

WHO-EM/POL/429/E

Report on the

Technical consultation on poliomyelitis eradication in Pakistan

Islamabad, Pakistan
28–29 June 2016



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1. INTRODUCTION

The second 2016 meeting of the Technical Advisory Group (TAG) on poliomyelitis (polio) eradication in Pakistan was held on 28–29 June in Islamabad. The meeting was a TAG consultation chaired by Dr Jean-Marc Olivé and attended by six TAG members. The consultation was supported by the Pakistan Polio Eradication Initiative (PEI) team led by Senator Ayesha Raza Farooq, the Prime Minister’s Focal Person for Polio Eradication. Local and international partners as well as donors participated in the meeting. The meeting was closed by Saira Afzal Tarar, the Minister for National Health Services, Regulations and Coordination, Pakistan.

The major shift from “covered” to “missed” children continued to drive all programme operations with very encouraging results: the 13 confirmed cases to date in 2016 represent a 55% decline in the case count when compared with the same point in time last year, the proportion of positive environmental samples decreased from 20% in 2015 to 10% in the first half of 2016, and the number of circulating genetic clusters is at its lowest level ever.

Sustained government commitment and oversight at every level underpin all programmatic activities. The Prime Minister’s continued direct oversight and active involvement through the National Task Force for Polio Eradication and the Prime Minister’s Focus Group on Polio Eradication allowed the programme to further heighten oversight and accountability everywhere. The involvement of chief secretaries in the Prime Minister’s Focus Group has increased the leadership role at provincial level. Divisional task forces have emerged as crucial oversight mechanisms in key areas such as Karachi, Sukkur, Larkana, Peshawar and Islamabad, and more will be established in targeted areas throughout the remainder of 2016.

Through the implementation of an accountability and performance management framework, the government and partners ensured that “accountability at all levels” became a guiding principle for all, rewarding good performance while actively removing underperforming governmental or partnership staff from positions of authority.

The TAG consultation occurred after the end of the 2015/2016 low transmission season in a climate of justified optimism that interruption of virus transmission is within reach. The consultation had the following objectives:

- to assess progress made since the last meeting;
- to identify and develop consensus on remaining gaps and challenges;
- to review the National Emergency Action Plan (NEAP) for polio 2016–2017 and advise on its appropriateness and completeness;
- to advise on any further measures the programme should take to keep the country on track to interrupt transmission by the end of 2016.

Panel 1 shows the questions put to the TAG by the Government of Pakistan and Global Polio Eradication Initiative (GPEI) partners. Panel 2 shows the major programmatic milestones achieved in the country since the last TAG meeting.

Panel 1. Questions put to the TAG by Government of Pakistan and GPEI partners

- Does the NEAP 2016–2017 contain the necessary elements to achieve the goal of poliovirus interruption by the end of 2016?
- Does the TAG support the NEAP to improve quality in Tier 1 and Tier 2 districts?
- Does the TAG endorse the proposed supplementary immunization activities calendar including inactivated polio vaccine (IPV)/oral polio vaccine (OPV) in the first quarter of 2017?
- What does the TAG recommend as the appropriate target age group for the next IPV/OPV campaigns: 4–11 months, 4–17 months or 4–23 months?
- Does the TAG endorse the acute flaccid paralysis (AFP) strengthening plans, including environmental surveillance sites?
- Does the TAG see gaps with respect to common reservoirs issues?
- Does the TAG believe case responses are adequate to ensure fast and effective stoppage of outbreaks?

Panel 2. Major programmatic milestones since the last meeting

January 2016: Community-based vaccination expansion starts, covering 2.3 million children under the age of 5 in 472 high-risk union councils by May 2016.

February–May 2016: IPV campaigns target ~1.3 million children in high-risk areas of Karachi, Khyber Pakhtunkhwa, Federally Administered Tribal Areas and Balochistan.

February – April 2016: A Harvard knowledge, attitudes and practices (KAP) survey shows greatly improved perceptions of vaccinators, awareness and trust in local health organizations by the public at aggregate level.

March 2016: Under the high-risk mobile population strategy, rationalization of permanent transit posts is completed.

April 2016: As part of the global effort to withdraw the type 2 component of OPV, Pakistan switches from trivalent OPV (tOPV) to bivalent OPV (bOPV) as of 25 April.

May 2016: Results from the bag-mediated filtration system for environmental surveillance start to be systematically reported and acted upon.

May 2016: An assessment concludes that community-based vaccination is the best available model to identify and significantly reduce missed children in high-risk areas, and recommends its expansion in core reservoir zones.

May 2016: Multidisciplinary, multi-agency rapid response units are established to strengthen investigative and response capacity within the emergency operations centre network.

June 2016: The NEAP 2016–2017 is disseminated.

2. FINDINGS

Thirteen polio cases have been reported to date in 2016: three (23%) from Tier 1 districts and 10 (77%) from Tier 2 districts (Fig. 1). This represents a 55% decline in case count when compared with the same point in time last year. Environmental surveillance data tell a similar story, with a decrease in the proportion of wild poliovirus (WPV)-positive environmental samples from 35% in 2014, to 20% in 2015, to 10% in the first half of 2016 – despite the higher testing sensitivity introduced by the use of the bag-mediated filtration system. Pakistan also saw a reduction in the number of circulating genetic clusters from 16 in 2014 to 8 in 2015, indicating reduced genetic diversity. As of June 2016, only 4 clusters have been identified – the lowest number ever.



Fig. 1. Number of WPV cases by tier, 2014–2016

Data from AFP surveillance indicate that the immunity gap continues to close. The proportion of zero-dose OPV among non-polio AFP cases in children aged 6–59 months declined in Tier 1 districts from 10% to 1% between 2014 and 2016, and was 0% in all other districts in 2016 (Table 1). Table 2 provides information on OPV vaccination status among non-polio AFP cases (6–59 months), by region, 2015–2016.

Table 1. Zero-dose OPV among non-polio AFP cases (6–59 months), by tier, 2013–2016

AFP case	Year	Tier 1 districts			Tier 2 districts			Other districts		
		'0' dose	Pashto-speaking	Child <2	'0' dose	Pashto-speaking	Child <2	'0' dose	Pashto-speaking	Child <2
WPV positive	2013	42%	97%	85%	76%	96%	81%	0%	25%	88%
	2014	48%	97%	88%	71%	98%	83%	11%	39%	56%
	2015	31%	94%	75%	23%	67%	60%	40%	67%	33%
	2016	0%	56%	33%	0%	56%	78%	0%	0%	0%
NPAPF 6-59 mths	2013	4%	72%	34%	7%	67%	39%	0%	8%	27%
	2014	10%	57%	46%	9%	67%	38%	1%	9%	30%
	2015	2%	64%	39%	1%	70%	34%	1%	9%	26%
	2016	1%	56%	36%	0%	67%	36%	0%	8%	29%

Table 2. OPV vaccination status among non-polio AFP cases (6–59 months), by region, 2015–2016

	0 dose		1-2 doses		3 doses		4-6 doses		7+ doses	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Punjab	0%	0%	0%	0%	0%	1%	3%	2%	96%	98%
Sindh	0%	0%	1%	1%	1%	1%	7%	6%	90%	92%
K. Pakhtunkhwa	1%	0%	1%	1%	1%	0%	5%	2%	91%	97%
FATA	3%	1%	3%	4%	4%	0%	7%	10%	84%	86%
Balochistan	9%	1%	12%	2%	3%	11%	19%	8%	56%	78%
PAKISTAN	1%	0%	1%	1%	1%	1%	5%	3%	92%	96%

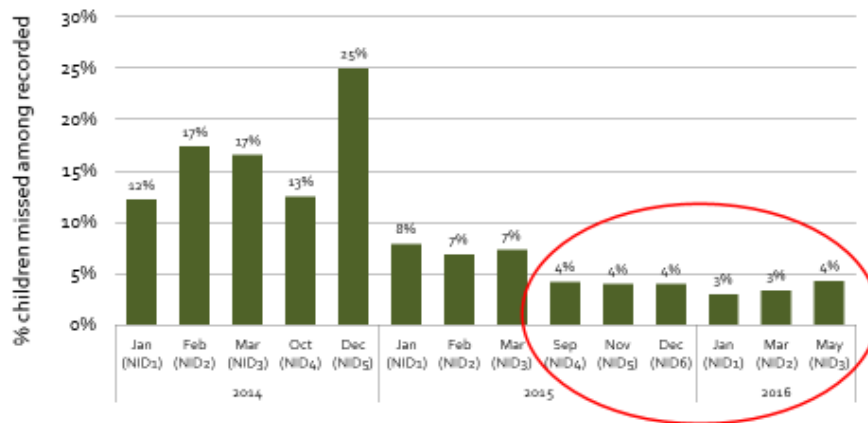


Fig. 2. “Still missed” children (14 days after campaign start), 2014–2016

Since the January 2016 TAG, the programme has implemented a series of well-planned, high-quality supplementary immunization activities that were characterized by a synchronized, single-phase approach, enhanced security provision and greatly expanded real-time independent monitoring. The major driving force remained “no missed children” and the programme has progressively reduced the number of “still missed” children in each round through aggressive follow-up. Between September 2015 and May 2016, less than 4% of children were still missed 14 days after campaign start. While this is a clear reduction compared to earlier, the percentage still missed has hovered around the same level since September (Fig. 2). The proportion of children missed due to “no team” reduced from 52% in January to 18% in May 2016. Lot quality assurance sampling (LQAS) monitoring shows greatly improved and sustained performance in the high-risk unions councils of Khyber Pakhtunkhwa, Balochistan and the Federally Administered Tribal Areas, although progress in Sindh – in the north, as well as in Karachi – has been inconsistent. More work is needed to put Sindh as a whole back on an eradication path.

In 2016 to date, Sindh has reported a total of four polio cases: one from Karachi and three from northern Sindh (Fig. 3). Environmental surveillance sites in Karachi, Sukkur and Jacobabad identified ongoing WPV type 1 transmission for January–March and were negative for April–May.

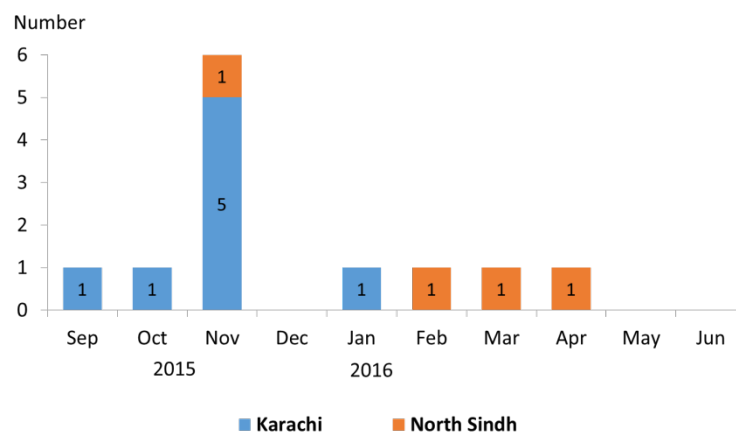


Fig. 3. Number of WPV cases, Sindh, September 2015–June 2016

After a slow start in implementing the low season plan, by December 2015 Karachi was able to demonstrate improvements in quality of supplementary immunization activities. These improvements coincided with the creation of the Karachi Task Force and the implementation of the Karachi Action Plan, which included adequately secured single-phase campaigns and an expansion of the community-based vaccination initiative from 14 to 51 high-risk union councils between January and May 2016. Throughout the low season, this initiative returned better campaign results than in mobile team areas (Fig. 4) and led to the decision to extend community-based vaccination to a further 48 high-risk union councils by August 2016. For Karachi as an entity, however, the encouraging quality improvements in supplementary immunization activities observed until February could not be sustained and steadily declined over the most recent three rounds. The decline was largely due to slipping performance in the mobile team areas (Table 3) facilitated by a decline in accountability, and an unstable administrative and political environment (inter alia, change of Commissioner, emergency operations centre coordinator and Secretary of Health). Large IPV/OPV campaigns were conducted between March and May 2016 covering two thirds of the entire 4–23 months age group in Karachi. With only 51% of the LQAS lots passed, these campaigns did not achieve the performance indicators reported from the other core reservoir zones.

North Sindh has reported three polio cases to date in 2016: one from Jacobabad and, more recently, two from Shikarpur in March and April. While environmental samples in Sukkur and Jacobabad have been negative since April 2016, previous isolates were long-chain viruses signalling missed transmission for up to 2 years (Fig. 5). Overall, campaign quality since September 2015 has been inconsistent and interpretation of the campaign indicators was made difficult by frequent discrepancies between the findings of independent monitors and reported data (Table 4).

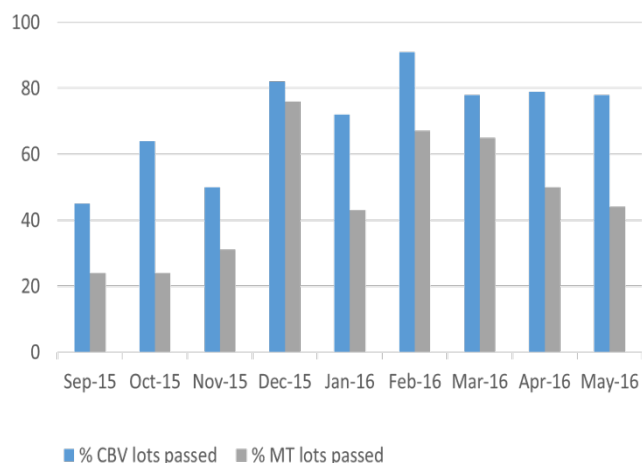


Fig. 4. LQAS passed in areas with mobile and community-based vaccination teams, Karachi, September 2015–May 2016

Table 3. Post-campaign monitoring results in mobile team areas, Karachi, September 2015–May 2016

SIA	Admin %	Market survey %	TPM %	LQAS pass %	n lots
Sep NID	101	96	85	54	35
Oct SNID	102	96	99	53	40
Nov NID	102	96	96	65	26
Dec NID	101	96	97	86	29
Jan NID	102	97	98	79	28
Feb SNID	103	97	92	84	38
Mar NID	102	96	96	75	28
Apr SNID	104	97	95	67	30
May NID	101	96	92	55	42



Fig. 5. Genetic sequencing of WPV isolates, north Sindh

Table 4. Post-campaign monitoring results, north Sindh, September 2015–May 2016

SIA	Admin %	Market survey %	TPM %	LQAS pass %	n lots
Sep NIDs	101	96	88	52	29
Oct SNIDs	102	96	97	65	23
Nov NIDs	100	95	95	64	25
Dec NIDs	99	80	97	76	37
Jan NID	101	97	98	74	42
Feb SNID	100	97	97	78	59
Mar NID	102	97	98	73	52
Apr SNID	102	97	97	75	36
May NIDs	101	97	95	63	51

Recognizing the administrative and managerial gaps, divisional task forces were notified in Larkana and Sukkur division in March 2016, and a north Sindh GPEI coordinator was put in place by partners. Under the leadership of the respective commissioners and the coordinator, the chronic challenges in Sukkur and Larkana divisions now have the potential to be addressed, particularly with regard to enforcing accountability and implementation of the basics for supplementary immunization operations and surveillance.

The Federally Administered Tribal Areas continue on a positive trajectory with continually improving quality of supplementary immunization activities, as demonstrated by the high percentage of LQAS passed (Fig. 6) and a further reduction in the number of “still missed” children (Fig. 7). The Federally Administered Tribal Areas’ only polio case in 2016 was reported in June in a 2-year-old refusal child with zero-dose OPV that had recently returned from Afghanistan.

AFP surveillance continues to operate at high sensitivity and more than 80% stool adequacy. Surveillance will be further strengthened by the introduction of community surveillance in August.

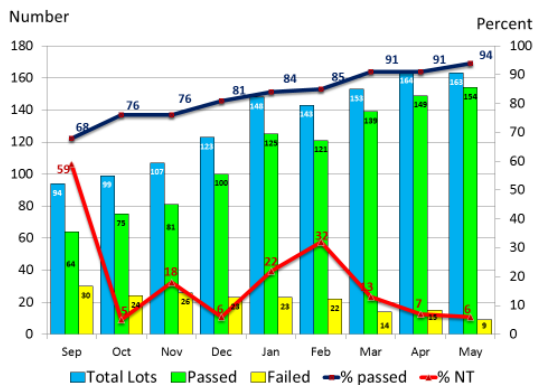


Fig. 6. LQAS results, FATA, September 2015–May 2016

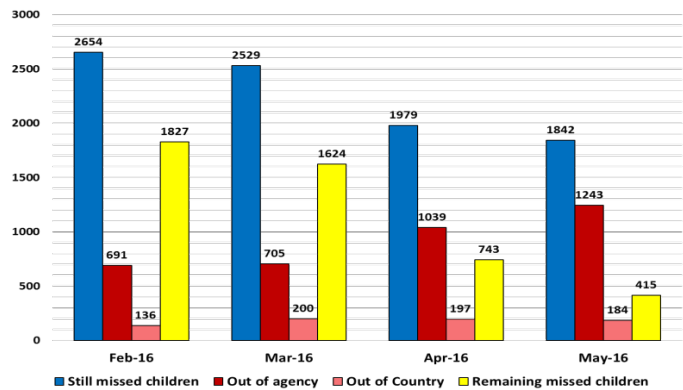


Fig.7. Number of “still missed” children in Tier 1 districts, FATA, February–May 2016

Thus far in 2016, Khyber Pakhtunkhwa has reported seven polio cases of which the last four originated from Tier 2 districts in the south (Fig. 8). Within 32 days, three cases were detected from Bannu in small clusters of missed children, including some clusters with refusals on religious grounds, and genetic linkages to local virus, as well as virus from Hangu-Nangarhar and Karachi. WPV1 was isolated persistently in environmental samples from Shaheen Muslim Town; however, specimens were negative in May 2016.

Overall, programme performance in Khyber Pakhtunkhwa has further improved. Quality supplementary immunization activities were achieved in both community-based and non-community-based vaccination areas (Fig. 9). In the 2016 IPV/OPV campaigns, which targeted 278 519 children in 97 high-risk union councils and Afghan refugee camps, 85% of LQAS lots passed. As per the NEAP, community-based vaccination coverage will be increased from 76% to 100% of the target population in Tier 1 areas by August 2016.

In 2016 to date, Balochistan has reported one polio case from Quetta City. Environmental sampling sites in Killa Abdullah and Quetta identified ongoing WPV1 transmission in January and February, respectively, while all sites in the province have been negative for WPV since March.

Quality supplementary immunization activities were maintained in the Tier 1 districts of Quetta and Pishin. Killa Abdullah has shown great improvement since last September, but remains just below target (Fig. 10). Overall, the number of “still missed” children could be consistently reduced to about 2% (found by third party post-campaign monitoring) (Fig. 11). The 2016 IPV/OPV campaigns targeted 239 199 children in the three Tier 1 districts and achieved an LQAS pass rate of 70%.

AFP surveillance continues to operate at good sensitivity, but stool adequacy rates in Killa Abdullah (67%) remain a concern. As in the other core reservoir zones of the country, community-based vaccination coverage will be expanded from 39% to 100% in Quetta, Pishin and Killa Abdullah by August 2016.

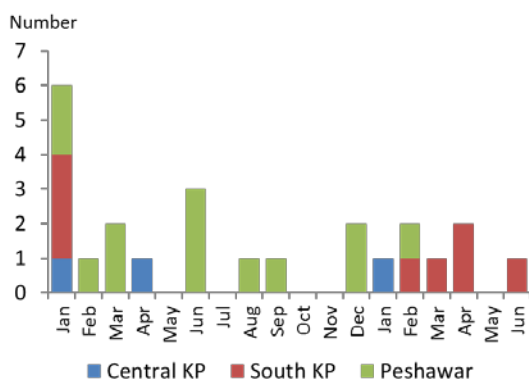


Fig. 8. WPV cases by region, Khyber Pakhtunkhwa, 2015–2016

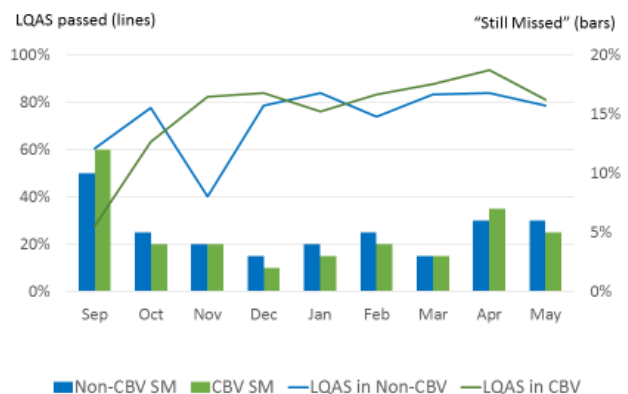


Fig. 9. LQAS lots passed and “still missed” children in community-based and non-community-based vaccination areas, Khyber Pakhtunkhwa, September 2015–May 2016

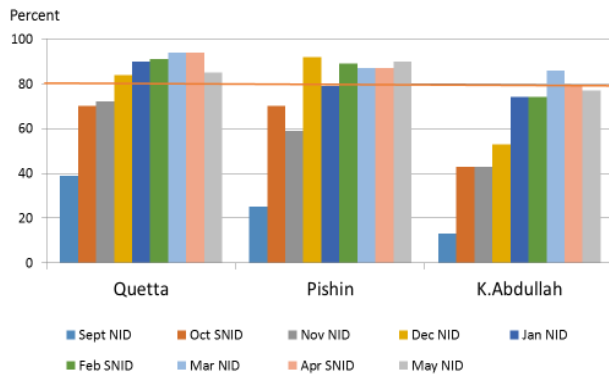


Fig. 10. LQAS lots passed in Tier 1 districts, Balochistan, September 2015–May 2016

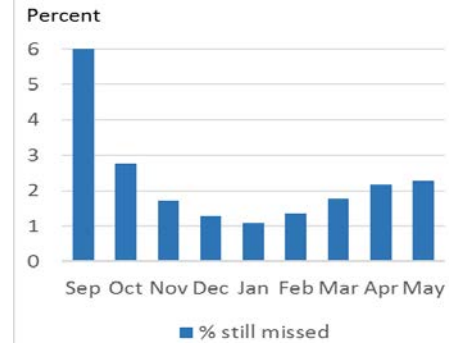


Fig. 11. "Still missed" children, Balochistan, September 2015–May 2016

The last polio case in Punjab was in December 2015 in Rahim Yar Khan District, although short-lived WPV1 transmission in 2016 was suggested by environmental surveillance-positive samples in February (Faisalabad), April (Rawalpindi) and May (Dera Ghazi Khan). Planned supplementary immunization activities and case-response immunization campaigns during the low season, along with strong routine immunization (e.g. 81% IPV1), prevented establishment of local circulation despite repeated WPV1 importations. The focus on high-risk mobile populations successfully continues. AFP surveillance indicators meet international standards and efforts are ongoing to improve surveillance sensitivity in silent union councils and through community surveillance.

No WPV cases have been reported from Islamabad since 2008 and environmental samples have been negative since August 2015. However, campaign performance in the capital is behind the rest of the country with only 52% (25/48) of LQAS lots in 2016 having passed, and more than 10% of children "still missed" found by third party monitoring after each campaign (Fig. 12–13). Overall, the programme in Islamabad suffers from a lack of accountability and ownership at the district and union council levels.

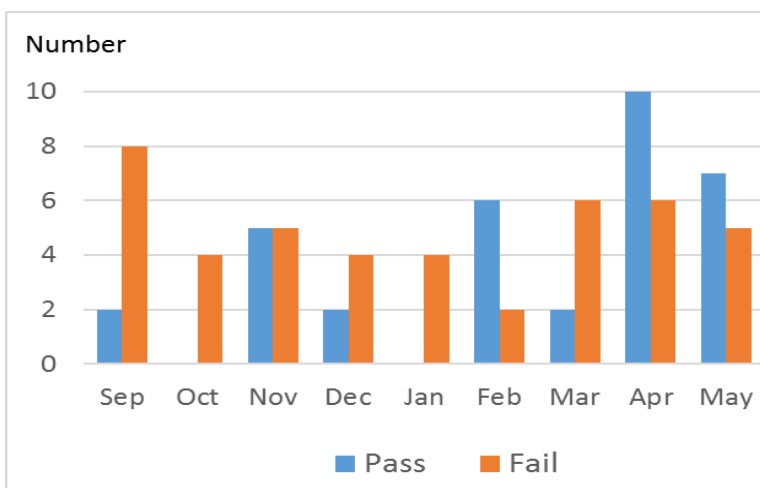


Fig. 12. LQAS lots passed/failed, Islamabad, September 2015–May 2016

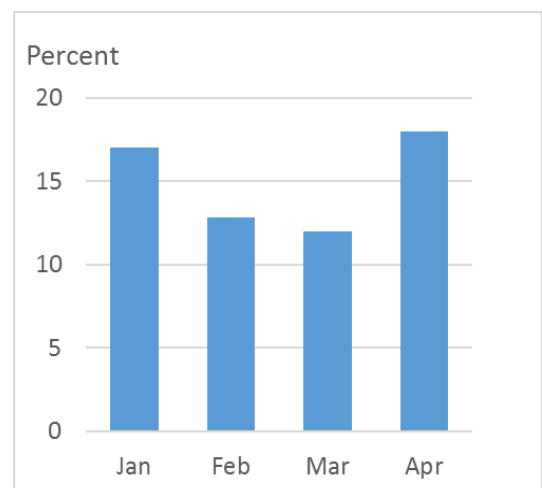


Fig. 13. "Still missed" children, third party post-campaign monitoring, Islamabad, January–April 2016

A final draft of the NEAP 2016–2017 is being circulated for comments. The TAG had the opportunity to review the document and provide feedback in the recommendations of this report.

The NEAP 2016–2017 aims to build on the significant progress made in the past year, focusing on maintaining and increasing the quality of all activities without any major changes to the core activities of the previous NEAP. It is the belief of the programme that these activities are working. The NEAP 2016–2017 will focus on three overriding priorities:

- to **protect** – by ensuring all vulnerable children are vaccinated, especially the youngest in the most high-risk districts;
- to **detect** – by ensuring detection of every signal of WPV, emerging immunity gaps and performance gaps;
- to **react** – by responding rapidly, aggressively and comprehensively to every significant event with implications for interruption of WPV transmission.

In order to respond in a timely and aggressive fashion to any epidemiologic or programmatic risk, the programme also strengthened its investigative and response capacity by establishing rapid response units within national and provincial emergency operations centres. The rapid response units include multidisciplinary, multi-agency members working under the “one team concept.” Country-specific guidelines/protocols were developed for investigation and response of different events, including WPV, vaccine-derived poliovirus (VDPV) and any type 2 poliovirus (PV2) notifications. A tracking system was established for documenting events and following up implementation of planned responses. Training and building capacity of national and provincial teams started with the first group in June 2016.

Goal: Stop wild poliovirus transmission by end of 2016 and sustain interruption through 2017

Strategic objectives

- Stop poliovirus transmission in all reservoirs
- Detect, contain and eliminate poliovirus from newly infected areas
- Maintain and increase population immunity against polio throughout Pakistan
- Stop international spread of wild poliovirus by decreasing risk across common trans-national reservoirs
- Sustain polio interruption through increased routine immunization coverage in core reservoirs

Strategic focus

- Focus on “virus risk” (core reservoirs, high risk and vulnerable districts)
- Targets set for objectives more aggressive
- Entire programme focus and targets should now be on “performance” on the ground

3. CONCLUSIONS

Progress

The TAG acknowledges the continued progress made by the polio eradication programme in Pakistan since the beginning of the low season, and the implementation of the TAG recommendations from the January 2016 meeting. The reduction in both the number of human cases and the proportion of positive environmental samples is very encouraging indeed. The TAG is hopeful that this development will continue throughout the upcoming high season.

The Government of Pakistan has efficient management and oversight structures in place. The programme has developed an impressive armamentarium of evaluation and monitoring tools to allow for the timely identification of gaps and their swift closure. Thanks to the continued focus on vaccinating missed children, their numbers are now lower than ever before. While the goal of interrupting transmission by May 2016 has been missed, the TAG firmly believes that interruption can be achieved by the end of 2016 if the NEAP 2016–2017 is adhered to in letter and spirit.

The large amount of data and information available to the programme signifies that the level, speed and consistency of progress are variable at subprovincial level and in the three reservoirs. While Punjab, Khyber Pakhtunkhwa, Federally Administered Tribal Areas and Balochistan are largely on track, the slower progress in Sindh – in the core reservoir zone of Karachi, as well as in the outbreak areas of north Sindh – remains a concern.

The TAG understands that the suboptimal performance observed in Islamabad is currently being addressed and anticipates significant improvements in quality from the next round onwards. The lower campaign quality observed across all provinces in May 2016 (Fig.14) was likely caused by campaign fatigue and the harsh climatic conditions that prevailed in most parts of Pakistan at the time (temperatures above 50° Celsius). However, dips as seen in May – understandable as they are – reinforce the message that there can be no reduction in intensity anywhere in the programme at any time.

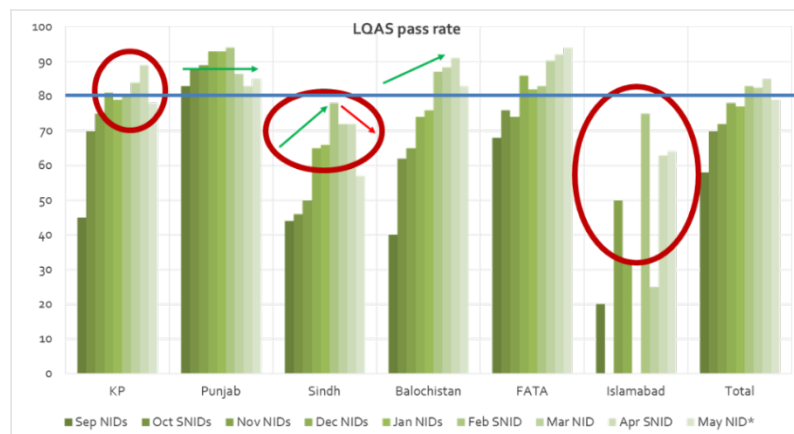


Fig. 14. Percentage of LQAS lots passed, September 2015–May 2016

Greater Peshawar-Khyber

The TAG congratulates the Federally Administered Tribal Areas and Khyber Pakhtunkhwa teams for their close and effective coordination of activities between Peshawar and Khyber. This smooth coordination, together with improved access in Khyber and the high-quality campaigns in Peshawar (including the strong corrective actions taken against poor performance in high-risk areas, such as Shaheen Muslim Town) led to impressive campaign results and negative environmental samples. The last case in Khyber was reported at the end of 2014, and in Peshawar in February 2016. While this is all reason for optimism, the TAG would like to remind the programme that 1–2 negative environmental samples are not conclusive of having stopped WPV transmission, and particularly not when located in the major Pakistan–Afghanistan corridor.

Balochistan

The TAG is pleased with the overall progress in Balochistan and the high-quality campaigns achieved in 2016. To a large extent, this success is due to the strong commitment of the Chief Secretary and the provincial government, and the highly visible leadership of the provincial emergency operations centre coordinator. Balochistan is in a good position to interrupt transmission, but again, its location between two key reservoirs leaves no room for complacency.

Karachi

Since December 2015, Karachi has demonstrated that improvements in campaign quality are possible even in the most difficult settings. However, the TAG cannot but state that performance levels for both operations and surveillance are still below the levels required to achieve eradication. The fact that the last WPV case was reported in January 2016 and that recent environmental samples tested negative does not indicate transmission has been stopped. Several times before, Karachi has had long periods without any polio cases only to be battling large outbreaks at a later date.

The TAG is also concerned by the frequent leadership turnovers and structural changes that have occurred in Karachi since the January TAG meeting (e.g. three commissioners in six months, emergency operations centre coordinator post de facto vacant for 2 months, unclear administrative health structures at town level). Each time such changes occur, progress in the programme is impeded and staff demoralized. The TAG reiterates that Karachi remains the biggest threat to the aim of interrupting transmission in Pakistan.

North Sindh and south Khyber Pakhtunkhwa

The TAG notes that 10 of the 13 WPV cases reported to date in 2016 occurred in Tier 2 districts: 7 of the 10 from north Sindh and south Khyber Pakhtunkhwa alone, and the most recent case from South Waziristan in the Federally Administered Tribal Areas. These cases signal spillover from core reservoirs into areas where the virus still finds a sufficient number of under-immunized children to maintain local circulation. The risk of small clusters of persistently missed children emphasizes the importance of continuing to monitor and analyse geographical distribution and social context of residual groups, including reluctance to vaccinate newborns, at ever more granular level.

The epidemiological shift away from Tier 1 to Tier 2 districts/agencies requires that the latter receive as much focus and attention as Tier 1. Any poor performance in Tier 2 areas must be rapidly identified and corrected, and all available monitoring instruments should be used to verify that gaps have been closed. The outbreak in north Sindh is of particular concern because of its duration and the possibility that the virus re-establishes itself again. Allowing north Sindh to become a polio reservoir at this stage of the battle would be a serious blow to the aim of eradication by the end of 2016. Having said that, the TAG is very encouraged to see the recent improvements in north Sindh. Political support and the divisional task forces provide an environment to tackle chronic problems once and for all. However, the TAG reminds the programme that more needs to be done by the government and partners to strengthen the structures recently put in place: time is of the essence.

Community-based vaccination

The introduction and expansion of community-based vaccination has been a milestone for the Pakistan programme and is key to sustained high-quality campaigns in the core reservoir areas (Fig. 15). Community-based vaccination has shown better performance than mobile team vaccination in the Tier 1 districts where it was introduced. The initiative has also significantly reduced reliance on law enforcement agencies for ensuring the conduct of safe campaigns.

This has been especially evident in Karachi where, as a result of community-based vaccination expansion, a move from multi-phased to single-phased campaigns could be achieved. The TAG congratulates the programme on its exceptional efforts to expand community-based vaccination on such a large scale and over such a short period of time, and on ensuring that the initiative delivered to such high standards.

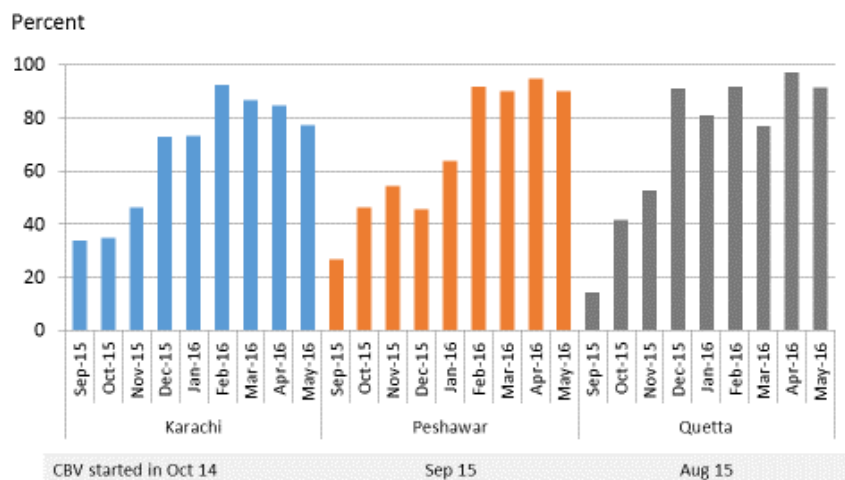


Fig. 15. LQAS lots passed in community-based vaccination (“continuous community protected vaccination”) union councils of Tier 1 districts

Access and security

The TAG commends all levels of government and the security forces for their resolve and commitment in protecting vaccination teams, and ensuring access to all children in Pakistan. Since January 2016, the pockets of inaccessible children in the Federally Administered Tribal Areas have further shrunk and only minor security incidents have been reported throughout the country. The continuous support of the security forces also resulted in the nationwide execution of single-phase campaigns, an essential component for the final move towards eradication.

Combined bOPV-IPV supplementary immunization activities

Since the start of the low season, the programme has conducted a number of large scale OPV/IPV campaigns in all core reservoir areas. The vaccination of 1.2 million children aged 4–23 months with IPV and 1.7 million children aged under 5 years with bOPV provided a valuable immunity boost that could mean the difference between continued low-incidence transmission and interruption.

The TAG was encouraged to see that more than 80% of LQAS lots passed in the union councils of the Federally Administered Tribal Areas, Peshawar, and Khyber Pakhtunkhwa Afghan refugee camps, and notes with concern the 51% LQAS pass in the Karachi union councils (Fig. 16).

The TAG appreciates the timely provision of IPV from the global stockpile. Recently, 45 countries decided to postpone the introduction of IPV into their routine immunization schedule to ensure that Afghanistan and Pakistan have sufficient vaccine available for their planned OPV/IPV campaigns in early 2017.

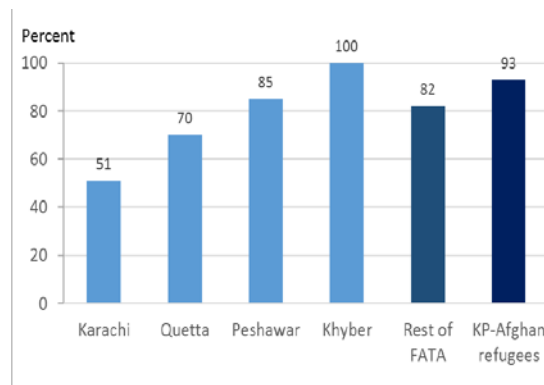


Fig. 16. LQAS lots passed (at least 52/60) in IPV/OPV campaign areas, 2015–2016 (core reservoir areas in light blue)

Routine immunization

Poor routine immunization remains Pakistan’s major weakness in its fight against polio. Although many partners and agencies support EPI country-wide, the immunization status of AFP cases – taken as a proxy for routine immunization status – is still unacceptably low in all provinces except Punjab (Fig. 17). The TAG is concerned that this situation will jeopardize the hard-won gains achieved by supplementary immunization activities, particularly when considering the high birth cohorts in the core reservoirs and EPI’s inability to rapidly close the immunity gaps. In all epidemiological models developed to assess the risk of outbreaks or continued transmission in Pakistan, poor routine immunization has been a clear predictor of the likelihood of WPV cases. It is therefore of small comfort that many of the recent AFP cases received seven or more OPV doses.

Surveillance

The TAG notes that since its January 2016 meeting, key AFP surveillance indicators have improved further and met targets at national, provincial and most district levels. However, certain areas are still lagging behind and the relatively high fraction (20%) of “long-chain transmissions” clearly highlights the gaps in surveillance.

Particularly worrisome has been the isolation of long-chain viruses in some of the Tier 2 areas (Sukkur, Dera Ghazi Khan), signifying missed transmission for up to 2 years. Failure to detect and investigate AFP cases in a timely manner is a serious threat to the success of the programme and cannot be tolerated at this stage of Pakistan’s eradication efforts.

Given the relentless focus on supplementary immunization activities, the programme was slow in addressing the recommendations from the mid-2015 surveillance reviews and in implementing the surveillance strengthening plans. The TAG acknowledges that the speed and seriousness of implementing the plans have since picked up. However, more work remains to be done before all districts across the country can be attested to have a surveillance system suitable for eradication.

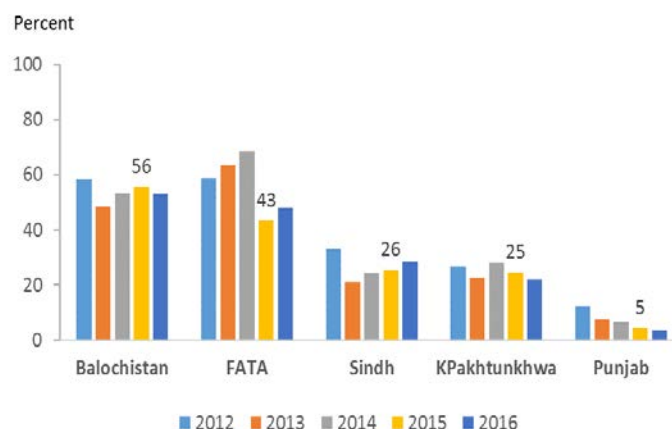


Fig. 17. Non-polio AFP cases (6–59 months) that never received OPV through routine immunization, 2012–2016

Communications

Integrated communication strategies are critical to ensuring that demand and acceptance remain high. The Harvard KAP survey conducted in the Tier 1 districts between February and April 2016 revealed high degrees at aggregate level of acceptance, awareness and intent to vaccinate (Fig. 18). The poll confirmed that the fundamentals in terms of knowledge and broad views are in place across geographies of interest, vaccinators experience is positive, the programme is linked with well-trusted institutions, the behavioural norms for OPV acceptance are high and the perceptions of community support are high.

However, as numbers of missed children decline and the areas of circulation become more localized, the challenge will be to understand and respond to what is happening at increasingly local areas below those that a KAP study can capture. Strengthening communication monitoring and data collection at the lowest possible level is a critical factor for the programme. Although the programme is on track with increasingly lower numbers of missed children per campaign, it will need to continue to refine and localize integrated operations and communication tactics – particularly in pockets of persistent vaccine hesitancy – including detailed analysis of reasons for non-acceptance.

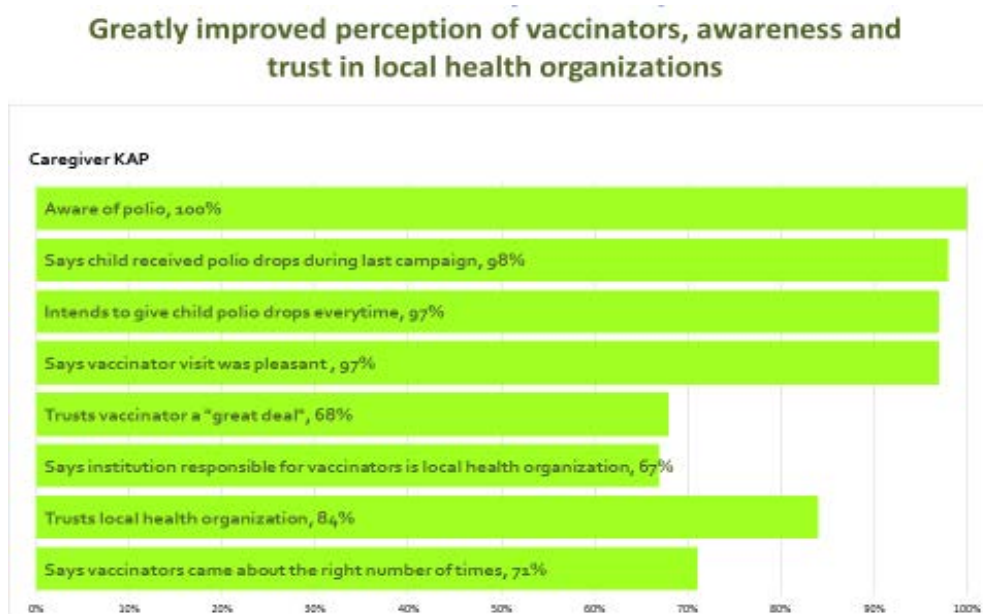


Fig. 18. Harvard KAP survey, February–April 2016

Table 5. Transmission across core reservoirs in Afghanistan and Pakistan, 2015

Most likely "core reservoir" Source	Circulation within reservoir	Virus exported internally	Virus exported internationally	Total
Karachi	41	14	0	41
Khyber-Peshawar	29	6	11	46
Quetta block	17	6	1	24
Greater Nangarhar	8	1	9	18
Greater Kandahar	12	1	1	14

Coordination on WPV common reservoirs

The core reservoirs on both sides of the Afghanistan-Pakistan border remain the primary drivers of risk with intertwined circulation between Khyber-Peshawar and Eastern Afghanistan, and between Quetta block and southern Afghanistan (Table 5). Transmission along the common border is heavily facilitated by the large number of people crossing on a daily basis and leading to a cross-pollination of viruses across the two countries. The most recent case reported from South Waziristan is a bleak reminder of this.

The TAG highly appreciates the substantial achievements in coordination between the Afghanistan and Pakistan programmes on their common reservoirs, including synchronization of the supplementary immunization activities schedule since mid-2015, weekly interactions between the national emergency operations centres and at provincial and district levels, joint analysis and coordinated response to any relevant epidemiological events and before and after each supplementary immunization round. The TAG strongly believes that this type of close coordination is the best mechanism to chase the virus from its remaining hiding places on either side of the border.

4. RECOMMENDATIONS

The Pakistan programme is on track and has all the essential elements in place to interrupt virus transmission by the end of 2016. The TAG sees no need to suggest major re-adjustments and will keep its recommendations at an overarching level. Having said that, all recommendations pending from its January meeting remain valid and should be fully addressed.

- Implement the first phase of the containment plan now; do not delay until interruption of transmission has been achieved.
- Develop a strategic plan for the use of serosurveys in areas of uncertainty.
- Ensure response to any new VDPV is in line with the global protocol/standard operating procedures.

NEAP 2016–2017

The NEAP 2016–2017 is a well-developed document and a logical continuation of its predecessors. It is based on proven strategies and contains appropriate tactical adjustments. The TAG endorses the approach and key programme deliverables of the NEAP 2016–2017 and encourages the partners to finalize and submit the document as soon as possible.

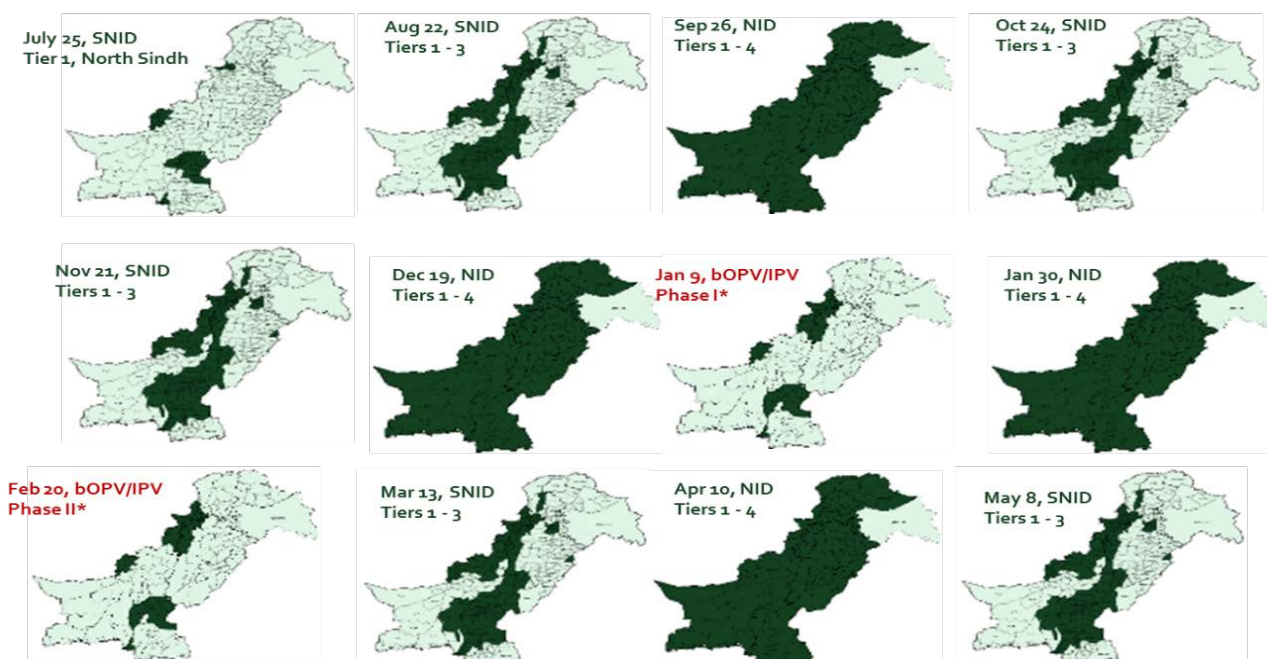


Fig. 19. Schedule of supplementary immunization activities for July 2016–May 2017 (large-scale case response rounds may be implemented in non-reservoir areas)

The TAG endorses the revised risk classification of core reservoir (Tier 1), high-risk (Tier 2), vulnerable (Tier 3) and low-risk (Tier 4) districts, and their respective targets and key performance indicators. As 77% of the 2016 cases to date were reported from high-risk areas, the TAG urges the programme to heighten its attention there: “Keep your eyes on Tier 1, but don’t take your eyes off Tier 2.”

The TAG endorses the supplementary immunization schedule of five national immunization days and four subnational immunization days between July 2016 and May 2017, and the plans for combined bOPV/IPV rounds at the beginning of 2017 (Fig. 19). For IPV, the TAG recommends targeting children aged 4–23 months in Tier 1 and selected Tier 2 districts, and urges the country and global teams to work immediately on establishing and communicating the necessary financial and vaccine requirements. Depending on the availability of IPV, several scenarios should be considered, with one including as many Tier 2 districts as possible.

Community-based vaccination

Given the overall positive experience with community-based vaccination, the TAG endorses the NEAP strategy to expand the initiative to cover as many union councils within the core reservoir areas as possible, and to maintain the initiative in those Tier 2 districts where it is already in place. The TAG also supports plans to streamline the methodologies, staff selection, training, supervision and monitoring of the already existing “continuous community protected vaccination” models (female community volunteers, community health workers)

The TAG encourages the programme to put in place robust, independent pre-, intra- and post-campaign monitoring, and develop additional standardized performance benchmarks (e.g. proportion

of female vaccinators, verifiable local residency of vaccinators, quality of vaccinator training) together with clear action planning for when they are not met. At this stage, community-based vaccination is too important to ultimate success in the core reservoir areas to allow for any complacency with regard to monitoring quality of delivery and evidence of impact.

Strengthen routine immunization in union councils with community-based vaccination

The TAG endorses the overall idea of enhancing PEI-EPI partnership to support routine immunization operations. This will require strong EPI leadership to synchronize and coordinate all activities of PEI and other partners.

More specifically, the TAG supports the NEAP strategy to use community-based vaccination for improving routine immunization in the core reservoirs. The significant investment in this initiative has provided the country with a large cadre of well-trained, capable and highly committed females that are trusted by their communities. This formidable resource can provide sustained access to hitherto difficult-to-reach populations, but only as long as EPI delivers on the goods and in vaccinators in functioning vaccination centres. It is the responsibility of EPI to take full advantage of the access that PEI can provide.

The TAG applauds the highly ambitious NEAP target of raising coverage for all antigens in community-based vaccination union councils to at least 80%, but wants to caution against uniform application of this target in all community-based vaccination areas and recommends targets being tailored to the prevailing EPI status.

Strengthen mobile teams performance

The TAG commends the programme on the steps taken since January to improve performance in the mobile team areas. The positive impact is clearly visible from the indicators; however, progress is not yet uniform across all areas of concern.

The TAG supports the NEAP 2016–2017 plan for strengthening mobile teams' performance, including the development of comprehensive action plans for improving the performance of "Areas-in-Charges" (local government officers) in chronically poor performing high-risk union councils (i.e. in the areas of microplan preparation/revision; route maps; front-line health worker selection, training and supervision). These union councils – which gave rise to 77% of the WPV cases in 2016 – require the same political drive and oversight as Tier 1 areas. The TAG recommends that all levels of government, from Chief Secretary to commissioners and deputy commissioners to union council medical officers, rally behind these plans and ensure their full implementation.

The programme should also strive to maintain good performance in Tier 3 and 4 districts and take swift action on their low performing union councils.

Stopping transmission in north Sindh

The recent operational and administrative adjustments were an excellent step to put the north Sindh programme back on track; however, if left at that, they are insufficient. The TAG urges the

relevant bodies to adopt an “all-of-government approach” regardless of political affiliations or other political concerns. The north Sindh action plan needs to be finalized as soon as possible to address all outstanding programmatic and administrative issues that hamper achieving high-quality supplementary immunization activities and surveillance. The TAG urges partners to strengthen their human resources in north Sindh to ensure that the required technical support is in place.

The TAG recommends that the north Sindh programme compiles weekly situation reports detailing the progress achieved, the gaps identified and the needs required to close them.

Timely and effective response: rapid response unit

The TAG notes that the rapid response unit at national level is now fully operational and that rapid response focal points have been appointed in each provincial emergency operations centre with ongoing orientation and training. The rapid response unit’s capacity to immediately respond to any critical or unforeseen event that threatens interruption of transmission is critical. The TAG recommends that all vacant positions at federal and provincial level be filled as soon as possible, that standard operating procedures and training packages be finalized and staff be fully trained on them to ensure full operationalization of the unit before September 2016.

The TAG further recommends that all polio virus events – human cases or environment sample isolates – trigger an immediate investigation by the rapid response unit. Specific indicators should be put in place and monitored for timeliness and completeness of such investigations and responses. When no “events” take place, the rapid response unit should support the planning and implementation of supplementary immunization activities in high-risk and/or low-performing areas. To ensure that any new VDPVs are investigated and responded to in line with the global protocol, the TAG encourages the rapid response unit to drive the development of national guidelines for the detection of, and response to, poliovirus type 2 events.

Surveillance strengthening plan

The TAG endorses the surveillance strengthening plans and urges immediate implementation of:

- surveillance task teams in the emergency operations centres;
- revised NEAP performance indicators;
- dedicated staff for surveillance in Tiers 1 and 2;
- environmental surveillance rationalization by August 2016.

The TAG recommends that implementation of the recommendations from the previous surveillance reviews be meticulously tracked with a focus on the basics: inclusion of private and informal health sectors, timely investigation, prioritization of reporting sites, etc. The surveillance task teams at national and provincial emergency operations centres should report weekly on the NEAP indicators.

The TAG endorses the plans for expansion of environmental sampling sites, as long as this expansion does not threaten to overwhelm the already stretched capacity of the laboratory. Before adding any additional sites, existing environmental sampling sites should be reviewed with regard to their productivity and overall value, and be relocated accordingly.

Communications

The TAG recommends that communications continue to focus on remaining clusters (geographic and social) of missed children, especially in high-risk areas such as Gadap, Bannu and Peshawar. As small as these clusters may be, if left unaddressed they will always pose a risk of continuing circulation with spillover to other areas. The TAG recommends:

- to continue emphasis on using evidence to understand, document and address, as at local a level as possible, the causes of missed children and persistently missed children;
- to ensure communication strategies are optimally fitted to the core programme objective of reducing missed children, and demonstrating impact.

For future TAG meetings, a summary report on the impact of communication and related monitoring activities for reducing missed children at all levels should be included in TAG briefing documents. This report should include indicators and impact assessment related to local utilization of communication data for campaign assessment, course correction and reduction of missed children in Tier 1 areas or other places where clusters of persistently missed children are found.

Coordination on WPV common reservoirs

The TAG encourages the Afghanistan and Pakistan programmes to further deepen their already close coordination mechanisms. Recently updated information on population movement should be shared immediately between the programmes and discussed during the regular calls/meetings.

Common risk assessment and management strategies should be developed by both programmes so that any cases/outbreaks in the common reservoirs can swiftly trigger joint risk assessments and responses without the potential impediment of an international border between them. The TAG also recommends that in the future any investigations or responses be captured in a single report jointly developed by both programmes.

Management and oversight

The TAG commends the Government of Pakistan for its sustained commitment and oversight at every level. All key oversight bodies are functioning well with strong leadership from senior officials and ministers. With the Government's unconditional support, the accountability and performance management framework has become a guiding principle for all.

The TAG believes that full implementation of NEAP 2016–2017 will bring Pakistan to “zero” by the end of 2016. The TAG recommends that all oversight bodies (NTF/PTF/DTF/DPEC/UPEC) are reinvigorated and made to focus on the effective implementation of NEAP, and that any transfers of well performing key officials should be avoided unless absolutely necessary, until interruption of transmission has been achieved.

Annex 1

LIST OF PARTICIPANTS

TAG members

Jean-Marc Olivé, Chairman
Chris Morry, TAG Member
Nasr El Sayed, TAG Member

Sebastian Taylor, TAG Member
Olen Kew, TAG Member
Iqbal Ahmad Memon, TAG Member

Special Adviser

Ala Alwan, Regional Director, EMRO

Technical advisers

Michel Zaffran, WHO/HQ
Arshad Quddus, WHO/HQ
Zubair Mufti, WHO/HQ
Christopher Maher, WHO/EMRO
Michael Ryan, WHO/EMRO
Abdirahman Mahamud, WHO/EMRO

Reza Hossaini, UNICEF/HQ
Andisheh Ghazieh, UNICEF/HQ
Sue Gerber, BMGF/HQ
Derek Ehrhardt, CDC/HQ
Hashim Elzein, NSTOP, CDC/HQ

Government of Pakistan

Saira Afzal Tarar, Minister of State,
MoNHSRC
Ayesha Raza Farooq, Senator, Prime
Minister's Focal Person for Polio Eradication

Muhammad Ayub Sheikh, Secretary,
MoNHSRC
Assed Hafeez, Director General, MoNHSRC
Mazhar Nisar Sheikh, MoNHSRC

Pakistan Army

Brig. Dr Bashir, Engineer-in-Chief Branch,
GHQ

Brig. Tariq Mehmood, Engineer-in-Chief
Branch, GHQ

UNICEF and WHO representatives

Angela Kearney, UNICEF Representative

Michel Thieren, WHO Representative

Partner representatives

Aidan O'Leary, UNICEF
Tim Petersen, BMGF/HQ
Michael K McGovern, Chair Polio Plus,
Rotary International
Aziz Memon, Rotary International
Carol Pandak, Director Polio Plus, Rotary
International
Judith Demith, Advocacy Specialist, Rotary
International

Kiril Iordanov, Canadian High Commission
Takashi Harada, Embassy of Japan
Teppei Nakagawa, Embassy of Japan
Yohei Ishiguro, JICA
Shinsaku Sakurada, JICA
Yasuhiro Tojo, JICA
Ellyn W Ogden, USAID
Sangita Patel, USAID

*Federal and provincial PEI teams**Federal*

Rana Muhammad Safdar, Coordinator, NEOC
 Saqlain Gilani, EPI
 Shahzad Ahmad/Salman Sharif, NIH
 Kamaluddin Soomro, N-STOP (FELTP)
 Mumtaz Laghari, N-STOP (FELTP)
 Salah Al Haithami, WHO
 Raoul Bonifacio, WHO

Jalpa Ratna, UNICEF
 Raabya Amjad, UNICEF
 Attiya Qazi, UNICEF
 Anahita Shirzad, UNICEF
 Altaf Bosan, BMGF
 Jamal Ahmed, CDC
 Ashir Ali, Rotary International

Balochistan

Muhammad Umar Baloch, Secretary Health
 Saif ur Rehman, Coordinator, EOC
 Shakir Baloch, EPI Manager
 Aftab Kakar, N-STOP (FELTP)

Abdi Nasir Adem, WHO
 Jawahir Habib, UNICEF
 Hanif Khilji, Rotary International

Khyber Pakhtunkhwa and Federally Administered Tribal Areas

Muhammad Abid Majeed, Secretary Health, KP
 Muhammad Akbar Khan, Coordinator EOC, KP
 Taimur Shah, EPI, KP
 Akram Shah, KP
 Shakeel Qadir Khan, Secretary Law and
 Order/ Coordinator EOC, FATA
 Jawad Habib, Director Health Services, FATA
 Ikhtiar Ali, Assistant Director, EPI, FATA

Qasim Afridi, N-STOP (FELTP)
 Ibrahim Yalahow, WHO
 Hamid Mohmand, WHO
 Abdul Qayum Khan, UNICEF
 Muhammad J. Khan, UNICEF
 Imtiaz Ali Shah, BMGF
 Nadeem Jan, BMGF
 Abdul Rauf Rohaila, Rotary International

Punjab

Ali Jaan Khan, Secretary Health
 Zahid Pervaiz, Coordinator EOC
 Munir Ahmed, Programme Manager, EPI
 Muhammad Younas, N-STOP (FELTP)
 Fayyaz Sarwar, WHO

Attiya Qazi, UNICEF
 Aslam Chaudhary, Bill & Melinda Gates
 Foundation
 Mohammed Shamsi, Rotary International

Sindh

Shanaz Wazir Ali, Coordinator Oversight &
 Coordination Cell
 Ahmed Baksh Narejo, Secretary Health
 Usman Chachar, Coordinator, EOC
 Fayaz Ahmed Jatoi, incoming Coordinator, EOC
 Manzoor Memon, N-STOP (FELTP)
 Akbar Ali Ghanghro, NSTOP (FELTP)

Omer Mekki, GPEI North Sindh Coordinator
 Ahmed Shabbir, WHO
 Thomas Grein, WHO
 Shoukat Ali, UNICEF
 Ahmed Ali Sheikh, Bill & Melinda Gates
 Foundation
 Masood Ahmed Bhali, Rotary International

Gilgit-Baltistan

Shakil Khan, DHO/EPI Manager

Islamabad

Hasan Orooj, Director Health Services, CDA
 Zulfiqar Ali, Focal Person EPI



World Health Organization
Regional Office for the Eastern Mediterranean
P.O. Box 7608, Nasr City 11371
Cairo, Egypt
www.emro.who.int