estimated cost of US dollar 160 million. In November 2015, India launched IPV in six states and has recently expanded it to all states and Union Territories [9].

Health System Strengthening (HSS) Support to India

GAVI has disbursed US dollar 30.6 million for the IPV introduction and US dollar 107 million in the year 2014-15 [10]. The grant has been focused by GoI for use in 12 states and 127 underperforming districts and is synergistic to Mission Indradhanush [10]. Specifically, the grant has been used to strengthen the cold chain management. To enhance human resource capacity, National cold chain vaccine management resource center has been established in New Delhi [10]. National cold chain training center has been strengthened in Pune [10]. In 20 districts across UP, MP and Rajasthan, electronic vaccine intelligence network (eVIN) has been implemented to enable real time information on cold chain temperatures, vaccine stocks and flows [10]. To increase demand for routine vaccination, National behavioral change and communication (BCC) strategy has been developed and immunization messages have been developed and broadcast through mass media [10]. The National monitoring and evaluation plan for immunization has been drafted and monitoring and evaluation of routine immunization is currently

functional in 24 of the 36 states across India [10]. Two rounds of survey for National Immunization Coverage Evaluation have been done in 2015. This evaluation will further identify low performing districts for routine immunization coverage [10]. Guidelines for tagging high-risk low coverage areas have been developed along with WHO India National polio surveillance program (NPSP) [10].

Financing the Polio End Game Globally

Globally, US dollar 11 billion have been invested in the GPIE since its inception in 1988 [2]. A total of US dollar 5.5 billion are being invested for the polio eradication and endgame strategic plan [2]. An investment of US dollar 5.5 billion today in polio eradication is expected to yield up-to US dollar 40 to 50 billion in additional net benefit in subsequent 20 years for the world's poorest countries [11]. The bases of calculation for these gains are from avoided treatment costs and productivity gains [11]. Today, more than 10 million people are walking who would otherwise have been paralyzed by the poliovirus [12].

CHALLENGES FOR THE FUTURE

There have been challenges in the availability of IPV because of which 28 countries had to delay their planned dates to introduce IPV. In eight countries, the IPV introduction was delayed to after the trivalent to bivalent OPV switch, after April 2016. It is expected that supply constraints will remain till end of 2018 because of two main reasons: firstly, delays in the manufacture production scale-up due to technical reasons; and secondly, increased use of IPV in campaigns [9].

Globally there is a need to plan for the "polio legacy". The term "polio legacy" refers to the investments made in polio eradication that can be shifted to meet other crucial health goals [13]. Strengthening health systems to increase coverage levels in routine immunization to more than 85% for DPT3 in all districts across countries globally, including India, is one of the most important challenges. Strengthening systems to introduce IPV will also catalyze the delivery of other lifesaving vaccines like pneumococcal, rotavirus and human papilloma virus which are in line to be introduced in National immunization schedule by GAVI support [7]. One practical programmatic problem, which India avoided, was shortage of cold chain space as it introduced IPV in states where pentavalent vaccines were already introduced. From scientific point of view, we need more research into economic aspects of the vaccination program including impact of new vaccine introduction, cost of delivering a vaccine in rural, urban and tribal

areas, methods to evaluate vaccine effectiveness and decision tools for policy makers. From a practicing pediatrician point of view we need to ensure that a child that is eligible to receive polio should not leave a clinic without receiving a polio vaccine.

Funding: None; *Competing interest:* NT is GAVI Board member representing civil society organizations and AP is special advisor to NT.

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