Government of the People's Republic of Bangladesh
Ministry of Health & Family Welfare

Polio Transition Plan Bangladesh

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ENDORSEMENT OF THE POLIO TRANSITION PLAN BANGLADESH

The polio transition plan was prepared through a series of consultative meetings and workshop with participation of relevant government agencies and departments including programme management and monitoring unit (PMMU), Institute of Epidemiology, Disease Control and Research (IEDCR), Expanded Programme on Immunization (EPI), Institute of Public Health (IPH) and developmental partners such as UNICEF, WHO and USAID. The final draft polio transition plan was discussed in the inter-agency coordination committee meeting chaired by the Secretary of Health Service Division on 14 May 2018 held in the conference room of the MOHFW. The draft was approved by ICC.

EXECUTIVE SUMMARY

The Expanded Programme on Immunization (EPI), Bangladesh was launched on 7 April 1979. In 1985, the Government of Bangladesh (GoB) committed to the Universal Child Immunization (UCI) initiative and intensified delivery of six basic vaccines (BCG, DPT, OPV and measles). Since 2003, several new vaccines have been introduced into routine immunization. It is estimated that the EPI programme has resulted in preventing 2 million deaths during the period up to 2000, and a further 200,000 deaths per year since then. As a result, the EPI is considered one of the most highly visible and successful public health programmes in the country and a source of great pride to the nation.

41st World Health Assembly adopted the resolution for worldwide eradication of poliomyelitis in 1988. Since then the global incidence of polio has reduced by more than 99%. Number of polio endemic countries has declined from 125 to three. Until poliovirus transmission is interrupted in these countries, all countries remain at risk of importation of polio.

Bangladesh launched the polio eradication activities by conducting first polio immunization campaign in 1995. Between 1995 and 2014, during 21 national or sub-national campaigns a more than 986 million doses of OPV were administered to children under the age of 5 years.

While the polio vaccination campaigns were highly successful from the very beginning, AFP surveillance conducted through existing health system in early years of polio eradication was not of requisite standard as evidenced by low level of surveillance indicators. Without strong surveillance system it would neither be possible to detect ongoing chains of polio transmission nor to measure progress on polio eradication. To address this weakness, Surveillance Medical Officer (SMO) network was established in 1999 with support from Global Polio Eradication Initiative and WHO. Main task of the SMO network was to assist the government in polio eradication efforts, such as AFP surveillance, training, planning, monitoring of supplementary immunization activities and routine immunization. Later, surveillance of measles-rubella, NNT, JE, AEFI and other VPDs were integrated with AFP surveillance.

In 1995 the National Polio Laboratory (NPL) was established at the Institute of Public Health (IPH) to support polio laboratory diagnosis (and later, measles and rubella diagnosis) and is WHO accredited. This laboratory has been receiving considerable technical, logistics and operational support from GPEI and WHO.

During the past two decades SMO network successfully implemented AFP surveillance and other polio eradication activities and the AFP surveillance indicators were brought up to and then maintained at certification level. No wild poliovirus case was detected in the country while high level of AFP surveillance had been maintained since 2006. Bangladesh along with other Member States of WHO South-East Asia Region was certified polio-free in March 2014.

The Global Polio Eradication Initiative (GPEI) has begun to wind down its operations, especially in the countries/ Regions where polio eradication has been achieved. The GPEI support to Bangladesh is already on decline and will fully stop in 2019. In this connection transition planning is a critical part of planning for the country.

Transition planning is a process of analyzing the infrastructure, knowledge, and functions of the polio programme, and managing their scale down or transfer to other health programmes.

The polio transition plan was prepared through a series of consultative meetings and workshop with participation of relevant government agencies and departments including programme management and monitoring unit (PMMU), Institute of Epidemiology, Disease Control and Research (IEDCR), Expanded Programme on Immunization (EPI), Institute of Public Health (IPH) and developmental partners such as UNICEF, WHO and USAID. The final draft polio transition plan was discussed in the inter-agency coordination committee meeting chaired by the Secretary of Health Service Division on 14 May 2018 held in the conference room of the MOHFW. The draft was approved by ICC.

The Polio Eradication and Endgame Strategy identifies three main aims of transition planning:

1. *Sustain the polio free status*

Bangladesh government and GPEI partners recognizes the need to plan for some essential functions and activities to be incorporated into existing public health programs in order to keep the country polio-free.

2. *Transition polio assets to support other health priorities*

With support from GPEI, Bangladesh has developed an extensive infrastructure of national disease surveillance system, and a national polio and measles laboratory. It has built a team of skilled staff strong in technical area and in communication. The network has been instrumental in training thousands of community health workers, social mobilisers, and volunteers.

Cessation of GPEI support to Bangladesh programme presents a potential risk to these programmes, as they are vulnerable to the loss of support from the polio programme. Supported by immunization and health system partners, national planning process is underway to ensure that these assets are incorporated into wider health system and used for the achievement of broader health and development goals.

3. *Capture and transfer the lessons learned*

During implementation of polio eradication programme, the national programme has learned many valuable lessons on reaching hard-to-reach and high-risk populations, harnessing partnership and commitment to a cause, and other challenging areas. A key component of transition planning is to capture and share these lessons for the benefit of the broader development community.

Bangladesh, recognizing the importance of continuing the unfinished business of polio eradication before and after Global Polio Eradication certification, and of going forward for attainment of different Global/Regional goals of disease elimination and control, especially of VPDs, is committed to the protection of the polio programme assets in the country when GPEI support is withdrawn in 2019 in line with GPEI endgame strategic plan transition of polio functions, infrastructure and resources to wider immunization function.

Government of Bangladesh in coordination with the World Health Organization and other partners has proposed that the whole transition plan would occur in three phases with distinct set of objectives and actions. The phases corelate well with the available, committed or planned funding support from different sources.

Transition Phase 1 (2016-19): Integration of polio infrastructure, human resources, functions and assets with EPI with the objectives to complete stock taking of the polio programme assets and lessons learnt, merging of SMO and DIMCHO be merged into SIMO network managed by WHO, with new terms of reference which would contain routine immunization and other VPD surveillance responsibilities in addition to the previously assigned activities related to Polio (AFP surveillance, case investigation, follow-up and response).

Financial support for phase 1 was secured from GPEI and GAVI HSS2.

Transition Phase 2 (2019-2022): Integration of EPI functions with other priority public health programmes like Malaria surveillance, Kala azar elimination programme, Emerging and re-emerging infectious disease surveillance, and Public health emergency and response. SIMO network continues to be managed by WHO.

Transition phase 2 financing is planned to be obtained from GAVI HSS3 and Pooled fund (HNPSP 2017-2022)

Transition Phase 3 (2022-2026): Mainstreaming of functions and assets to government public health/IEDCR and EPI permanently from 2024 and completion by 2026 through creation of new posts (district public health specialist/ epidemiologist); gradual takeover of functions (1st year 25 districts, 2nd year 25 districts and 3rd year rest of the districts and city corporations).

Transition phase 3 financing is planned to be secured from pooled fund by incorporating it into HNPSP (2022-2027) and from GoB regular budget.

The annual budget for VPD surveillance and related activities and laboratory support, and the additional project cost for planning, monitoring and overseeing the polio transition is estimated to be US$ 3.5-4.0 million. This is only approximately 3% of the annual EPI financing and represent good value for the money spent. During 2020-22 part of the funding is expected to be supported through proposed new GAVI HSS3 agreement. However, with expected graduation to developing country from LDC in 2021, Bangladesh will no more be eligible for GAVI support. So, in 2022, the funding support for polio transition and for sustaining surveillance at the highest level following full transition will need to be identified/ earmarked from HNPSP.

The government has spelled out the need for inclusion of polio transition in the revised 4th HNPSP and in the 5th HNPSP. The SIMO network, function and assets will be fully transitioned to government health system by year 2026, in phased manner. For smooth transition capacity building of government staff will be implemented and closely supported and monitored.

Ministry of Health after discussion with partners in health and immunization has decided that the programme management and monitoring unit (PMMU) of the Ministry of Health will be the lead agency in planning and implementing polio transition plan with close collaboration and coordination with relevant departments/ programmes in the Ministry

(like IEDCR, Director Disease Control, EPI) and the developmental partners (UNICEF, USAID, DFID, WB, WHO and others). Interagency coordination committee on immunization (ICC) will act as overall monitoring and overseeing body.

The transition will start from 2024 in 25 districts, additional 25 districts in 2025 and in remaining districts and city corporations in 2026. Polio surveillance network built during the polio eradication programme implementation over more than two decades, the SIMO network will cease to function in 2027, but its legacy will remain.

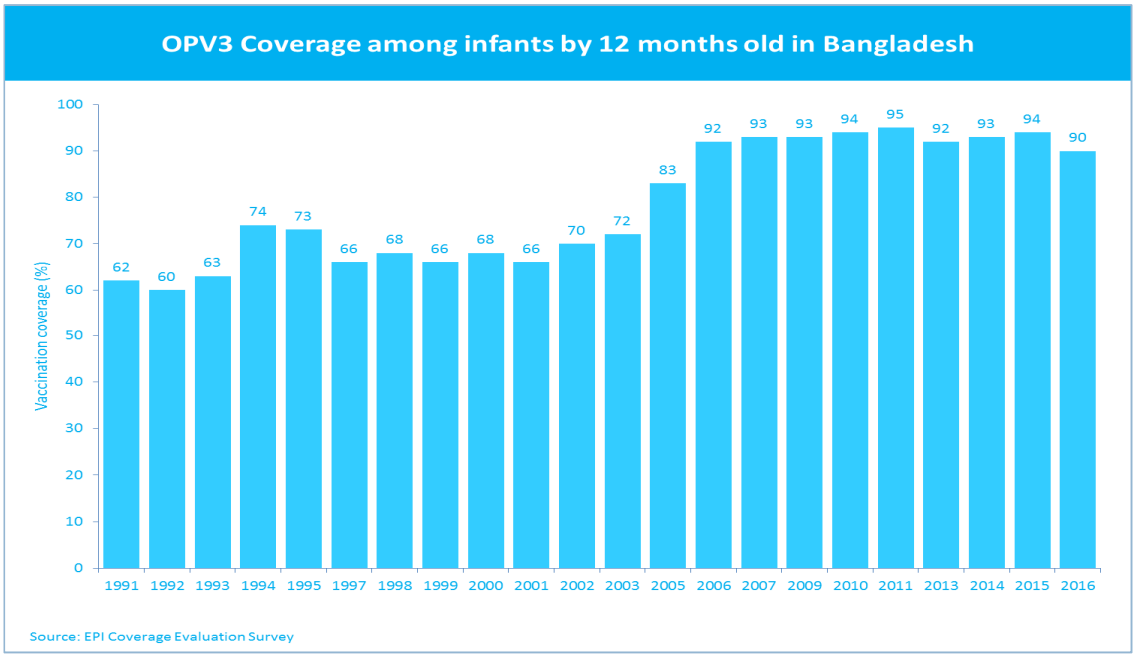
1. BACKGROUND

1.1. EPI AND ROUTINE IMMUNIZATION

The Expanded Programme on Immunization (EPI), Bangladesh was launched on 7 April 1979. In 1985, the Government of Bangladesh (GoB) committed to the Universal Child Immunization (UCI) initiative and intensified delivery of six basic vaccines (BCG, DPT, OPV and measles). A 5-dose schedule of tetanus toxoid (TT) for women of child-bearing age was included in 1993. Since 2003, several new vaccines [Hepatitis B, Haemophilus influenzae type b (Hib), Inactivated polio vaccine (IPV), pneumococcal vaccine (PCV) and rubella vaccine] have been introduced into routine immunization and measles second dose has been incorporated into routine immunization, as well. Since 2004, with the objective to increase injection safety, AD syringes have been introduced. It is estimated that the EPI programme has resulted in preventing 2 million deaths during the period up to 2000, and a further 200,000 deaths per year since then. As a result, the EPI is considered one of the most highly visible and successful public health programmes in the country and a source of great pride to the nation.

Vaccination coverage in Bangladesh is relatively high. MOHFW administrative data, which are highly consistent with annual coverage evaluation survey results, show that coverage with each of the six basic vaccines has exceeded 90% since 2005. Excluding invalid vaccine doses (doses given too early or with reduced intervals between doses), coverage survey results showed that valid vaccination coverage among children 23 months of age with each of the six basic vaccines was >90% in 2015, and 87% of those children had received all six vaccines. Furthermore, the survey showed that vaccination coverage was relatively homogeneous across all districts, in urban versus rural areas, and between boys and girls.

Graph 1: OPV3 Coverage among infants at their first birthday, Bangladesh, 1991-2016



The OPV3 coverage as per WHO-UNICEF estimate has been more 94% since 2005. All districts achieved >90% OPV3 coverage.

1.2. POLIO ERADICATION IN BANGLADESH

41st World Health Assembly adopted the resolution for worldwide eradication of poliomyelitis in 1988 following which, the Global Polio Eradication Initiative (GPEI) was launched. Since then the global incidence of polio has been reduced by more than 99%. Number of polio endemic countries has declined from 125 to three. Polio currently remains endemic in Afghanistan, Nigeria and Pakistan. Until poliovirus transmission is interrupted in these countries, all countries remain at risk of importation of polio, especially vulnerable countries with weak public health and immunization services and travel or trade links to endemic countries.

The government of Bangladesh joined global polio eradication efforts by conducting the first nationwide national immunization days (NIDs) among children <5 years of age in 1995. Between 1995 and 2014, 21 NIDs and SNIDs were successfully conducted in Bangladesh. A total of 986,192,046 doses of OPV were administered to children under the age of 5 years during NIDs/SNIDs.

Table 1. Oral polio vaccination coverage in children 0-59 months, NIDs/SNIDs, Bangladesh, 2007-14

Year	Activity	Target population (<5 years)	Date of 1st round	Date of 2nd round	1st round coverage (%)	2nd round coverage (%)
2007	NID	23,860,574	3-Mar-07	8-Apr-07	101	101
2007	SNID	1,865,659	20-May-07	1-Jul-07	101	101
2007	NID	23,918,744	27-Oct-07	8-Dec-07	102	101
2008-2009	NID	24,043,956	29-Nov-08	3-Jan-09	101	101
2010	NID	21,252,571	10-Jan-10	-	102	-
2010	NID*	20,924,847	-	14-Feb-10	-	100

2011	NID	22,151,269	8-Jan-11	-	102	-
2011	NID	22,320,803	-	12-Feb-11	-	101
2012	NID	22,019,556	7-Jan-12	-	101	-
2012	NID	22,073,699	-	11-Feb-12	-	101
2013	NID	20,530,418	21-Dec-13	-	101	-
2014	NID*	20,631,077	25-Jan-14	-	99	-

Source: WHO/UNICEF JRF, Bangladesh, 2015 *one dose given in conjunction with measles vaccine

Transmission of indigenous poliovirus was interrupted in 2000, but a wild poliovirus importation from India caused an outbreak of 18 imported and import-related cases in 2006. The outbreak was contained successfully through an aggressive response and no further cases have been reported to date. The last case of wild poliovirus was detected in 2006. Bangladesh was certified polio-free along with the rest of the WHO Southeast Asia region (SEAR) in March 2014.

1.3. AFP SURVEILLANCE SYSTEM

With launching of polio eradication initiative in the country in 1995, efforts were underway to establish a viable AFP surveillance system strong enough to detect chains of polio transmission and to document progress in polio eradication in the country. Initially the efforts were aimed to strengthen existing government system through assigning specific functional tasks to certain medical officers at the Upazila, district, municipality and city levels as surveillance focal points, providing them with extensive training on AFP and other VPD surveillance, especially on Maternal and Neonatal Tetanus (MNT) and Measles. Thousands of primary health care workers (HA and FWV) and community level key informers from different sections of the community were trained. The trained local surveillance officers (LSO) and hospital surveillance officers (HSO) were assigned to provide weekly surveillance report on AFP and VPDs, to conduct investigation of suspected AFP cases, sample collection and transportation to the national polio laboratory set up at the Institute of Public Health in Dhaka, outbreak response immunization and 60+ days follow-up of the AFP cases. However, the AFP surveillance in Bangladesh continued to remain below par as evidenced by low level of AFP surveillance indicators. The need was felt that Bangladesh deploy an additional team of staff to enhance surveillance performance that would be necessary to achieve polio eradication by 2000, the goal set by WHA.

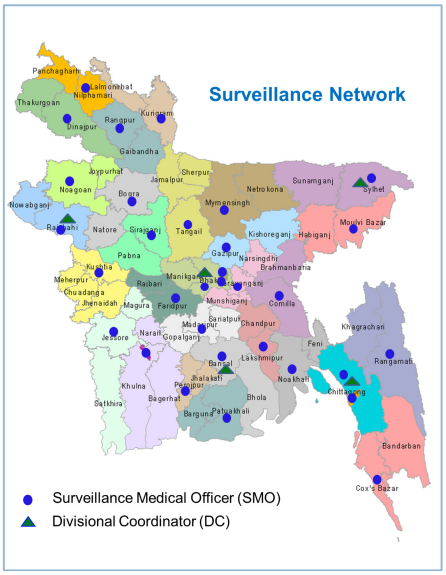
1.3.1 SURVEILLANCE MEDICAL OFFICERS NETWORK

With the objective to accelerate establishment of AFP surveillance at least at the required certification level, with technical assistance and financial support from the Global Polio Eradication Initiative (GPEI), Surveillance Medical Officers Network was established in 1997 that was a body implanted within WHO country office but worked in close collaboration and coordination with the national EPI.

Surveillance Medical Officers surveillance network was responsible to assist government in polio eradication efforts, such as maintaining sensitive AFP surveillance system and conduction of national immunization days (NID). Additionally, over the years, they have been supporting all EPI related activities including VPD and AEFI surveillance and routine immunization strengthening. The full range of functions carried out by the SMO network is described in the section below.

In 2016, there were 32 SMOs, 7 Divisional Coordinators (DC), 7 Project Facilitators and Drivers to support activities in the field. Each SMO and DC has a vehicle, office with required

equipment and logistics. Divisional coordinator acted as immediate supervisors of the SMOs in his division and maintains coordination and liaison with government officials at the divisional level and with partners.



1.3.2. DISTRICT MATERNAL CHILD HEALTH AND IMMUNIZATION OFFICERS (DMCHIO)

In 2002, additional workforce was recruited by EPI utilizing GAVI HSS1 support whose primary function was to support upazila and district health managers to strengthen routine immunization in the relatively low performing districts. They used to be called as District Immunization Medical Officer (DIMO). However, as required by the programme, the DIMOs also were assigned with responsibilities in the area AFP and VPD surveillance. Eventually the DIMO network and SMO network worked in the field as complimentary workforce to support full gamut of EPI functions.

In 2012, DIMOs were assigned additional responsibilities to support maternal and child health programmes, including promoting integrated child health management (IMCI); and their designation was changed to District Maternal Child Health and Immunization medical officer (DMCHIO). They worked closely with district health officials and their assistance has resulted improved maternal, child health and immunization services in the 32 districts.

1.3.4. LABORATORY NETWORK

In 1995 the National Polio Laboratory (NPL) was established at the Institute of Public Health (IPH) to support polio and measles laboratory diagnosis and is WHO accredited. NPL is functioning at the cost sharing basis; while structure and staff are supported by GoB, staff training, reagent and lab kits, equipment and cost of specimen transportation from the field are provided by GPEI through WHO. Since 2005, NPL took over the function of measles and rubella surveillance as well and has been re-designated as the National Polio and Measles Laboratory (NPML).

1.3.5. POLIO PROGRAMME FUNCTIONS

The key functions in which polio eradication resources have been invested over the years, in both polio eradication activities and in other areas of public health importance, may be summarized as follows:

- **Epidemiological surveillance**: playing a critical role in establishing technical standards for and implementing surveillance activities. These activities have been critical for:
    - maintaining sensitive AFP surveillance for polio eradication and detection of circulating vaccine derived polio (cVDPV);
    - monitoring possible poliovirus presence in the environment through environmental surveillance;
    - achieving measles elimination and rubella control goal by 2020 through supporting case-based surveillance, planning and conducting outbreak investigations and response, and supporting supplementary immunization activities;
    - achieving and sustaining elimination of maternal and neonatal tetanus (MNT);
    - surveillance, investigation and establishment of causation of adverse events following immunization (AEFIs)
    - surveillance of other VPDs including JE
    - providing support to laboratory for diagnostic, training and logistics
- **Strengthening routine immunization:** important role played through
    - supportive supervision and on job training of the vaccinators,
    - supporting preparation of immunization micro-plans,
    - checking quality of vaccines and cold chain at different levels, and
    - supporting follow up of children left out and dropouts
- **Supplementary immunization activities**: supported for successful completion of polio, measles-rubella and TT campaigns
- **Capacity building**: Training and orientation on surveillance and immunization related topics, like MLM, basic training etc
- **Introduction of new vaccines**: assisting in developing proposals for new vaccines, conducting consultative workshops, developing manuals/training materials, assessing for programmatic readiness, monitoring and assisting with training, and monitoring implementation.
- **Data collection and management for EPI monitoring and evaluation**: providing technical support for compiling and maintaining a national database for VPD and AEFI surveillance, participating in national coverage evaluation surveys, developing projections for logistical needs, maintaining diagnostic laboratory databases related to VPD surveillance, and assisting in preparing reports. assisting in providing training on Data Quality Self-Assessments (DQSAs); specifically, SMOs are responsible for conducting DQSA activities
- **Supporting health and immunization services for displaced population:** assisting diphtheria outbreak response and routine immunization service delivery in the Rohingya Refugee camps in Cox's Bazar.
- **Emergency preparedness**: participating in training for emergency preparedness, for example, for cholera and ebola. The SMO network had been consistently utilized in

different national emergencies and natural disasters like cyclones (e.g. Sidor and Ayala), Tsunami 2004, and floods in the past two decades.

- **Micro-planning**: assisting in developing micro-plan guidelines, facilitating training and orientation on developing micro-plans; specifically, SMOs assist in developing, reviewing and implementing micro-plans.
- **Effective Vaccine Management (EVM):** assisting in developing guidelines and standard operating procedures (SOPs) for EVM exercises, conducting training courses, completing the EVM assessment and improvement plan, conducting cold chain assessments; specifically, SMOs conduct EVM capacity-building in the field.
- **Quality assurance of routine EPI activities**: Specifically, SMOs interact with multiple levels of EPI staff in the course of conducting reviews, monitoring data quality, and providing technical training and orientation on an ongoing basis.
- **Estimating disease burden:** assisting in utilizing surveillance data to estimate VPD burden, for example, to contribute to the evidence to justify new vaccine introduction

1.3.6. SMO NETWORK EVALUATION

in 2016 there was an evaluation of the SMO network done by a team of international reviewers, including from Bangladesh. The evaluation report mentioned that there was an overwhelming commendation and appreciation of WHO's support and technical guidance in Bangladesh, not only for EPI activities, but also for other programs and activities which help support and strengthen the health sector overall.

The report also pointed out that SMO's presence and guidance as a convener and a facilitator of the GoB and international development partners has strengthened the health sector significantly and its absence, without replacement, would be a major detriment to the EPI and the public health infrastructure. The review recommended that WHO should continue to provide or enhance the current level of leadership to the EPI and the health sector of GoB and maintain the SMO program for at least the next 4-5 years, because at the current staffing levels, the frontline health workers at the Upazila level do not have the training and the capacity to take over the SMO functions.

1.3.7. POLIO SURVEILLANCE PERFORMANCE

Bangladesh has consistently maintained certification-standard AFP surveillance performance at national level (see Table 3). The critical indicator of surveillance sensitivity (detection of $\geq$2 non-polio cases per 100,000 population <15 years of age) has been maintained since 2002. Bangladesh has also established four permanent environmental sampling sites.

Table 2. AFP surveillance performance indicators, 2008-2017

Indicator	2008	2009	2010	2011	2012	2013	2013	2014	2015	2016
AFP rate	3.25	3.1	2.61	2.63	3.11	2.98	2.65	2.74	2.78	2.85
Non-polio AFP rate[1]	3.25	3.1	2.61	2.63	3.11	2.98	2.65	2.74	2.78	2.85
% adequate stool	92%	92%	94%	95%	95%	96%	96%	98%	97%	99%

specimen collection[2]										
% NPEV isolation	15.0	23.1	19.4	19.4	18.0	13.8	18.8	22.6	20.4	21
% timeliness of primary result reported[3]	100	95	97	98	93	88	97	97	98	96

[1] Number of discarded AFP cases per 100,000 children <15 years of age.

[2] Percent with 2 specimens, 24 hours apart and <14 days of paralysis onset.

[3] 2005 to 2007 result reported <28 days after sample received; 2008 onwards result reported <14 days.

Source: WHO/SEARO. EPI fact sheet, Bangladesh, 2016. New Delhi; August, 201

AFP surveillance was not a stand-alone system even at the onset, rather it was integrated with neonatal tetanus, measles and other vaccine preventable diseases surveillance. Later surveillance of rubella, congenital rubella syndrome, AEFI and acute encephalitis syndrome were added.

The table below shows status of measles surveillance in the recent years

Table 3. Measles surveillance performance indicators, 2012-2016

Indicators	Regional target	2012	2013	2014	2015	2016
Annualized reporting rate of discarded non-measles non-rubella cases per 100,000 population	>=2	1.9	1.1	1.4	1.8	1.9
Proportion of districts reporting at least 2 discarded non-measles non-rubella cases per 100,000 population	≥80%	30%	19%	19%	38%	44%
Percentage of suspected measles cases tested in a proficient laboratory	≥80%	81.2%	84.3%	89.8%	98.5%	99.7%
Percentage of suspected outbreaks fully investigated	≥80%	100%	100%	100%	100%	100%
Percentage of serum specimen received at laboratory within 5 days of collection	≥80%	99%	99%	99%	99.8%	99.4%
Proportion of results reported by the laboratory within 4 days of receiving the specimen	≥80%	32%	82%	99%	87.0%	94.4%
Timeliness of reporting	≥80%	85%	85%	89%	92%	97%
Completeness of reporting	≥90%	91%	91%	96%	97%	99%
Annualized incidence of confirmed measles cases per million population	<5	11.8	1.3	1.8	1.6	6.0
Annualized incidence of confirmed rubella cases per million population		20.2	19.3	2.4	1.2	1.0

Government of Bangladesh has formed several different technical committees to oversee and guide the polio eradication efforts in the country like National Committee for Certification of Poliomyelitis (NCCPE), National Expert Review Committee (ERC) and National taskforce for containment of poliovirus.

1.3.8. IMMUNIZATION FINANCING

EPI program in the country is implemented within the framework of Sector programs. Traditionally the EPI is funded by the government and development partners. Currently the EPI is implemented and financed within the framework of 4th HNPSP. More specifically the

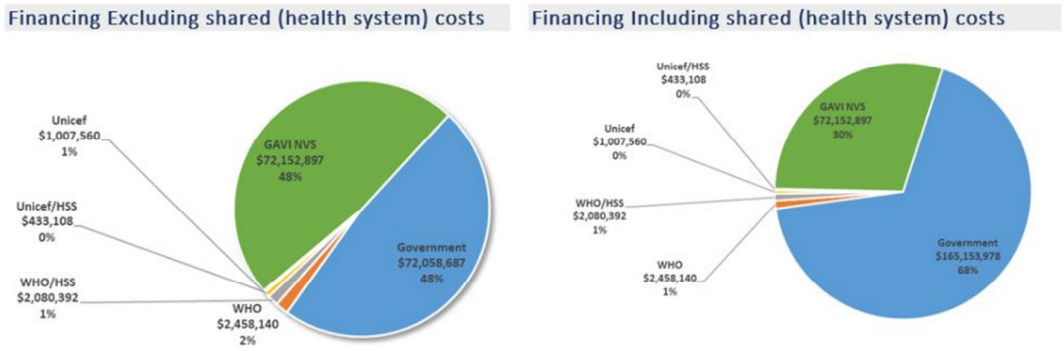
EPI is financed through the budget of Maternal, Neonatal, Child and Adolescent Health Operations Plan.

During the previous years, EPI operations were funded through direct funding to EPI and Development Partners, however with introduction of Sector Wide Approach, there were discussions to channel external assistance for EPI implementation through the pooled fund and utilize these funds through SWAp.

The results of costing and financing analysis of the cMYP 2018-2022 demonstrated high dependency of EPI on external resources.

In 2016 the Government was the major source of financing of the national immunization program accounting for 48% of all funds if shared health system costs are excluded and 68% if shared health system costs are included as shown in the figure below:

FIGURE: IMMUNIZATION FINANCING PROFILE – BASELINE YEAR



Source: Bangladesh cMYP 2018-2022

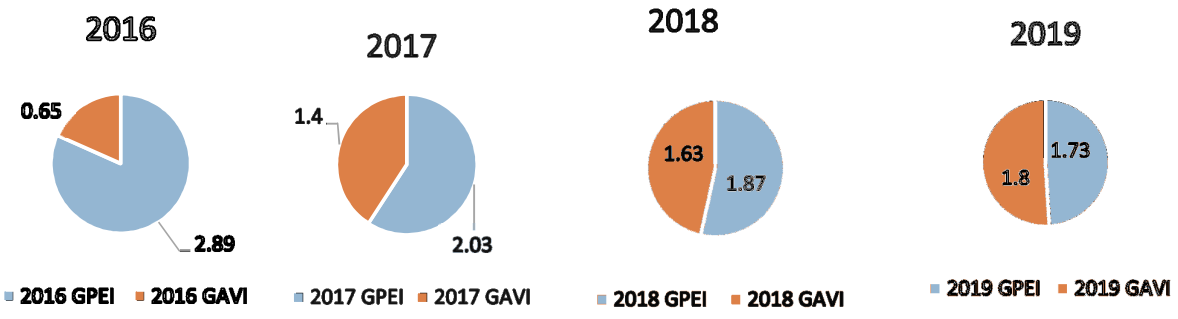
Gavi was the second major funding source in the baseline year. The contribution of Gavi for funding National EPI implementation was channeled through the different sources:

- Through its New Vaccine Support Program (NVS) Gavi provided 72.2 US$ (or 48% of all funding if the shared health system costs are excluded and 29% - if shared costs are included);
- Through Health System Strengthening Cash Support (HSS) Gavi provided 2.51 million US$ (or 1.67% of program costs, excluding shares health system costs).

WHO contribution accounted for 1.64% (or 2.5 million US$) of the total financing and Unicef - 1.39% (or approximately 1 million US$) of total financing in the baseline year (excluding shared health system costs).

Surveillance network supported by WHO has annual budget of 3.5 million USD. From 2016 the support from Global Polio Eradication Initiative has begun to decline gradually and will end in 2019; the deficit is being covered by GAVI HSS2.

The graph below shows the annual polio and VPD surveillance costs (in million USD) from 2016- 2019 with source of funding. It is evident that with decline in GPEI support, GAVI support is increasing.



2. POLIO TRANSITION

2.1. WHAT IS TRANSITION PLANNING?

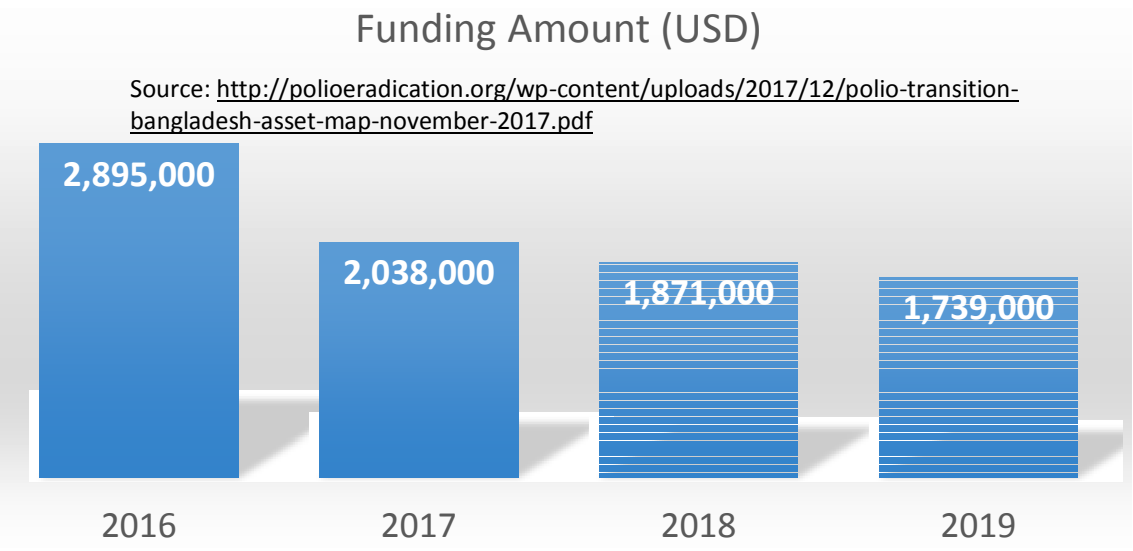
Transition planning is a process of analysing the infrastructure, knowledge, and functions of the polio programme, and managing their scale down or transfer to other health programmes. Transition planning is a critical part of preparing for the polio-free world.

Bangladesh was marked as one of the 16 priority countries during the period since polio eradication efforts were intensified by Global Partners under the banner of GPEI from 1995.

The Global Polio Eradication Initiative (GPEI) has begun to wind down its operations, especially in the countries/ Regions where polio eradication has been already achieved.

The graph below shows that the GPEI fund for Bangladesh from 2.9 million in 2016 will gradually decline to 1.7 million in 2019 and the support will stop after 2019. In this connection transition planning is a critical part of planning for the country.

GPEI Funding Ramp Down information



To protect the gains and achievements of the GPEI supported surveillance network, the expertise, infrastructure and functions of polio eradication in Bangladesh during the past two decades will need to be transitioned into broader health system of the country for its benefit.

Polio transition in rest of the world: Similarly, 16 priority countries in the world, including Bangladesh had set up polio surveillance programmes supported by GPEI and are also planning to phase out of polio surveillance in the respective countries. In the WHO South-East Asia Region four other countries are planning polio transition. Specific example is India, which has the largest polio surveillance network in the world.

Polio transition in India: India's overall strategy for the transition of polio-essential functions, is to build government capacity through 2021 while WHO and UNICEF gradually scale down operations to eventually transfer the functions to government.
Containment and polio laboratory costs were handed over to the government of India in

2014.
During the transition phase investigation of AFP cases is being transferred to the government with quality assurance from WHO SMOs.

WHO activities between 2018 to 2021 will be ramped down and completely phased out by 2026 with an overall budget of $96M. The country government will finance these activities starting from current 10% ($ 3/30m) to at least 40-50% ($ 8-10/20m) by 2019. UNICEF activities in 2018 are estimated to cost $12.2M for which the government will fund progressively until March 2018, then states to take over activities and funding.

2.2. POLIO TRANSITION IN BANGLADESH

Government of Bangladesh recognizes the need for integrating the structure and functions of the polio surveillance network, once the GPEI support ends, into its health system for protecting the achievements of the programme and sees this as an opportunity to strengthen the national disease surveillance system.

The Polio Eradication and Endgame Strategy identifies three main aims of transition planning:

1. **Sustain the polio free status until global eradication certification and beyond**

After polio has been eradicated, some activities and functions of polio eradication initiative will need to continue until Global polio eradication is achieved and beyond, in line with present and future recommendations of GPEI. These include:

- Proper containment of the virus in essential facilities so it isn't accidentally or intentionally released
- Disease surveillance, to rapidly detect the re-emergence of the virus
- Outbreak response capabilities, for quick and effective response to any polio events
- Continued vaccination, so that people are protected in the event of an outbreak
- A governance and management structure for these ongoing essential functions.

Bangladesh government and partners must plan for these essential functions and activities to be incorporated into existing public health programs in order to keep the country polio-free.

2. **Transition polio assets to support other health priorities**

With support from GPEI, Bangladesh has developed an extensive infrastructure of national disease surveillance system, and a national polio and measles laboratory. It has built significant expertise for capacity building. The network has been instrumental in training thousands of community health workers, social mobilisers, and volunteers.

This infrastructure already goes much further than polio eradication, supporting a wide range of health initiatives like routine immunization, measles campaigns, maternal and child health programmes, humanitarian emergencies and disease outbreak, and sanitation and hygiene programmes.

Cessation of GPEI support to Bangladesh programme presents a potential risk to these programmes, as they are vulnerable to the loss of support from the polio programme. Supported by immunization and health system partners, national planning process is underway to ensure the transition from polio effectively and avoid any negative impact on the achievement of broader health and development goals.

3. **Capture and transfer the lessons learned from polio eradication for benefit of other programmes**

During implementation of polio eradication programme, the national programme has learned many valuable lessons on reaching hard-to-reach and high-risk populations, harnessing partnership and commitment to a cause, and other challenging areas. A key component of transition planning is to capture and share these lessons for the benefit of the broader development community.

One of the components of the Polio Eradication and Endgame Strategy Plan 2013-2018 is to ensure the investments made in polio eradication provide public health dividends for years to come, by mainstreaming essential polio functions into ongoing public health programmes at the national and international levels, ensuring the transfer of lessons learnt to other relevant programmes and/or initiatives, and transitioning assets and infrastructure to benefit other development goals and global health priorities.

2.3. PROPOSED STEPS TO COMPLETE TRANSITION

Government of Bangladesh recognizes the importance of continuing function of the existing vaccine preventable disease surveillance (SMO) network that has grown up during the past two decades with support from global Polio Eradication Initiative. It also understands the role played by the SMO network in polio eradication, MNTE elimination, progress towards achieving measles elimination and rubella and congenital rubella syndrome control goal and strengthening routine immunization health system strengthening in the country. Government has also taken into account the need for continuation of high level of polio surveillance and other activities related to implementation of polio endgame strategy as recommended by GPEI till the Global polio eradication certification and beyond. Therefore, the government of Bangladesh has shown full commitment to go forward with polio transition plan.

This has been reflected in current HNPSP and in the Bangladesh Comprehensive Multi Year Plan on Immunization (cMYP) 2016-22. EPI activities are included in the Sector Program budget. Government has shown commitment to provide funding for EPI implementation, ensuring procurement of vaccines and other activities including surveillance.

Government of Bangladesh in coordination with the World Health Organization and other partners has proposed that the whole transition plan would occur in three phases with distinct set of objectives and actions. The phases corelate well with the available, committed or planned funding support from different sources.

a) **Polio Transition Phase 1 (2016-2019):** Integration of polio infrastructure, human resources, function and assets to EPI with the objectives to attain the followings-
   - Stock taking of the polio programme assets and lessons learnt
   - The SMO and DMCHIO be merged into SIMO network
   - Terms of reference of the SIMO network to contain routine immunization and other VPD surveillance responsibilities in addition to the previously assigned activities related to Polio (AFP surveillance, case investigation, follow-up and response)
   - Web based VPD surveillance management system to be developed and integrated with MIS (DIS2).
   - Laboratory functions- Upgrading, including partial set up of BSL3 facilities (to be completed by end 2018)
   - Financial support for phase 1 ensured from GPEI and GAVI HSS2

b) **Polio Transition Phase 2 (2020-2022):** Integration of EPI functions with other priority public health programmes
   - SIMO network carries out additional responsibilities related to other public health priorities beyond EPI such as
     - Malaria surveillance,
     - Kala azar elimination programme,
     - Emerging and re-emerging infectious disease surveillance, and
     - Public health emergency and response.
   - Government initiates creation of posts needed for the transition.
   - Preparations and operational planning for the final takeover of the functions and assets by government.
   - Financing- GAVI HSS3 and Pooled fund (HNPSP 2017-2022) along with GoB regular fund

c) **Polio Transition Phase 3 (2022-2027):** Mainstreaming of functions and assets to government public health and EPI permanently from 2025 and completion by 2026.
   - Creation of new posts (district public health specialist/ epidemiologist)
   - Gradual takeover of functions (1st year 25 districts, 2nd year 25 districts and 3rd year rest of the districts and city corporations).
   - Financing- HNPSP (2022-2027) pooled fund and partly from government regular budget.

3. FIRST PHASE TRANSITION OF POLIO SURVEILLANCE NETWORK TO WIDER EPI FUNCTION (2016-19)

The process of transitioning polio programme functions and assets to support wider immunization programme activities has been initiated in 2016 and has the full backing of MoHFW and partner agencies.

In this phase the stock taking of polio programme assets was done, steps were taken to integrate polio programme into wider EPI functions and lessons learned through implementation of polio eradication programme were documented.

3.1. POLIO PROGRAMME ASSETS

The polio programme assets in Bangladesh that were nurtured through direct support of GPEI and partners from 1995 were the following:

- Trained and dedicated manpower specially created to facilitate all facets of polio eradication programme, especially for building AFP surveillance system strong enough to detect chains of polio transmission and of the highest level necessary to substantiate absence of it when transmission is stopped; **Surveillance Medical Officers network.**
- Well- equipped laboratory with trained skilled manpower, accredited by Global Polio Laboratory Network capable of detecting different types of polioviruses, wild or Sabine or vaccine-derived; **National Polio Laboratory.**
- Polio eradication programme in Bangladesh from 1995 has developed a large section of volunteers at the community level that had been used as polio vaccinators, social mobilizers for NIDs/SIAs and key informants for AFP and vaccine preventable diseases surveillance. These **community level volunteers** would be valuable asset for future disease surveillance and public health response activities.

The functions of the SIMO network have had a broader impact than polio eradication, in particular in strengthening the EPI programme. An evaluation of the contributions of the SMO network to implementation of the national immunization program in Bangladesh was conducted in January 2016 an international evaluation team. The summary of findings was that, the effectiveness of the WHO SMO model has been established as an efficient approach to EPI activities and immunization outcomes and contributions of the WHO are critical to the effectiveness and success of the EPI. The WHO has played an important catalytic role in providing the technical corporation, coordination, training and leadership necessary to implement all the relevant activities in an efficient and timely manner. These activities include estimating the disease burden, performing surveillance, data collection, monitoring and evaluation, micro planning, data quality self-assessment, quality assurance, introduction of new vaccines and design and implementation of appropriate training.

3.2. LESSONS LEARNED AND BEST PRACTICES

The GPEI is the first public health programme to achieve universal coverage with the preventive strategy of vaccination coupled with the impact evaluation strategy of case-based epidemiological and laboratory surveillance. Extensive knowledge and experience accumulated through polio eradication activities have provided important lessons on how to reach every child, including the most underserved communities, migrants, nomads,

people living in conflict zones, and others marginalized by circumstances that prevent or impede access to health services. Many key lessons have been learned and best practices developed as a result, related to mobilizing political and social support, strategic planning and policy development, partnership management and donor coordination, programme strategies and operations, and oversight and independent monitoring.

Global immunization and health priorities have benefited from the accumulated knowledge and best practices on communication and community engagement, mobilizing social and community support for vaccination, and using a targeted disease elimination initiative as a platform for broader health communication. These lessons and experiences have been generated in the world's most densely populated developing countries, such as Bangladesh. Polio eradication efforts have demonstrated the value of an advanced, state-of-the-art global, regional, and national laboratory network for real-time disease diagnosis and response. In many countries, the experience and resources of networks developed and supported for polio diagnosis and response has already been applied to measles and other VPDs. In Africa, the use of polio-funded human resources, infrastructure, and experience with emergency operations was instrumental in stopping Ebola virus transmission. Furthermore, there are examples of best practices in programme monitoring and the use of accountability frameworks to assess performance in polio eradication, especially in complex situations.

Partnership coordination, advocacy, and resource mobilization have been essential to achieving polio eradication goals. The GPEI has assembled the largest and most committed global partnership led by global technical and donor agencies, which have worked in coordination to overcome the many challenges the initiative has faced. This global public health partnership is in an ideal strategic position to move forward on other global health challenges, especially the elimination and/or eradication of other communicable diseases.

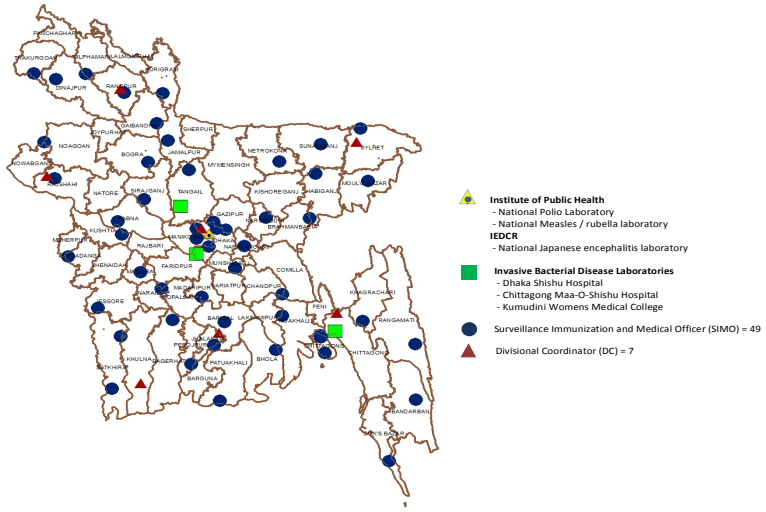
When Bangladesh reached zero polio cases in 2000, on the request of the government the role of SMO surveillance network expanded. Surveillance of measles and rubella, neonatal tetanus and other VPDs was integrated with AFP surveillance. The polio eradication programme has contributed significantly in EPI programme in Bangladesh. Bangladesh achieved MNT elimination in 2008, reduced mortality and morbidity from measles and rubella, introduced new vaccines into routine immunization, introduced AD syringes in RI and improved immunization coverages.

3.3. SURVEILLANCE AND IMMUNIZATION MEDICAL OFFICERS (SIMO)

In early 2017, during implementation of the first phase of polio transition, as agreed by the government and WHO, the DMICHO functions were integrated with SMO. The title of SMO was changed to "Surveillance and Immunization Medical Officer (SIMO)" to underscore broader immunization role in addition to surveillance. WHO and the government agreed to increase the number of SIMOs from 32 to 64 (32 SMO+32 DMICHO) and use GAVI-HSS2 funds to support funding of SIMO network for 3 years (July 2016- July 2019).

The SIMOs are evenly distributed all over the country; number of SIMO positions created is 64 one each per district. Each SIMO and their immediate supervisor Divisional Coordinator (DC) have a vehicle with a driver assigned to them for the ease of undertaking extensive travel necessary to conduct the activities timely.

Network of Surveillance & medical officers and laboratories for VPD surveillance



3.4. WIDER EPI FUNCTIONS ASSIGNMENT TO SURVEILLANCE NETWORK

The government recognized that there was a very good opportunity of utilizing the available trained manpower and the system created by polio eradication programme, the SIMO network for the following important public health activities:

- Continuing the unfinished business of polio eradication including maintaining strong AFP surveillance through Global Certification of Polio Eradication and beyond and implementation of polio endgame strategies;
- Maintaining strong VPD surveillance, especially in relation to sustenance of MNT elimination status and achievement of Regional goal of measles elimination and rubella control by 2020;
- Scaling up of Universal Health Coverage;
- Strengthening other public health initiatives like malaria control, Kala azar elimination; and
- Implementing surveillance of emerging and re-emerging infectious diseases and integrated disease surveillance programme (IDSP).

Therefore, the plan was to provide the SIMO network with the above-mentioned responsibilities, keeping it under WHO management till mid 2019 utilizing the resources available from GPEI and GAVI; and gradual takeover of the SIMO functions by the government.

3.5. POLIO PROGRAMME FINANCING DURING FIRST PHASE

The current annual surveillance cost, after implementation of phase 1 Polio Transition Plan that include human resources (HR), operations and training costs for surveillance network

and laboratory support cost, is around 3.5 million USD. The breakdown of the annual cost is provided in the table below:

Table 4: Current annual cost of SIMO network*

Item	Current cost (USD)
Surveillance network(SN)-HR	1,986,718
SN Operations cost	951,552
SN Trainings	210,000
Sub-total for surveillance network	3,148,270
Lab support (LS)- Reagents and kits	173,708
LS Operations	40,965
LS Transport cost	189,290
Sub-total for lab support	403,964
Grand total annual cost	**3,552,234**

**Data source: WHO biennial budget 2018-19*

Up to 2019, the fund has been secured to support the surveillance network from GAVI HSS for human resources and surveillance operational cost. Laboratory support is provided mostly through WHO SEARO using GPEI funds.

3.6. POLIO TRANSITION PHASE 2 (2020-2022)

Phase 2 has two distinct objectives; to continue the surveillance functions with wider responsibilities by the SIMO network managed by WHO and to initiate the preparatory work for final transition during phase 3.

3.6.1. PHASE 2 SURVEILLANCE FUNCTIONS

The SIMO network will continue in its present form. Integration of EPI functions with other priority public health programmes to be included.

In addition to the present surveillance and immunization related activities, SIMO network will be used to cover wider range of communicable disease surveillance responsibilities, which are enlisted below. In essence, SIMOs will assume the responsibilities of District Epidemiologists, even before the posts are created for the same. **The revised terms of reference** of the SIMOs would be as below:

- Ensuring high quality of AFP and Vaccine preventable disease surveillance including measles, rubella, CRS, AES/ JE, MNT, IBD, other VPD and AEFI surveillance, Specimen collection, storage and transportation to national laboratory, etc.
- Promoting and supporting high level of routine immunization; and
- Supporting supplementary immunization activities including outbreak response immunization, as and when required.
- Surveillance of malaria, which has emerged as a major activity in the context of its possible re-emergence due to climate change and also for attaining the goal of malaria elimination by 2030;

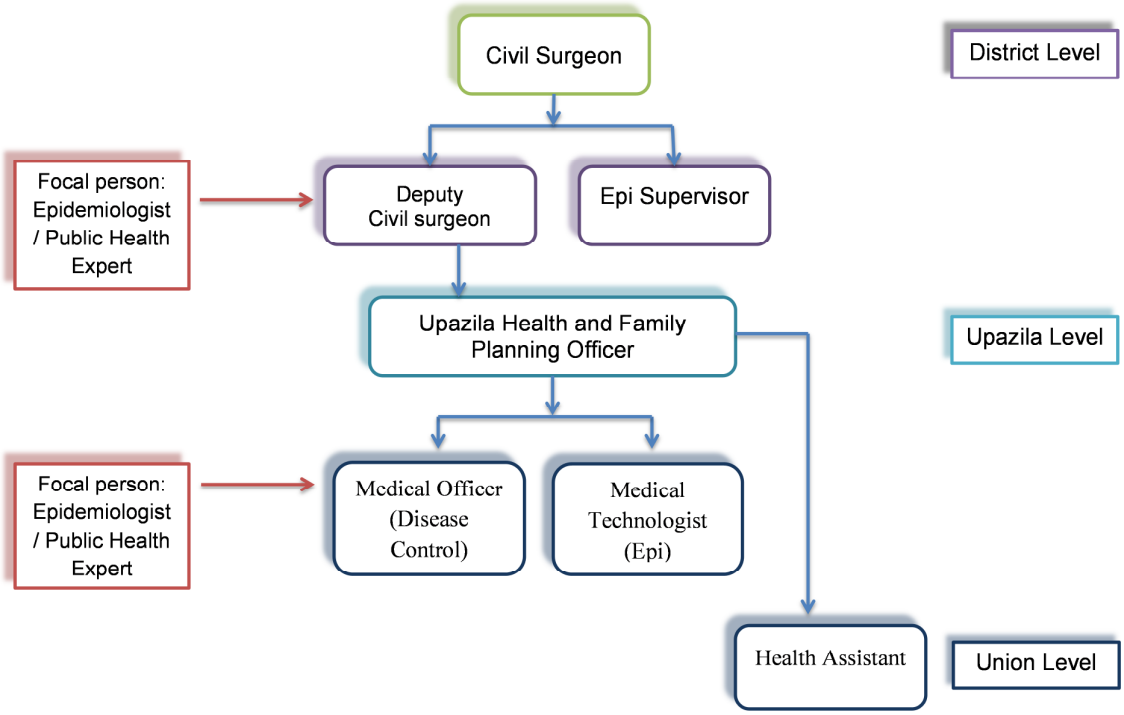
- Surveillance of Neglected Tropical Diseases, especially of Kala azar, as the SEAR countries including Bangladesh have set the goal of elimination of Kala azar by 2017;
- Surveillance of emerging and re-emerging infectious diseases, that will include, reporting and investigating any suspected infectious diseases and/or outbreaks, including diseases with pandemic potential;
- Emergency preparedness and response, especially the health response.
- Any other activities as assigned by DGHS, CDS and/ or EPI.

3.6.2. PHASE 2 PREPARATIONS FOR FINAL PHASE

For final takeover of the SIMO functions beyond phase 2, the following options were considered.

1. **Initiate establishment of a post of Public Health Specialist (PHS) or epidemiologist at the district level solely to oversee public health, surveillance and EPI activities –** Such person would have extensive training on epidemiology, EPI, planning, evaluation and monitoring skill and outbreak management. The person would have transportation and logistics support. The SIMO would closely work with this person for the next 2 year and transfer her/his skill on surveillance and immunization to PHS. The SIMO would only provide support to PHS, while full responsibility would be with the PHS.
2. **Modify role of existing Medical Officer Disease control (MODC) at upazila level -** The role current MODC could be modified with additional responsibility in area of public health, EPI and outbreak management. MODC could be trained on epidemiology and EPI activities, planning, data management, monitoring and other relate activities. MODC should not be involved in clinical services. He should be equipped with vehicles and required logistics for optimal functions.

Suggested focal person at district and upazila level



During 3rd phase, after the implementation of the decision of the government to create or modify existing position at district and upazila level a clear capacity building plan could be in place with timeline so that there would be no gap in surveillance and immunization activities after SIMO network closes. With the time, the number of SIMO would be reduced, and more responsibility would be taken by the position. All SIMO function, assets and logistics could be handed over to these new positions.

3.6.3. CHALLENGES IN IMPLEMENTING PHASE 2 TRANSITION PLAN

Creation of new positions of PHS at the district level need more time than anticipated earlier; and even when the positions are created, it would take a considerable amount of time to recruit and train the staff to take over the functions. So, the proposed PHS will not be available by end 2019 when the SIMO network was supposed to cease to function.

Past experience of endeavor to use the MODC or MOCS as disease surveillance focal point in AFP surveillance is not that encouraging, as this is just functional assignment and performance varies from person to person depending on the individual level of commitment. Moreover, these positions are usually occupied by junior doctors whose level of turnover is very high. This part of the transition option, therefore, has a little chance to be viable.

At the same time GPEI support is secured until end 2019 through GPEI and GAVI HSS, beyond which the programme needs could be met for next 3 years partially with GAVI HSS3, and the rest from other sources, preferably from 4th cycle of HNPSP. The best way of incorporating the support into HNPSP would be inclusion of the polio transition plan in the operational plan of 4th HNPSP during the mid-term review in 2019.

Taking all the points mentioned, government of Bangladesh decided that the polio transition beyond 2019 further be split into phase 2, that will be supported through GAVI HSS and HNPSP (4th cycle), and into phase 3 that will be implemented as incorporated in 5th cycle of HNPSP.

3.6.4. NATIONAL POLIO LABORATORY IN PHASE 2

National polio laboratory in IPH will continue to function as National Polio and Measles Laboratory (NPML). Environmental surveillance for poliovirus will continue. By mid 2019, the reconstruction of NPML with partial BSL3 will be completed. Laboratory surveillance for JE, AES and Invasive Bacterial diseases will continue through IEDCR laboratory.

Funding of NPML will be borne by GoB; HR cost is already under government regular budget, operational cost support (reagents, logistic, sample transportation, etc.) will be supported by pooled fund from HNPSP 2016-2021. Therefore, in essence, from mid 2019, NPL will be fully transitioned to the government.

3.6.5. VPD DATA MANAGEMENT SYSTEM

By end 2018, web-based vaccine preventable disease data management system development will be completed. During the 2nd phase, this system will be integrated into either DIS2 of HMIS or to Disease Surveillance System operated by IEDCR. In any case, EPI will have ready access to the generated data.

3.6.6. TRANSITION PHASE 2 COSTING

GPEI support will end in mid 2019 along with GAVI HSS2 support. Therefore, during phase 2 (2019-2021) the resources for running the VPD surveillance network will need to be secured from alternate source. It is planned that the costing will be shared between GoB Pooled fund from present cycle of HNPSP, that could be made available through inclusion of the item into operational plan that is scheduled to be revised in 2019.

The table below summarizes the proposed cost sharing between GAVI HSS3 and HNPSP during the phase 2 transition. GAVI HSS3 is expected to support mainly the human resources (HR) while HNPSP will support mainly the operational cost. It may be noted that gradual decrease in GAVI support is planned, so that by end of phase 2, the full support is planned in HNPSP. Bangladesh by 2021 is expected to graduate into a developing country from LDC, and thus will lose its eligibility of GAVI funding support.

Table 5. Proposed Cost sharing between GAVI and HNPSP 2020-2022 (Transition Phase 2)

Year	% of cost borne through GAVI HSS 3	% of cost borne through pooled fund (HNPSP)/ GoB
2020	80%	20%
2021	60%	40%
2022	40%	60%

3.6.7. FUNDING REQUIREMENT FOR POLIO TRANSITION PHASE 2

The annual budget for VPD surveillance and related activities and laboratory support, managed by WHO, is currently about US$ 3.5 million.

Considering the estimated rise in salary and other costs of the personnel, reagents and other items the following table shows the estimated costs for maintaining the surveillance network during 2020-22. Assumption is made that polio eradication status and current standard of surveillance will be sustained and there will be no major outbreaks of VPDs during this period.

Table 6. Estimated VPD surveillance cost, Bangladesh in USD (2020-2022)

Activities	2020	2021	2022
SIMO Network HR	1,986,718	2,046,320	2,107,709
Operations	951,552	951,552	951,552
Trainings	210,000	210,000	210,000
Lab surveillance cost	403,964	424,162	445,370
Total	**3,552,234**	**3,632,034**	**3,714,631**

In addition to the running cost for maintaining surveillance network, PMMU of MOHFW will need support to access consultant(s) service to facilitate the process of transition including preparing operational plans in HNPSP, follow-up on post creation, recruitment of the positions against created posts, organizing training for the new recruits and for coordinating government takeover of the polio surveillance assets. Estimated additional amount of US$70,000 per annum will be required for this.

Yearly total requirement for implementing the national polio transition plan phase 2, therefore, will be US$ 3.5-4.1 million, which is only about 3% of the present national immunization financing.

The following table shows the breakup of funds required during the phase 2 polio transition by possible source. It is clear from the table that funding from GPEI is NOT available during the third phase.

Table7. Polio and VPD surveillance estimated cost with sources (2020-2022)

Year	Amount in Million USD with Funding source			
	GPEI	GAVI*	GoB / Pooled Fund	Total
2020	0	2.85	0.71	3.56
2021	0	2.2	1.44	3.64
2022	0	1.5	2.22	3.72

*****_In case, GAVI HSS3 funds cannot be secured, GOB has to ensure the funds stated here either through additional support from pooled fund or from any other donor._

3.7. POLIO TRANSITION PHASE 3 (2022-2026)

Phase 3 of polio transition commences from mid-2022 along with the 5th HNPSP and is fully incorporated into it. The following are the characteristics of this phase:

- SIMOs perform wide range of functions along with usual polio and EPI functions, as per the revised TOR (section 3.6.3) but with gradual decrease in number of SIMOs aligned with the progress of assignment of newly recruited government positions;

- At the same time, the efforts are underway for creation, recruitment and training of new positions of district public health specialist/epidemiologist;
- Planning is done in a way that 25 districts would have the new positions filled up in 2024, another 25 districts in 2025 and rest districts and city corporations in 2026.
- There will be overlap of SIMOs with district public health specialists/ epidemiologists for six months for smooth completion of transition. So, in the first set of districts SIMOs will be withdrawn at the end of 2024, in the second in 2025 and in the rest of the country in 2026.
- By end 2026 all the polio surveillance network and assets will be handed over to government.
- The funding for the network will come fully from 5th cycle of HNPSP and the transition plan will thus need to be incorporated into it from the planning phase of it along with inclusion of the activity in operational planning with earmarking of the funds.

3.7.1. SURVEILLANCE IN CITY CORPORATIONS

Health service in the city corporations and in the municipalities is provided by the Ministry of Local Government and not by the Ministry of Health. Disease surveillance in the municipalities and smaller city corporations though is well managed through Civil Surgeons office at the districts or through upazila health complexes. However, in the larger city corporations, especially in Dhaka and Chittagong, disease surveillance system is more complex and even more compounded by presence of considerable number of private health facilities. Therefore, special considerations need to be provided to address the complexities in immunization service provision and surveillance network setting up in the large city corporations during polio transition process.

3.8. FUNDING REQUIREMENT FOR TRAMNSITION PHASE 3

The following table shows the estimated costs for maintaining the surveillance network during transition phase 3 (2023-26). Assumption is made that polio eradication status and current standard of surveillance will be sustained and there will be no major outbreaks of VPDs during this period and SIMO network reduction will start towards end of 2024 by 33% per year.

Table-10: Estimated VPD surveillance cost, Bangladesh in USD (2023-26)

Activities	2023	2024	2025	2026
SIMO Network HR	2,170,940	2,236,069	1,535,434	790,750
Operations	951,552	951,552	951,552	951,552
Trainings	210,000	210,000	210,000	210,000
Lab surveillance cost	467,639	491,021	515,572	541,350
Total	**3,800,131**	**3,888,641**	**3,212,560**	**2,493,652**

In addition to the running cost for maintaining surveillance network, additional amount of US$70,000 per annum will be required for supporting transition process.

Yearly total requirement for implementing the national polio transition plan in phase 3, therefore, will be US$ 2.5-3.8 million.

3.9. CONSIDERATIONS FOR ORGANIZATIONAL TRANSITION 2020-26 (PHASES 2& 3)

The following factors have been taken into account while considering optimum option for transition:

- Final goal of transition will be handing over all assets, functioning and expertise of polio surveillance network (SIMO network) to the government by 2026.
- All existing EPI functions need to be carried out at the present high level
- AFP surveillance to continue at certification level through Global Polio Eradication Certification and beyond
- Polio endgame strategy needs to be implemented as recommended by GPEI
- The surveillance network (both SIMO and/or newly assigned epidemiologists) should be able to carry out additional surveillance and disease control functions related to other disease surveillance and response activities.

Year	Amount in Million USD with Funding source				Transition phase
	GPEI	GAVI*	GoB /Pooled Fund	Total	
2020	0	2.70	0.85	3.55	Phase 2
2021	0	1.86	1.77	3.63	
2022	0	1.0	2.71	3.71	
2023	0	0	3.8	3.8	Phase3
2024	0	0	3.89	3.89	
2025	0	0	3.21	3.21	
2026	0	0	2.49	2.49	

3.10. POLIO TRANSITION FINANCING: HOW IT FITS INTO COUNTRY PLAN

Gavi alliance has committed a funding support of US$50 million for the new government Health, Population and Nutrition Sector Plan (HNPSP), designed for the five-year cycle July 2017 to June 2022, which will be administered directly by GoB using the World Bank pooled funding mechanism. This mode of support is also known as RPA mechanism and is intended to be utilized for supporting EPI. Negotiations are currently underway to obtain Gavi support of US$50 million for the same period to support project costs specifically to support EPI for similar activities under direct project aide (DPA) similar to HSS-2 and known as HSS-3. However, this proposed funding support from Gavi alliance has not yet been secured. It is also not clear till date how much of this IDPA funding will be awarded directly to GoB and how much to the developmental partners (WHO and Unicef) and to CSO. If

negotiated, this window of support may be available to cover polio transition from 2019-2021. In case the funding is not secured, Government of Bangladesh, will need to secure alternate source of funding to support functioning of the VPD surveillance network and the national polio and measles laboratory, as the GPEI support will be wined off towards the June of 2019. It may therefore, be pertinent to explore additional funds for this period from pooled fund or from other sources.

Bangladesh has been experiencing rapid economic growth and in March 2018 has been recognized to have fulfilled the criteria for graduating into lower-middle income status; and is expected to graduate to the status of lower-middle income country in another 3 years. Concurrently, it will cross the threshold for eligibility to receive further GAVI Alliance funding. At the present time, Bangladesh is classified as having entered a "preparatory transition" phase in which the country remains eligible to apply for funding through the HSS window until 2021. After that date, the country will likely begin the process of "graduating" from GAVI Alliance funding support and GoB will take full financial responsibility for all aspects of health service delivery.

In the long run, it is mandatory that GoB will continue to sustain all EPI-related activities, including the functions and assets inherited from the polio programme, which will be fully integrated into the national EPI programme, under the HNPSP. Therefore, it will be of utmost importance to incorporate all EPI related activities into the future cycles of HNPSP, with which the polio transition should be able to be completed. By this time Bangladesh should be able to create new positions of epidemiologists at the district level as has been proposed under the future surveillance roadmap drawn by IEDCR; district epidemiologist/PHS should then be able to take over all the functions carried out by the SIMOs in addition to the other disease surveillance programme.

4. COORDINATION

Although there is already some degree of integration of polio and EPI functions with the mainstream disease surveillance and disease control activities of the government, coordinated and well-planned steps like creation of new positions with inclusion of polio and EPI functions to the mainstream surveillance system will be required. It has been decided during the discussion between various government agencies and partners that to facilitate this process and to plan and implement the transition by 2026, Programme Management and Monitoring Unit (PMMU) of the Ministry of Health will act as the lead agency.

At the same time, Interagency Coordinating Committee (ICC) on Immunization, which is chaired by MOHFW with representation from, but not restricted to, partner agencies such as UNICEF, USAID, DFID, World Bank and WHO, would be the most appropriate body, from both a technical and institutional perspective, to assume responsibility for overseeing and monitoring of polio transition in Bangladesh. It is recommended that the terms of reference of the ICC be extended to include the oversight and monitoring of remaining components of polio eradication, for example, the polio laboratory containment, implementation of polio endgame strategies as would be recommended by Global polio eradication certification committee and/or SAGE; and also, to include oversight and monitoring of polio transition in Bangladesh.

5. SURVEILLANCE BEYOND 2026

In Bangladesh surveillance of vaccine preventable diseases in 2027 and beyond, when the SIMO network is fully integrated into the mainstream health system, should be ideally a component of the integrated disease surveillance system.

The two other functions of the present SIMO network, routine immunization strengthening and monitoring and response activities like outbreak response or supplementary immunization activities fall within functions of EPI. During the transition period it may be prudent to strengthen this function of EPI. However, the role also should be assigned to the district epidemiologists and put in their terms of reference when the posts are being designed.

For building strong disease surveillance system it is important to highlight the need to create the positions of the district epidemiologists, as has been put in the IEDCR masterplan. It is not desirable that some other officers are given the responsibility of the district epidemiologists on temporary basis, without having created new positions. Such practice of assigning local surveillance officers responsibility to persons like Medical Officers to Civil Surgeon (MOCS) or Medical Officers Disease Control (MODC) has largely failed due to high turnover of staff assigned to this post. New cadre of epidemiologists/ public health experts should be recruited for these positions with the goal of retaining the trained and experienced personnel who would opt to have their career exclusively in public health. Sufficient incentive including scope of career building in public health, research and management and of access to higher education (MPH, MPhil, FETP) for them should be provided. Once the system is well run by the district epidemiologists, plan to replicate the positions at the Upazila level could be taken up.

The Institute of Epidemiology, Disease Control and Research (IEDCR) is the lead agency for running national disease surveillance programme. It has the expertise in dealing with field investigation and response of several outbreaks of communicable diseases like pandemic influenza, Nipa and avian influenza and also in running early warning system (EWARS) in the country. It is expected that the newly planned positions of district epidemiologists/ public health expert and later similar positions at the upazila level will be placed under IEDCR to strengthen its capacity for strengthening disease surveillance in the country. The institute has already put forward a masterplan for it. From the polio transition point of view, it will be important that the polio and vaccine preventable disease surveillance and wider EPI activities are included into the post description of the epidemiologists/ public health experts.

IEDCR surveillance uses a web-based data system independent of HMIS. Latter is functioning well in collection of routine disease and health services data through DIS2. Some mechanisms to coordinate the integration of Surveillance data with DIS2 would be required. Access to the surveillance data should be made available to respective programme managers like Civil Surgeons and UHFPOs at the periphery and EPI, Director CDC and IEDCR at the national level.

6. PROPOSED ROADMAP AND TIMELINE

From 2025 SIMO network, logistics and function will be transferred to government health system in phased manner. In first year (2024) EPI and VPD surveillance responsibility from SIMO to government will be transferred in 25 districts. In 2nd year (2025) transition will take place in additional 25 districts and 3rd year in remaining districts and all CCs. By end of 2026 all SIMO network, function and logistics will be completely transferred to government health system.

For smooth transition following activities are planned to be conducted:

a) Revise terms of reference of the SIMOs to include other disease surveillance beyond EPI
b) Include Polio Transition Plan in Operational Plan of 4th HNPSP during its revision in 2019 and include SIMO during planning of 5th cycle of HNPSP.
c) Create posts of district public health specialist/ epidemiologist and proceed with recruitment and training once the post creation is complete.
d) Plan overlapping of SIMO and district public health specialist before complete withdrawal of SIMO.
e) Closely monitor and support the transition including handing over of the logistics and vehicles
f) Evaluate the transition at the end of each year and take corrective measures where and when necessary.

The following list of sequential steps constitutes the fundamental roadmap and timeline for the completion and execution of 2nd and 3rd phases of the national polio transition plan.

	Activity	Timeline
1	Updated polio transition plan presented and discussed with and ratified by MoHFW	Q2, 2018
2	TOR of ICC revised to reflect additional responsibilities related to polio endgame strategy and polio transition	Q2, 2018
2	MOHFW identifies the funds required to fill the gap for sustaining the EPI surveillance activities beyond 2019	Q3, 2018
3	Negotiations between MoHFW and GAVI Alliance for HSS-3 grant completed	Q3, 2018
4	Web-based VPD surveillance launched	Q1, 2019
6	Phase 2 transition launched	Q3, 2019
7	Web-based VPD surveillance merged with mainstream HMIS (HEIS2)	Q4, 2019
8	Planning of specific support required to sustain polio and VPD surveillance as a component of HNPSP 2022-27	Q4, 2018
9	Phase 3 transition launched	Q3, 2022
10	Creation of positions of District Epidemiologists	Q1, 2022
11	Recruitment and training of District Epidemiologists started	Q1, 2023
12	Transition in first 25 districts completed	Q1, 2024
13	Transition in second 25 districts completed	Q1, 2025
14	Transition in rest of the districts and city corporations	Q1, 2026
15	Training of MODCs to assign them surveillance functions at upazila level	Q1, 2025
16	Full integration of surveillance network with cessation of SIMO network	Q4, 2026

7. POTENTIAL CHALLENGES WITH POLIO/EPI TRANSITION PLAN

Since GPEI funding will terminate by 2019, in the long-term there is no alternative but to turn all remaining polio functions and assets over to MoHFW and provide them generously with technical and management assistance. Eventually, these functions and assets must be fully owned and administered by GoB in order to ensure their long-term sustainability.

Implementation of Polio/EPI transition plan may face several challenges. The first potential challenge is to secure government ownership and implementation of the plan on time. Although the government has indicated its full commitment to retain the achievements of the polio surveillance programme and absorb the polio legacy into wider surveillance structure and function of the health system, the existing bureaucratic procedures may cause delay in incorporation of the transition plan into national health sector plan. It is anticipated involvement of the PMMU of MOHFW as the lead agency to carry forward the polio transition plan, the high level of coordination and constant communication among the partners will go a long way in mitigating this challenge.

The second potential challenge associated with the polio transition plan is to create new epidemiologist/public health posts within the government or changing the term of reference of existing post within the government to take new responsibilities. Inherent political and bureaucratic obstacles could make this a difficult step. The creation of civil servants' posts and the issuance of contracts can take extended periods, up to a few years. If the SIMOs' transition to MoHFW contracts were delayed or ultimately unsuccessful or the performance of the staff were compromised due to contractual uncertainty, surveillance for other VPDs such as measles, rubella, neonatal tetanus, Japanese encephalitis, etc., whose control or elimination has been endorsed by GoB in line with regional recommendations, would be disrupted and these goals could no longer be effectively pursued. PMMU and MOHFW will need to work closely with other concerned ministries like Ministry of Finance and Ministry of Planning to facilitate the process.

For the same reason implementation of the Polio Endgame Strategy prior to and after Global Polio Eradication Certification could be hampered, which would leave the National and Regional Polio Certification Status into jeopardy. High awareness on the risk associated with this has to be build up among the highest level of leadership as this could be detrimental to the national pride.

8. GOVERNMENT POLICY - HEALTH, NUTRITION AND POPULATION SECTOR PROGRAMME

The government of Bangladesh has launched 4th Health, Nutrition and Population Sector Programme (HNPSP) covering the period of 2016-22. The main goal of the 4th Health, Nutrition and Population (HNP) Strategic Investment Plan (SIP) is to ensure equity and effectiveness in delivery of HPN services to all.

The Expanded Program of Immunization (EPI), as the part of Maternal and Neonatal health is implemented within the framework of Operational Plan of Maternal Neonatal Child and Adolescent Health services.

In the specific areas of disease surveillance and laboratory support, it includes strengthening of VPDs surveillance, AEFI surveillance and expansion of environmental surveillance by ensuring specific surveillance manpower and operational costs, by making available all the logistics for effective implementation of polio eradication activities and maintain the WHO-accredited National Polio and Measles Laboratory.

It is therefore evident that GoB fully recognizes and values the important role that disease surveillance and all related activities play in disease prevention and control for the long-term benefit of the Bangladeshi population. Furthermore, the HNPSP plan provides unequivocal justification for the retention of the highly effective functions and assets of the polio programme, that is, the SIMOs and their infrastructure and consumables.

The final polio transition and integration into national health system will be incorporated in the 5th HNPSP from planning phase to the operational planning and to the later sector plans. In the long run, the mainstreaming of polio legacy will definitely strengthen Bangladesh's disease surveillance and response system.

9. CONCLUSION

The Surveillance Medical Officer network has successfully transitioned to broader EPI functions, currently supported by Gavi HSS funding. The title and terms of reference of SMO has been changed to reflect the first step of transition for the network to assume broader EPI functions. The government recognizes the value of SMO network and has decided to use polio functions, assets and infrastructure for wider disease surveillance function, with eventual integration to government health system. The government has spelled out need for inclusion of polio transition in the revised 4th HNPSP and in the 5th HNPSP. The SIMO network, function and assets will be fully transitioned to government health system by year 2027, in phased manner. For smooth transition, recruitment and training of government surveillance staff after creation of new positions will be implemented, supported and monitored. The transition will start from 2024 in 25 districts, additional 25 districts in 2025 and in remaining districts and city corporations in 2026. Polio surveillance network built during the polio eradication programme implementation in over two decades, the SIMO network, will cease to function in 2026, but its legacy will remain.