GLOBAL POLIO ERADICATION INITIATIVE (GPEI) STATUS REPORT

SEPTEMBER 27, 2013

World Health Organization

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EXECUTIVE SUMMARY

This third joint report of the Global Polio Eradication Initiative (GPEI) spearheading partners is issued at a crucial time. Despite challenges, progress in the 3 endemic countries has continued: more than10 months without wild poliovirus type 3 (WPV3) cases globally (>17 months in Asia); no endemic wild poliovirus type 1 (WPV1) transmission detected in Afghanistan for >10 months; and decreased case counts in key sanctuaries of Nigeria and Pakistan. This progress reminds us that the goal has never been closer. Yet, an ongoing WPV1 outbreak in the Horn of Africa and active transmission in Israel indicate that all countries remain at risk as long as one country remains endemic. Aggressively addressing the remaining challenges will increase the likelihood of ending WPV transmission by end-2014.

Afghanistan: As of 10 September, there have been 4 WPV cases in 2013, compared to 19 during the same time period in 2012, and there have been no cases in the southern endemic zone since November 2012. Each case in 2013 has been linked to WPV imported into the East Region from Pakistan. The proportion of "zero-dose children" has decreased in low performing districts. Refusals are high due largely to an inability to access newborn, sick, and sleeping children in a household.

Pakistan: Despite ongoing security concerns and other operational challenges, reported WPV cases have not increased, with 28 cases reported as of 10 September 2013 compared with 30 during the same period in 2012. These cases have also occurred in fewer districts than had cases in 2012. Nevertheless, around Peshawar, where WPV continues to circulate, insecurity has impaired the program's ability to reach all children. Children in parts of the Federally Administered Tribal Areas (FATA) remain inaccessible and the bulk of 2013 cases are from there. Environmental surveillance indicates persistent silent transmission in southern Sindh. Due to insecurity, monitoring of the quality of supplementary immunization activities (SIA) has been restricted in Karachi and impaired substantially in Khyber Pakhtunkhwa (KP). SIA quality is low in the Quetta sanctuary and parts of KP. In 2013, 19% of cases were in refusal families. Refusals are concentrated in northern KP (50% of the total refusals). The ban in North and South Waziristan continues.

Nigeria: The Northwest sanctuary has been free of reported cases in 2013. There has been a resurgence of WPV in the North Central sanctuary, occurrence of cases in the middle of the country, and continuation of cases in the Northeast sanctuary. SIA performance remains poor in Kano and Borno states, as well as in several local areas in other northern states. Insecurity is compromising SIA quality and restricting access in selected local government areas (LGAs) in Borno and Yobe. Anti-polio sentiment increased in late 2012. Among WPV cases in 2013, 33% are in refusals. Nevertheless, refusals have decreased by 60% since January.

Horn of Africa: An outbreak of WPV1 is ongoing. Cases have spread throughout Somalia and within bordering areas of Kenya and Ethiopia. Although outbreaks are being countered with repeated SIAs and community demand for OPV is high, roughly half a million children <5 years of age remain out of reach in insecure areas of Somalia. There is a high risk that outbreak transmission will not be stopped within 6 months of outbreak notification. The countries and other GPEI partners must maintain a sense of urgency to end this outbreak.

Israel, West Bank and Gaza Strip: In mid-2013, environmental samples revealed the presence of WPV1 in southern Israel. Sewage samples obtained in February 2013 were found to be WPV-positive when tested. To date, WPV has been detected in samples taken in several districts and recently detected in samples from West Bank and Gaza Strip, indicating widespread transmission. There have been no reported cases of paralytic polio. Israel has responded with a clinic-based bOPV campaign. Full SIAs are planned for West Bank and Gaza Strip. The risk remains high for further spread.

cVDPV: In 2013, there was continued circulation of vaccine-derived polio viruses, type 2 (cVDPV2s), in all three endemic countries. In non-endemic countries, cVDPV2s have been reported in Somalia and Chad with extension of the Chad cVDPV2 outbreak into Niger, Nigeria, and Cameroon.

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ACRONYMS AND ABBREVIATIONS

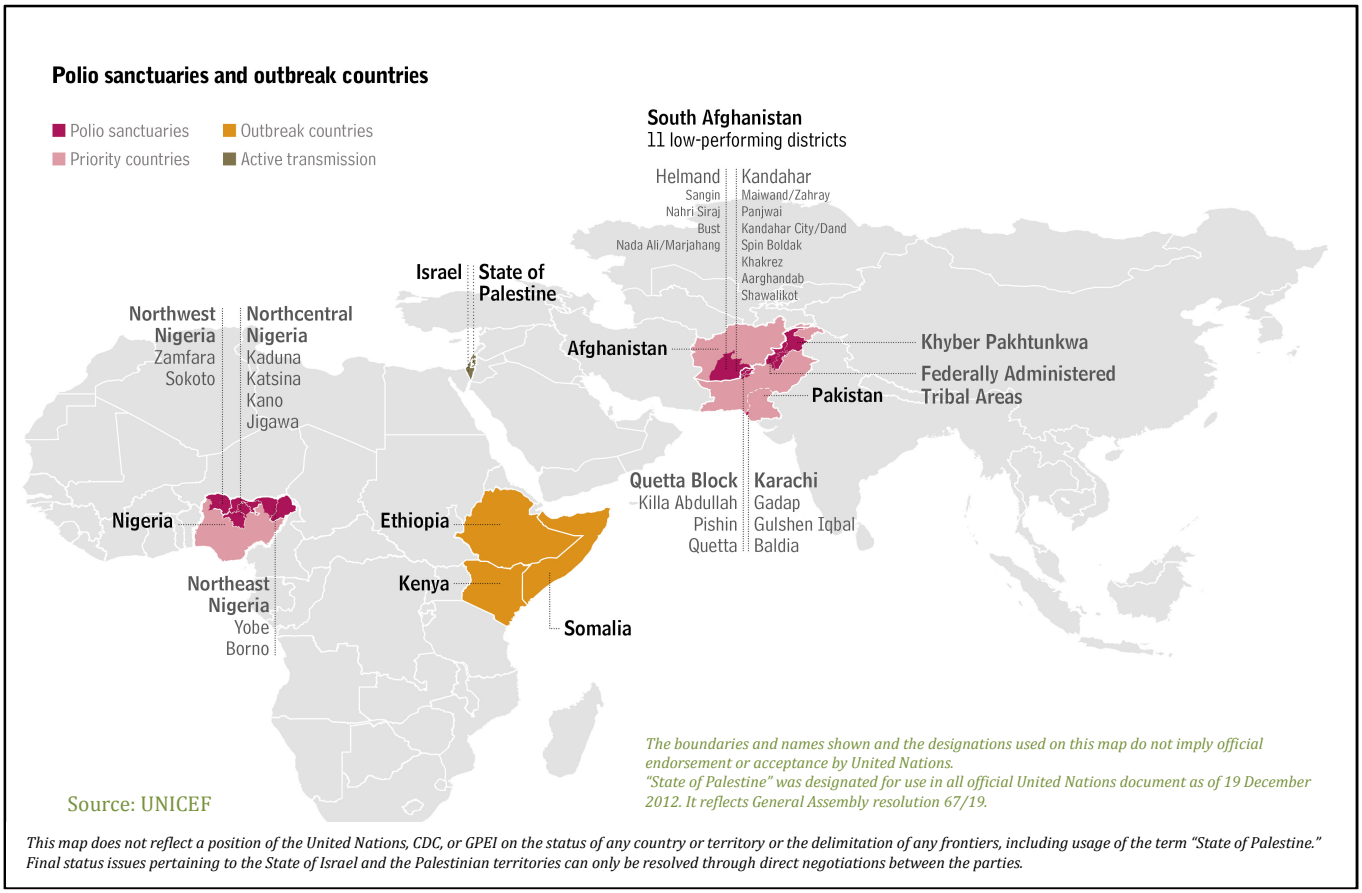
AFP	acute flaccid paralysis
aVDPV	ambiguous vaccine-derived poliovirus
bOPV	bivalent (types 1 and 3) oral poliovirus vaccine
CAR	Central African Republic
COMNet	Community Mobilizer Network (Pakistan)
CDC	U.S. Centers for Disease Control and Prevention
cVDPV	circulating vaccine-derived poliovirus
DRC	Democratic Republic of the Congo
EOC	Emergency Operations Centre (Nigeria)
FATA	Federally Administered Tribal Areas (Pakistan)
FCT	Federal Capital Territory (Nigeria)
GPEI	Global Polio Eradication Initiative
HOA	Horn of Africa
KAP	knowledge, attitudes and practices
KP	Khyber Pakhtunkhwa (Pakistan)
LGA	local government area (Nigeria)
LPD	low performing districts
LQAS	lot quality assurance sampling
MPI	major process indicator
NPAFP	non-polio acute flaccid paralysis
OPV	oral poliovirus vaccine
PTPs	permanent transit posts
RPRC	Rotary Polio Resource Center (Pakistan)
SIA	supplementary immunization activity
tOPV	trivalent oral poliovirus vaccine
UNICEF	United Nations Children's Fund
UC	union council (Pakistan)
VDPV	vaccine-derived poliovirus
WHO	World Health Organization
WPV	wild poliovirus

GPEI Partner Status Report: 27 September 2013

INTRODUCTION

This third GPEI Partner Report on the progress towards polio eradication brings together input, analysis, and interpretation from the World Health Organization (WHO), Rotary International, the U.S. Centers for Disease Control and Prevention (CDC), and the United Nations Children's Fund (UNICEF). The report focuses on data about poliovirus sanctuaries in the three remaining polio-endemic countries (Nigeria, Pakistan, and Afghanistan), and includes data about the ongoing outbreak in the Horn of Africa (HOA); detection of wild poliovirus (WPV) in environmental samples in Israel, West Bank, and Gaza Strip; and countries with circulating vaccine-derived polioviruses (cVDPVs). The report includes indicators of progress toward the goals of the GPEI Polio Eradication and Endgame Strategic Plan 2013–2018. The WPV and cVDPV data presented here represent cases confirmed as of 10 September 2013 and with genomic sequence analysis through 4 September. Analyses of the sanctuaries include data from acute flaccid paralysis (AFP) surveillance with case paralysis over the prior 12 months (dates vary); for the analysis of standard surveillance and immunization indicators* by province/state for endemic countries, AFP cases under analysis by 6-month intervals have onset of 1 February 2012–30 July 2013. For countries at risk, AFP cases under analysis have onset of 1 August 2012–30 July 2013. Human Resource and key program information are reported as of16 September 2013.

WPV sanctuaries in polio-endemic countries, and countries with ongoing wild poliovirus transmission, 2013



This map does not reflect a position of the United Nations, CDC, or GPEI on the status of any country or territory or the delimitation of any frontiers, including usage of the term "State of Palestine." Final status issues pertaining to the State of Israel and the Palestinian territories can only be resolved through direct negotiations between the parties.

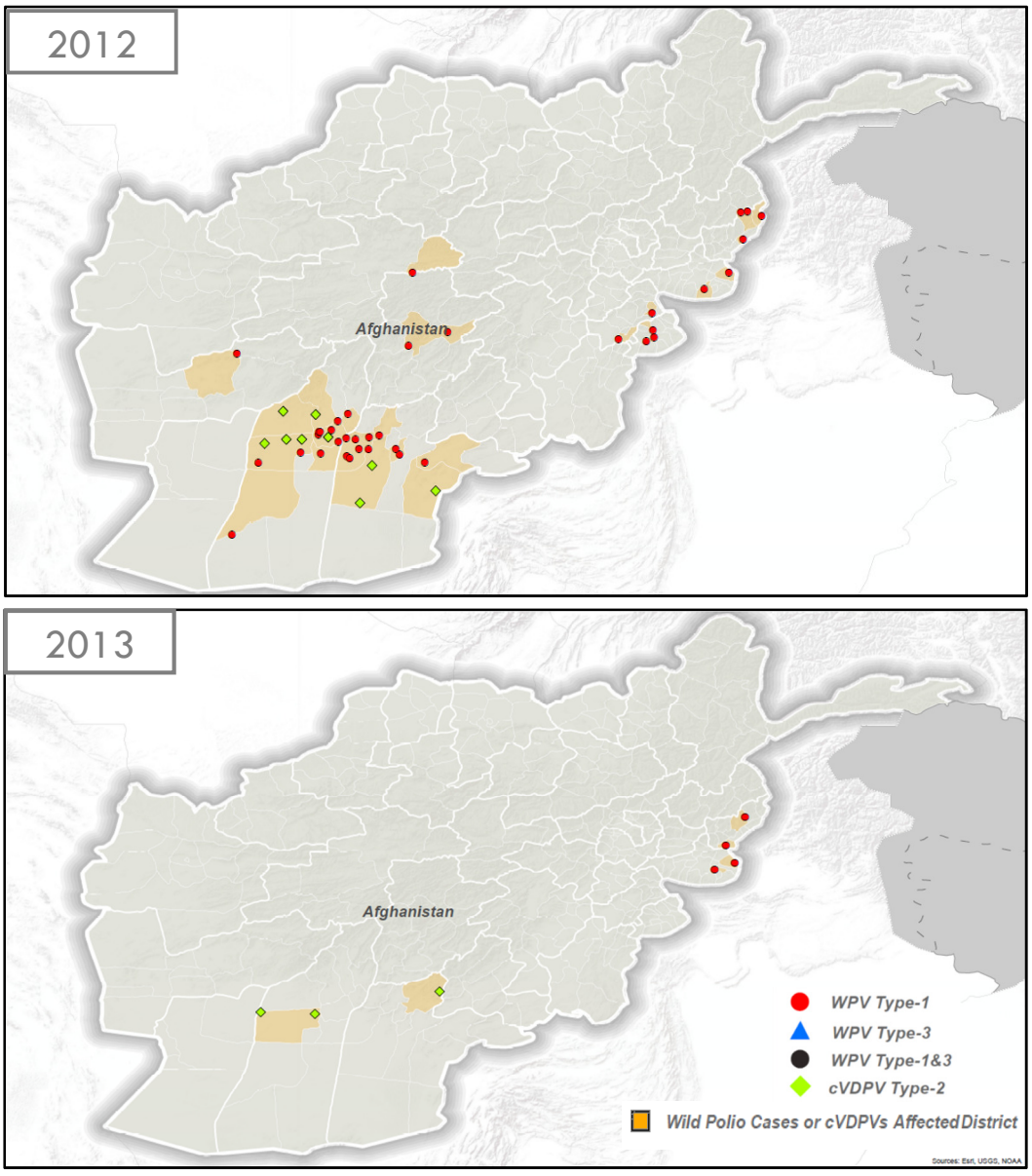
* Standard AFP surveillance performance indicators by province/state for this report include the following: 1) detection of at least two non-polio AFP (NPAFP) cases per 100,000 population aged <15 years annually and 2) adequate stool specimen collection from >80% of AFP cases (two specimens collected ≥24 hours apart within 14 days of paralysis onset). Although the complete conditions of adequacy include specimens shipped on ice or in frozen packs to a WHO-accredited laboratory, arriving in good condition, those could not be applied for the current report, although they were applied in prior reports. Standard immunization performance indicators by province/state for this report are 1) <10% of children aged 6-35 months with NPAFP with an OPV dose recall history of 0 doses and 2) ≥80% of children aged 6-35 months with NPAFP with an OPV dose recall history of 4 or more doses.

ENDEMIC COUNTRIES

AFGHANISTAN

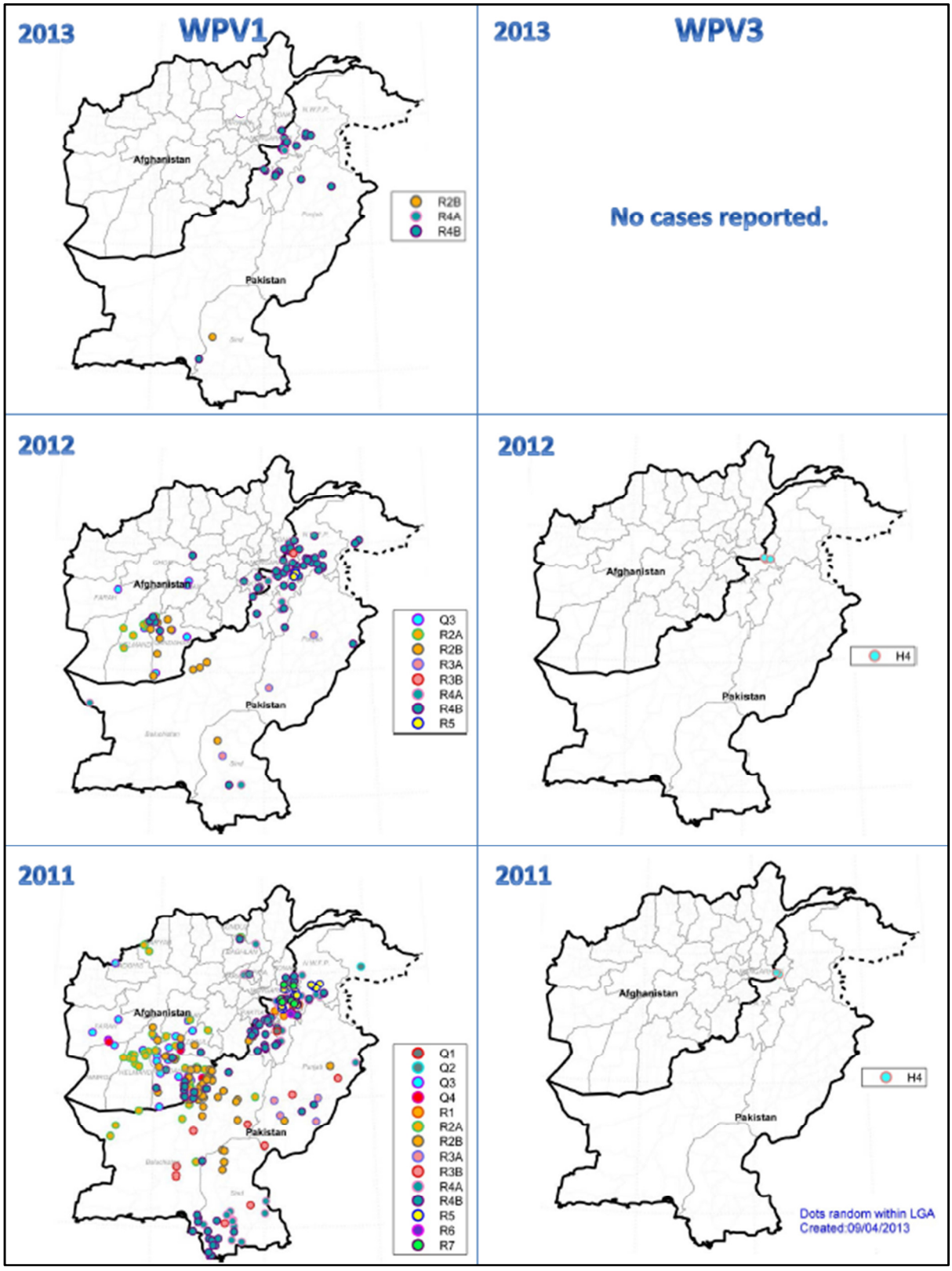
NATIONAL POLIO OVERVIEW

The number of WPV type 1 (WPV1) cases in Afghanistan decreased from 80 in 2011 to 37 in 2012. As of 10 September, there have been only 4 WPV1 cases in 2013, in provinces of the Eastern Region bordering Pakistan. SIAs have primarily used bivalent (types 1 and 3) oral poliovirus vaccine (bOPV) during the reporting period. Short-interval additional dose (SIAD) SIAs (an additional round one week later) have been conducted in the low performing districts (LPDs) of the Southern Region in 2013. Several SIAs have used tOPV, including the two national immunization days (NIDs). LQAS surveys were introduced to more accurately assess SIA quality. Cases of cVDPV2 detected since October 2012 represented both new emergences in 2012 and silent circulation of lineages previously present in Afghanistan. Transmission of the lineage that emerged in 2009 continued in Helmand Province in the first quarter of 2013. Permanent polio teams have used tOPV since March 2013.



VIROLOGY

Wild poliovirus type 1 (WPV1) and type 3 (WPV3) by genetic cluster, Afghanistan & Pakistan, 2011–2013 to date*



* Data as of 4 September 2013.

WPV1 viruses from four genetic clusters were isolated during July 2012 to July 2013. Three clusters in Southern Afghanistan (R2A, R2B, and R4B) in 2012 represented local transmission as well as cross-border transmission from sanctuaries in Pakistan. All WPV cases since November 2012 are related to WPV importation from Khyber Pakhtunkhwa (KP), Pakistan. Indigenous cluster Q3 virus was last detected in an AFP case with onset 19 November 2012 in Helmand. Four (11%) of 38 WPV and cVDPV isolates in Afghanistan in the second half of 2012 had less than expected genetic linkage to other viruses from Afghanistan, indicating that there may be surveillance gaps at the sub-national level. All isolates in 2013 have expected genetic linkages of a sensitive surveillance system.

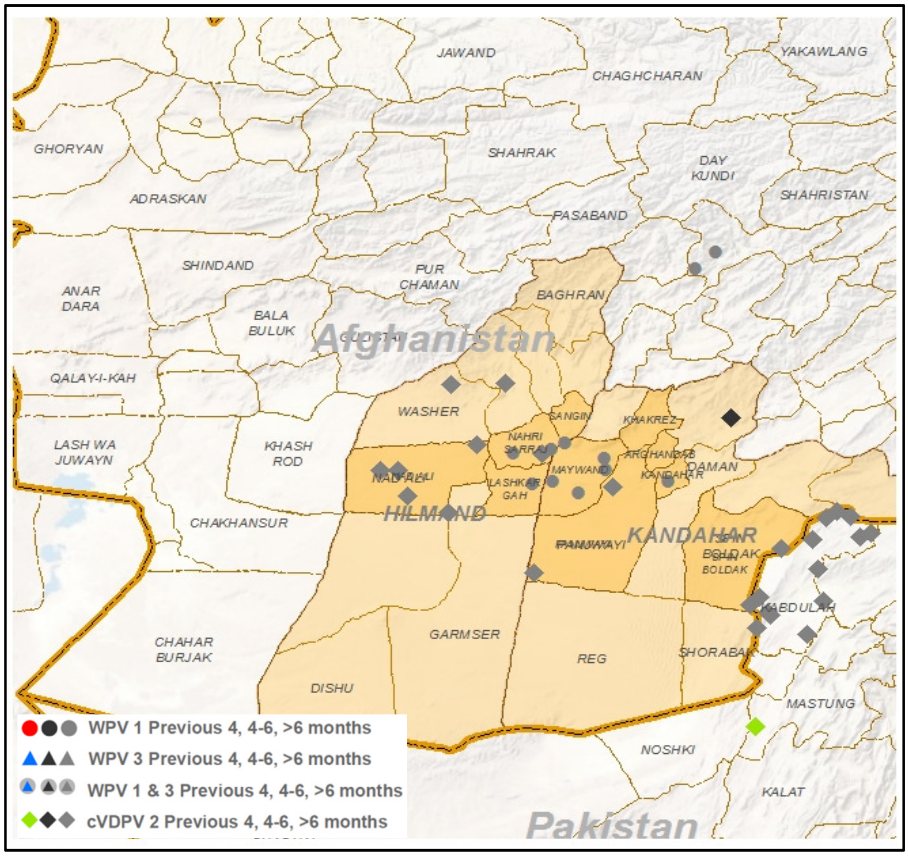
No WPV3 has been detected in Afghanistan since 11 April 2010.

1. Only 4 WPV1 cases in 2 provinces were detected in 2013, all in the Eastern Region bordering Pakistan. All WPV cases since November 2012 are related to WPV importation from KP, Pakistan.
2. No WPV3 cases have been detected in Afghanistan since 11 April 2010.

POLIOVIRUS SANCTUARIES

SOUTHERN SANCTUARY

WPV and cVDPV cases 11 September 2012 to 10 September 2013

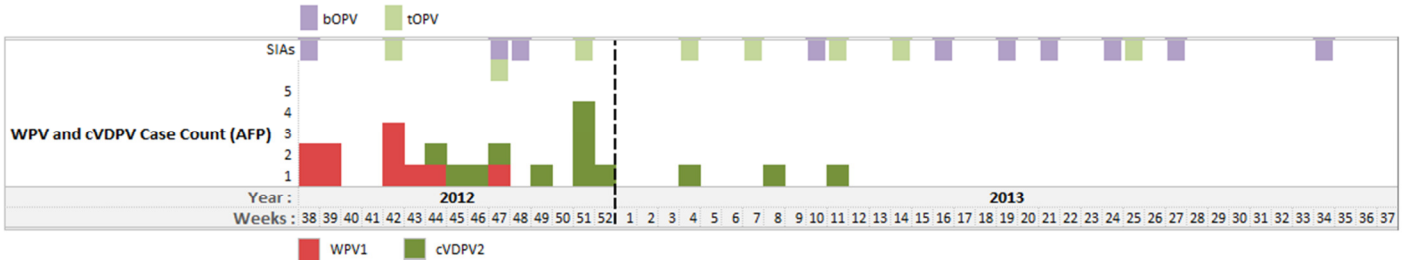


Afghanistan had one WPV sanctuary, defined in early 2013 as 11 Low Performing Districts (LPDs) in the Southern Region. These districts were designated as low performing because of inaccessibility, confirmation of endemic circulation in the previous two years, weak or declining SIA quality, low level of awareness of SIAs, and a disproportionally high percentage of young children with non-polio AFP (NPAFP) who have never received OPV.

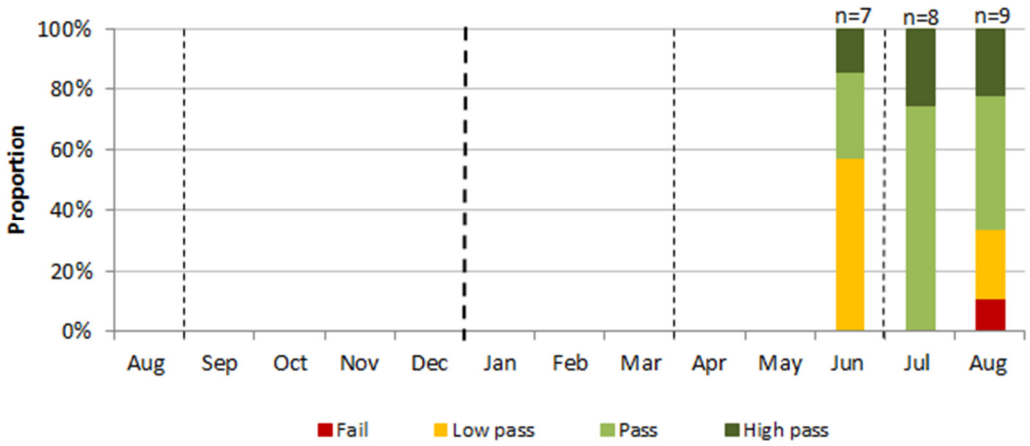
In addition to the Southern Region sanctuary, WPV from Pakistan has been imported into the Eastern Region of Afghanistan during 2012–2013. In 2013, four such cases have been identified in Nangarhar and Kunar provinces. In the Eastern Region, 19 districts have been designated LPDs.

Notes regarding Afghanistan's LQAS survey results (see next page): Decision rules of 3, 8, and 19 for sample sizes of 60 provide a reasonable assessment of SIA quality at 90% (**High Pass**), 80% (**Pass**) and 60% (**Low**) thresholds (or **Fail** if below) for programmatic purposes under the assumption of moderate variability in cluster-level results. These surveys do not allow accurate statements about vaccination coverage.

WPV and cVDPV cases by week of onset, Southern Region (Helmand, Kandahar, Uruzgan, Zabul, and Nimroz Provinces) and Farah Province, Afghanistan

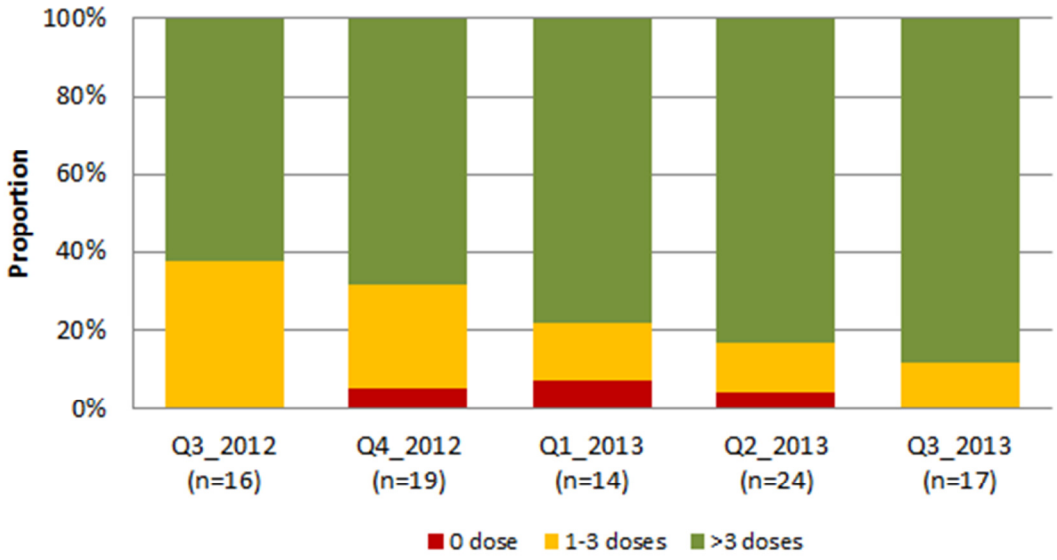


LQAS survey results by SIA, in the 11 low-performing districts



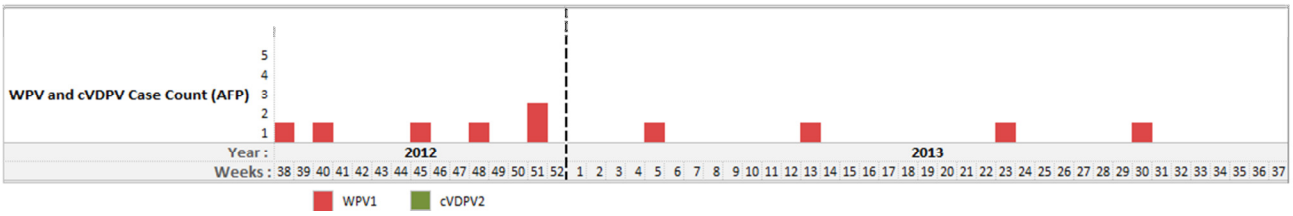
Note: The "n=" numbers shown above each month represent the number of districts for which data are available.

Proportion of NPAFP cases 6-35 months, by OPV status, in the 11 low-performing districts*



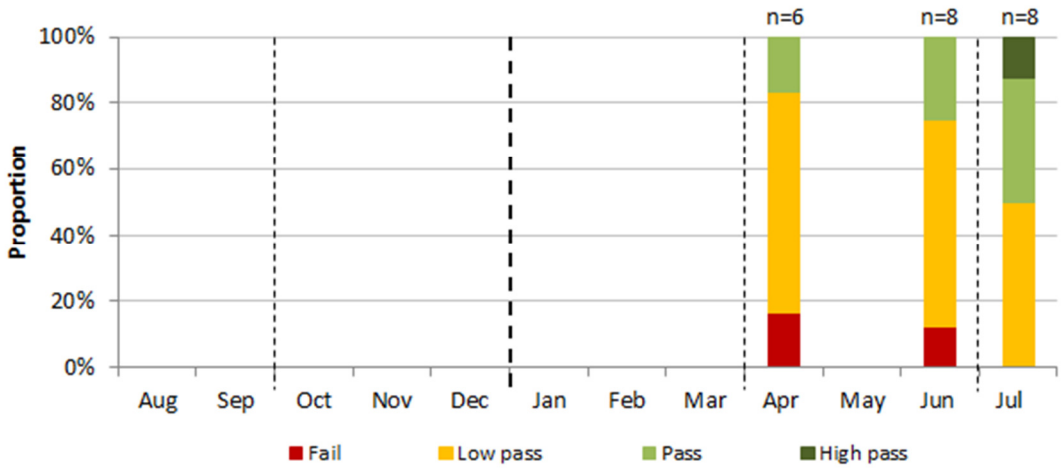
* Data as of 10 September 2013.

WPV and cVDPV cases by week of onset, in the Eastern Region (Kunar, Khost, Nangarhar, and Paktya Provinces)*



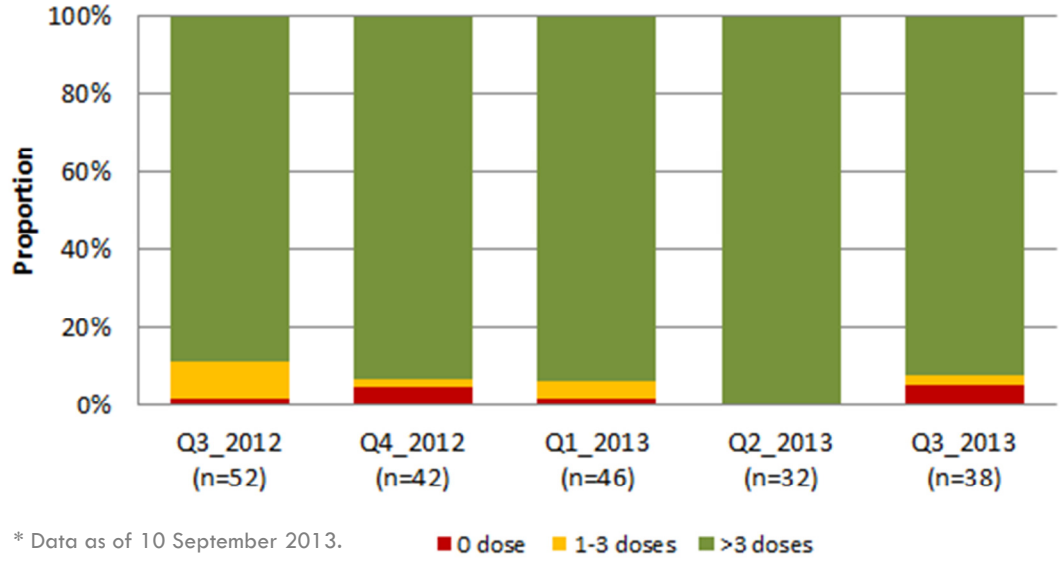
* Details on SIAs not available

LQAS survey results by SIA in four eastern border provinces (Khost, Kunar, Nangarhar, and Paktya Provinces)



Note: The "n=" numbers shown above each bar month represent the number of districts for which data are available.

Proportion of NPAFP cases 6-35 months, by OPV status, in four eastern border provinces (Khost, Kunar, Nangarhar, and Paktya Provinces)



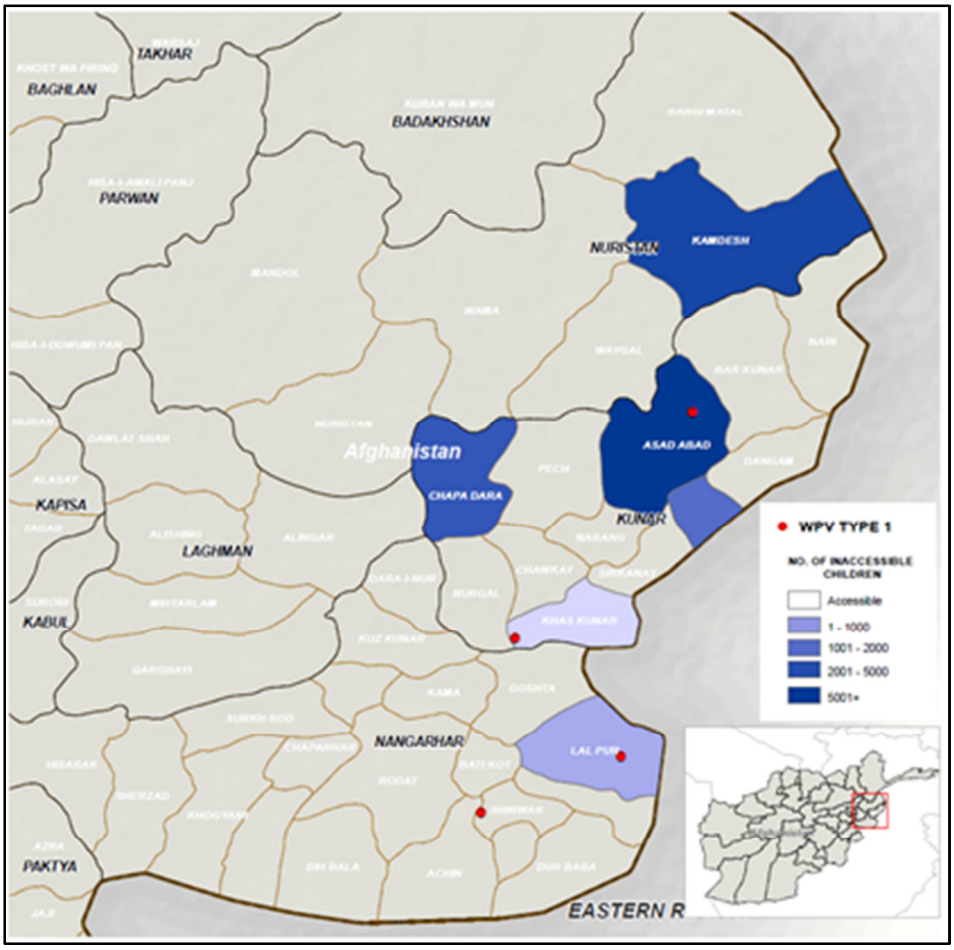
* Data as of 10 September 2013.

PROGRAM INFORMATION

ACCESSIBILITY AND INSECURITY

The security situation in the South, and hence accessibility, has steadily improved since 2012. Negotiations through the International Red Cross and Red Crescent Movement in the Southern Region have been successful in reducing the number of missed children due to inaccessibility. The proportion of children inaccessible due to insecurity in the 11 LPDs has fallen from 9.2% of targeted children in June 2012 to 3.9% in January 2013 to 1.4% in July 2013. The total number of inaccessible children in the entire Southern Region was 96,045 in the July 2013 SIA, which represents 2.2% of the 4.35 million children targeted in the Region.

Inaccessible areas, WPV1 cases, and the estimated number of children affected during the July 2013 SIA—Eastern Region, Afghanistan, 2013



The total number of inaccessible children in the Eastern Region was 17,346 in the July 2013 SIA, which is 0.8% of the 2.19 million children targeted in the Region.

The Eastern Region of Afghanistan has a high proportion of children aged 6–23 months with NPAFP who have never received OPV. This is in part due to the inability of vaccination teams to safely enter parts of the region due to insecurity and anti-government elements, but also due to programmatic issues. In the 19 LPDs, the proportion of "zero-dose" children aged 6–23 months with NPAFP declined from 21% in 2011 to 16% in 2012 and 4% in 2013.

OWNERSHIP

National	Q4 '12	Q1 '13	Q2 '13
National EPI Committee Weekly Meetings held with minutes available	Yes	Yes	Yes
Polio Policy Dialogue Group Quarterly Meetings held with minutes available	Yes	Yes	Yes
President's Quarterly Meeting with Governors held	No	No	No
Inter-Ministerial Task Force Quarterly Meetings held	Yes	No	No
Regional	**Q4 '12**	**Q1 '13**	**Q2 '13**
Regional/Provincial EPI Management Teams Monthly Meetings held	Yes	Yes	Yes

Percent of low performing districts meeting preparedness indicators

Indicator: District Coordination Committee Meetings Held (yes / no)

Low Performing Districts	Oct '12	Dec '12	Jan '13	Feb '13	Mar '13 R1	Mar '13 R2	Mar '13 R3	Apr '13	May '13 R1	May '13 R2	Jun '13	Jul '13
Districts participating	8	8	7	7	8	8	8	8	8	8	8	8
Preparedness indicator met	75	88	86	100	38	88	100	88	71	75	88	100
Shahwalikot	Yes	No	No		No	No	Yes	Yes	No	No	No	Yes
Maiwand	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panjwai	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Boldak	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bust (Lashkar Gah)	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nahesaraj	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nadali	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sangin	Yes	Yes		Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes

Abbreviations: EPI=Expanded Program on Immunization — No campaign | No data

Source: Afghanistan Campaign Dashboard, WHO-Afghanistan

Note: Results for 8 of the 11 Low Performing Districts were available at the time of this report. The 3 districts missing are Arghandab, Kandahar, and Khakrez.

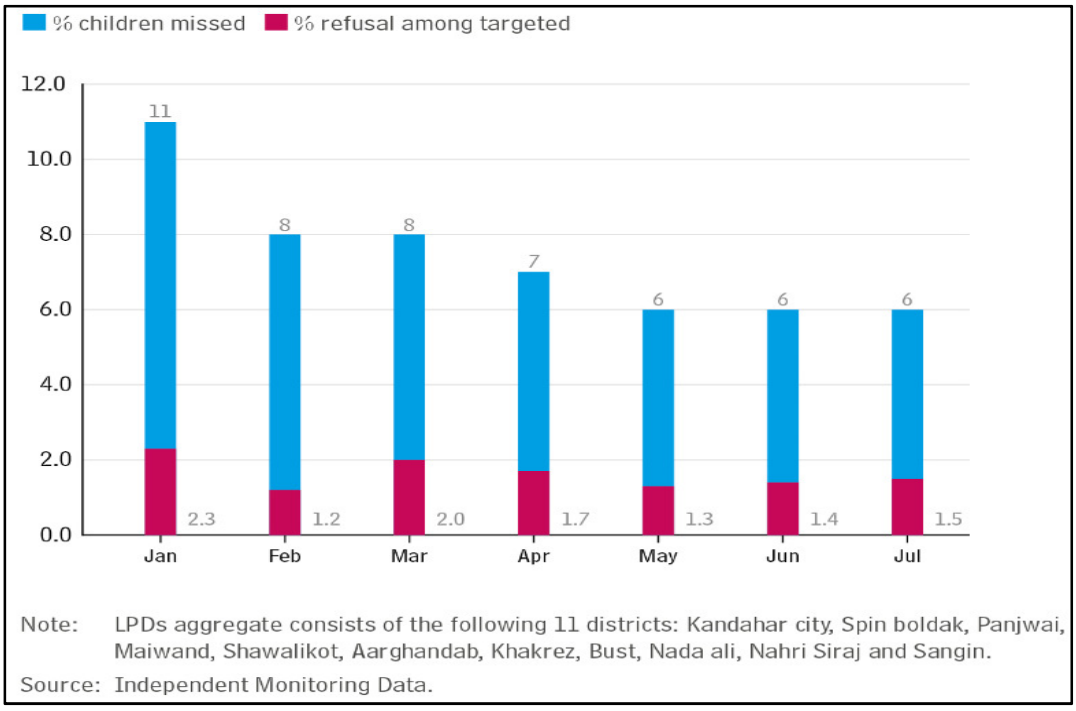
HUMAN RESOURCES

Location	Number of vaccination teams	Number (%) of vaccination teams with a female member	Number (%) of vaccination teams with a local member	Salary per vaccinator / day	Number of current GPEI staff			
					PEI Coordinator	Provincial Polio Officer	District Polio Officer	Total
Kandahar and Hilmand	1734	144 (8%)	1734 (100%)	$5.00	2	10	13	25

COMMUNITY DEMAND

There has been strong progress towards reaching more children with OPV in the 11 LPDs of the Southern Region over the last seven months. In these districts, the proportion of missed children, and those missed due to refusal, determined by independent monitoring, have decreased consistently from January to July – from 10% to 6%, and from 2.3% to 1.5%, respectively. Rates of refusal are highest in 5 of the 11 districts (see figure below).

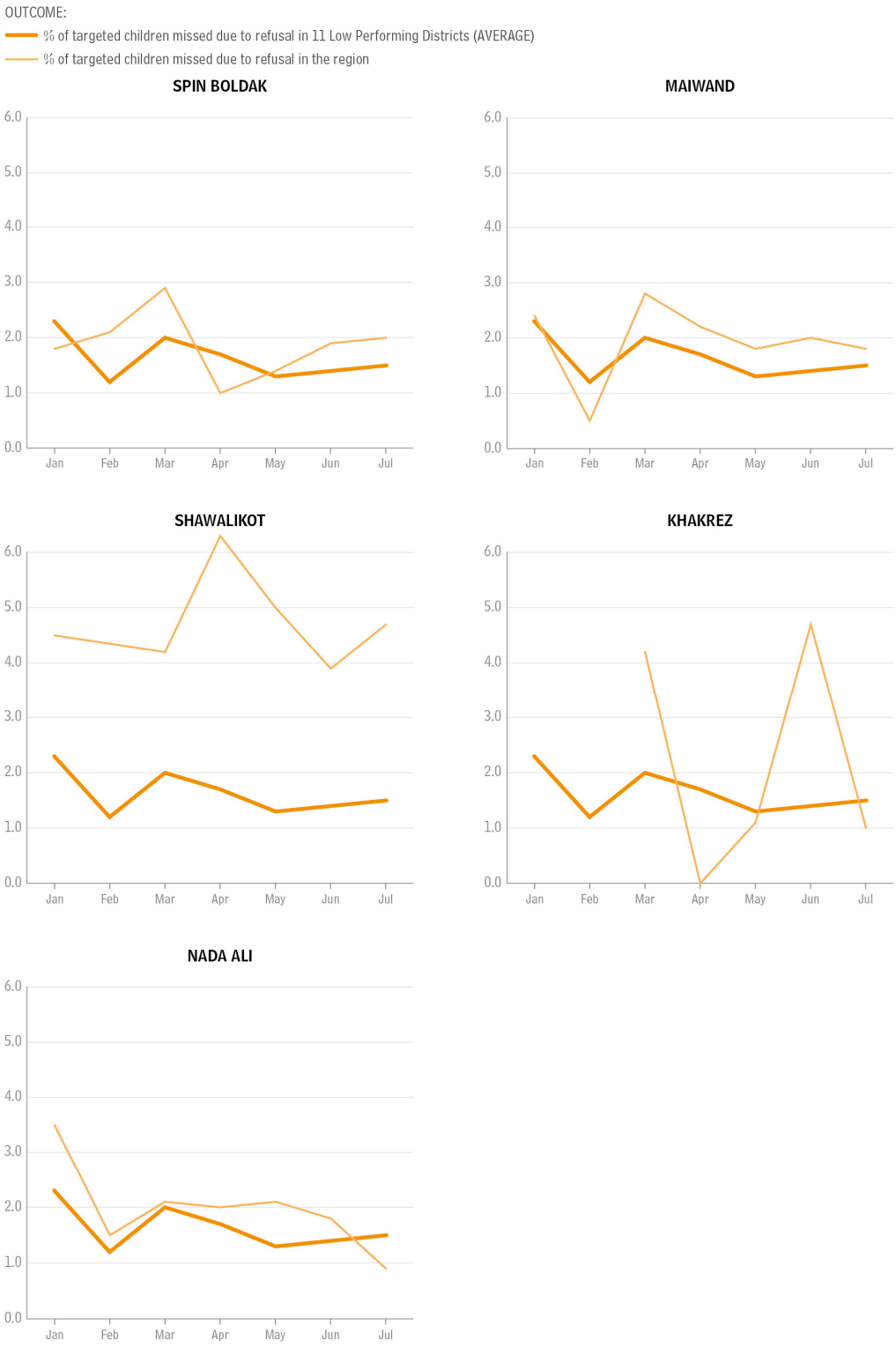
Proportion of missed children and refusal rates in 11 Low Performing Districts as a percentage (%) of targeted children—Southern Region, Afghanistan, January – July 2013



Note: LPDs aggregate consists of the following 11 districts: Kandahar city, Spin boldak, Panjwai, Maiwand, Shawalikot, Aarghandab, Khakrez, Bust, Nada ali, Nahri Siraj and Sangin.

Source: Independent Monitoring Data.

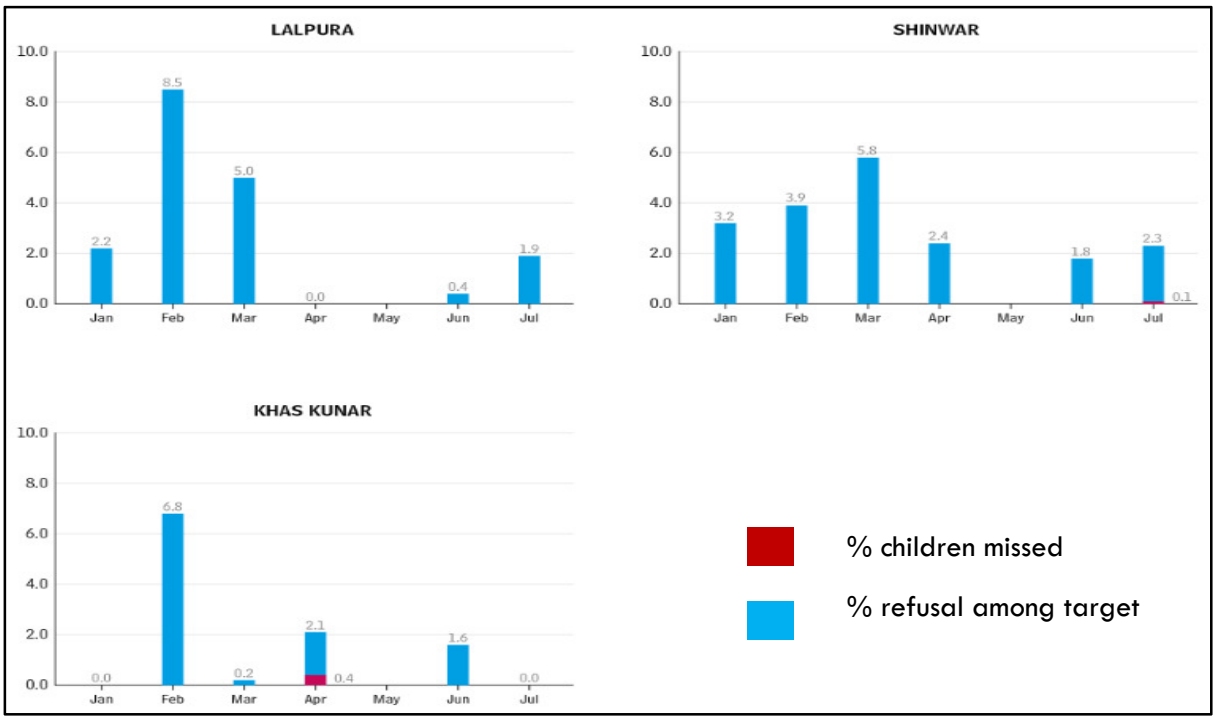
Trends in refusals among targeted children in five high-refusal, low-performing districts—Southern Region, Afghanistan, January – July, 2013



Source: Independent Monitoring Data

There are fewer refusals (<0.5% of targeted children) in the Eastern Region than in the Southern Region (>1.2%). More children were missed in the Eastern Region during the first quarter than the second quarter.

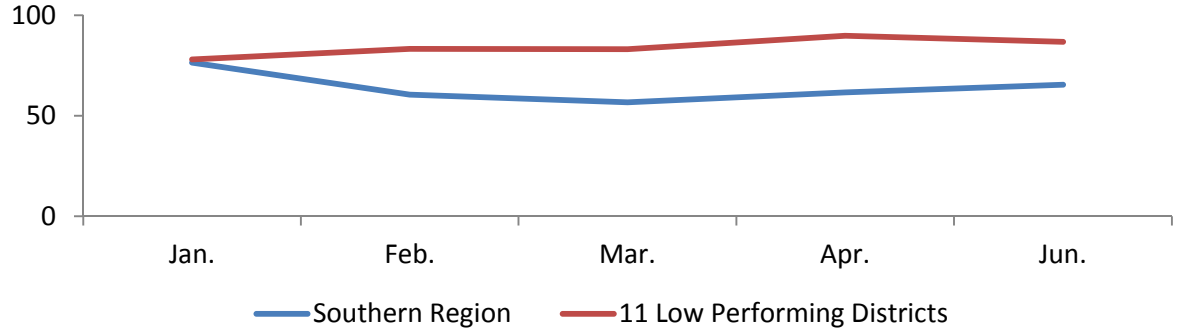
Proportion of missed children and refusal among three selected districts in Eastern Afghanistan with 2013 WPV cases (%), January – July, 2013



Source: Independent Monitoring Data

Caregivers' awareness of polio campaigns in the low-performing districts has risen steadily over the course of the year, from 78% to 86%. This is in contrast to a lower and declining awareness level overall in the Southern Region. Social mobilizers focus much of their efforts on campaign awareness, and it is in this area that their work has demonstrated the most effect.

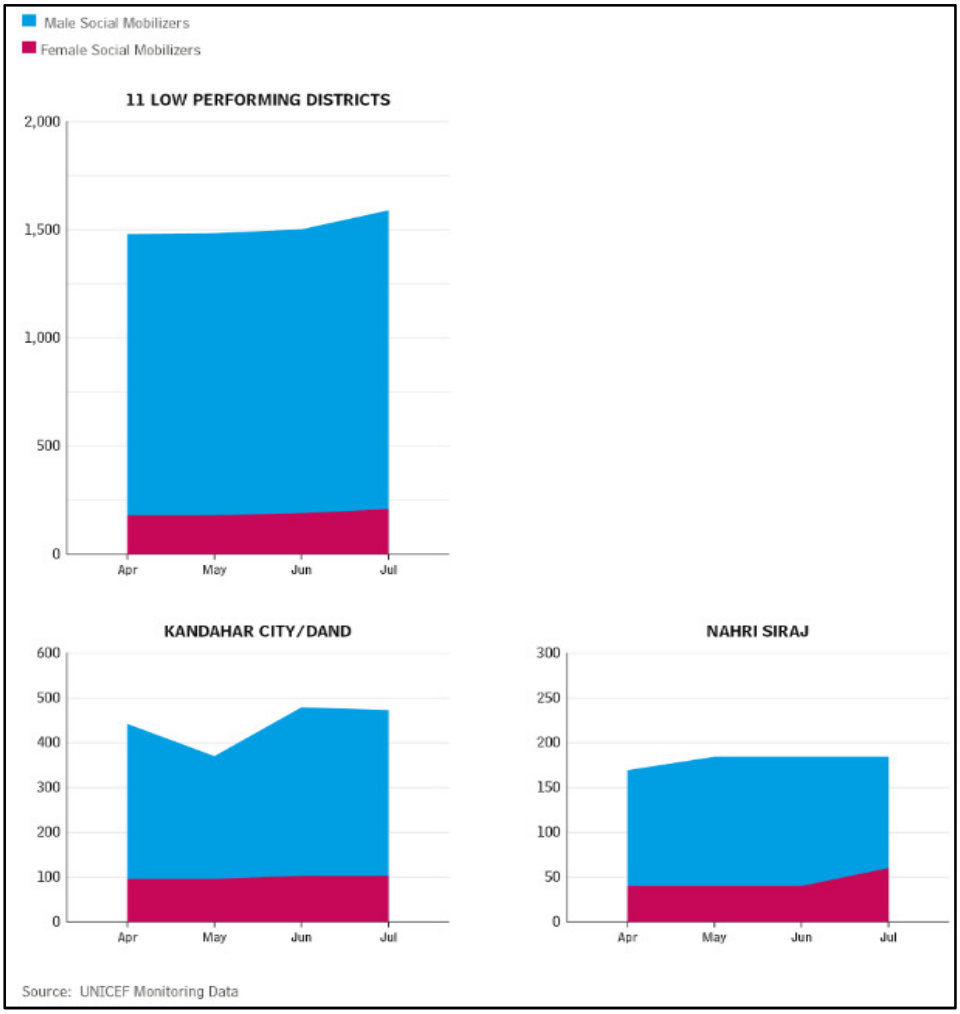
Caregiver awareness of polio campaigns—Southern Region, Afghanistan, January – June, 2013



Source: Independent Monitoring Data; UNICEF

Caregivers are more aware of polio campaigns in the 11 low performing districts, where community mobilizers have focused their efforts for the past year, than in other districts of the Southern Region.

Proportion of female social mobilizers in 11 Low Performing Districts (%)—Southern District, Afghanistan, January – July 2013



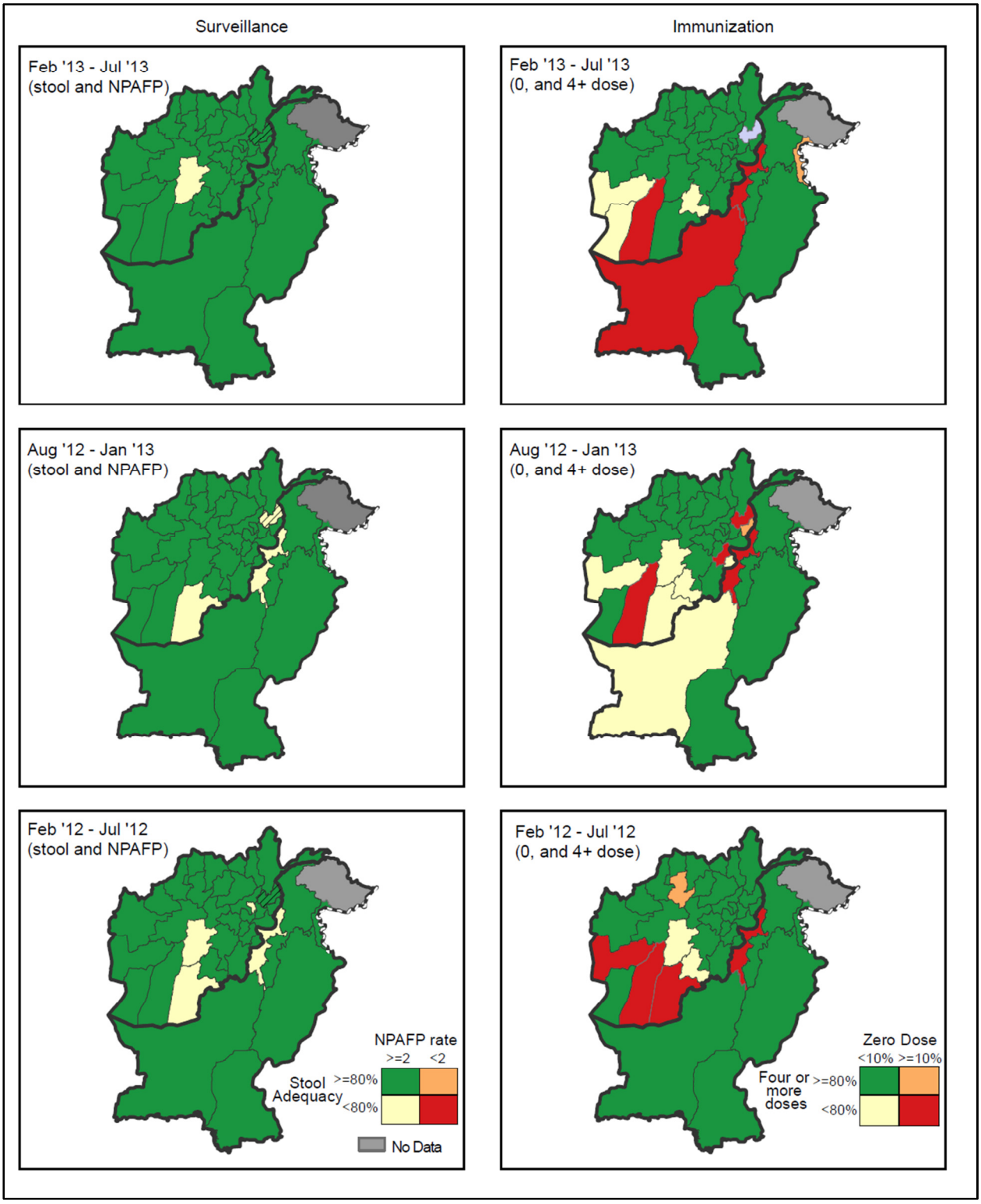
In Afghanistan's deeply conservative Southern Region, male-female interaction at the doorstep is nearly impossible. Yet 90% of the frontline workers, who knock on doors in this area aiming to vaccinate every child under five, are men. This dynamic makes it extremely difficult to engage meaningfully with mothers about the importance of vaccination, and particularly about the importance of waking a sleeping child or vaccinating a newborn or sick child.

Findings from Afghanistan's December 2012 knowledge, attitudes and practices (KAP) study indicate that most caregivers would prefer women to deliver vaccination services to them. More than 75% of caregivers stated that they prefer to have at least one female in the vaccination teams visiting their homes. Yet since January, the proportion of social mobilizers and vaccinators that are female has remained almost negligible at 12% on average. Areas like Kandahar City, an urban center that lends itself more easily to recruiting women, should have higher proportions of female staff than Nahri Siraj, one of the top 10 inaccessible areas of the Southern Region, but does not.

Whilst conservative social values challenge female recruitment in many areas of the Southern Afghanistan, it is possible to set realistic local targets for acceptable team composition for each area to ensure that gains in female recruitment can be made with focused oversight and innovation. Women may need to be accompanied by *mahrem's* – male relatives – or younger escorts. Without the understanding, participation, and ownership of Afghan women the future of immunization efforts, as well as the broader child health initiative, remains at risk.

PERFORMANCE INDICATORS

Six month-annualized standard surveillance and immunization indicators by province among children aged 6-35 months with NPAFP, Afghanistan and Pakistan February 2012 to July 2013



GPEI POLIO ERADICATION AND ENDGAME STRATEGIC PLAN 2013–2018, AFGHANISTAN

STRATEGIC PLAN OBJECTIVE	OUTCOME INDICATORS (2013)	RESULTS	STATUS
Poliovirus Detection and Interruption: Complete the interruption of wild poliovirus transmission globally and more rapidly detect and interrupt any new outbreaks due to vaccine-derived polioviruses	All wild poliovirus transmission stopped by the end of 2014		**NA***
	All new cVDPV outbreaks stopped within 120 days	All cVDPV cases in 2013 were continuation of 2009 emergence.	**NA**
	OUTPUT INDICATORS (2013)		
	Achieve and maintain an NPAFP rate of › 2/100,000 in all states/provinces of high-risk countries and maintain an NPAFP rate of › 2/100,000 in all states/provinces	National NPAFP rate in previous 12 months is 9.7/100,000. 100% of provinces have maintained NPAFP >2/100,000.	**Met**
	Achieve and maintain adequate stool sample collection in 80% of cases in all states/ provinces	94% of provinces have maintained adequate stool collection in ≥80% of AFP cases in the previous 12 months.	**Not Fully Met**
	LQAS passed at 80% threshold in all high-risk areas	LQAS assessments have been limited. To date, of the 24 LQAS assessments conducted in the low performing districts, 71% have passed the 80% threshold.	**Not Met**
	Establish full safety and security framework	A security management plan is in place as part of the overall security framework. Improvement of dialogue with anti-government elements (AGE) in the Southern Region resulted in improved access to children during SIAs in the South. Improvements also occurred in the Eastern Region following improved coordination with AGE, through intermediaries.	**Established**
	All current cVDPV outbreaks stopped by end-2013	More than 6 months have passed since the most recent cVDPV case.	**Too Soon to Assess**

* Not applicable

SYNOPSIS

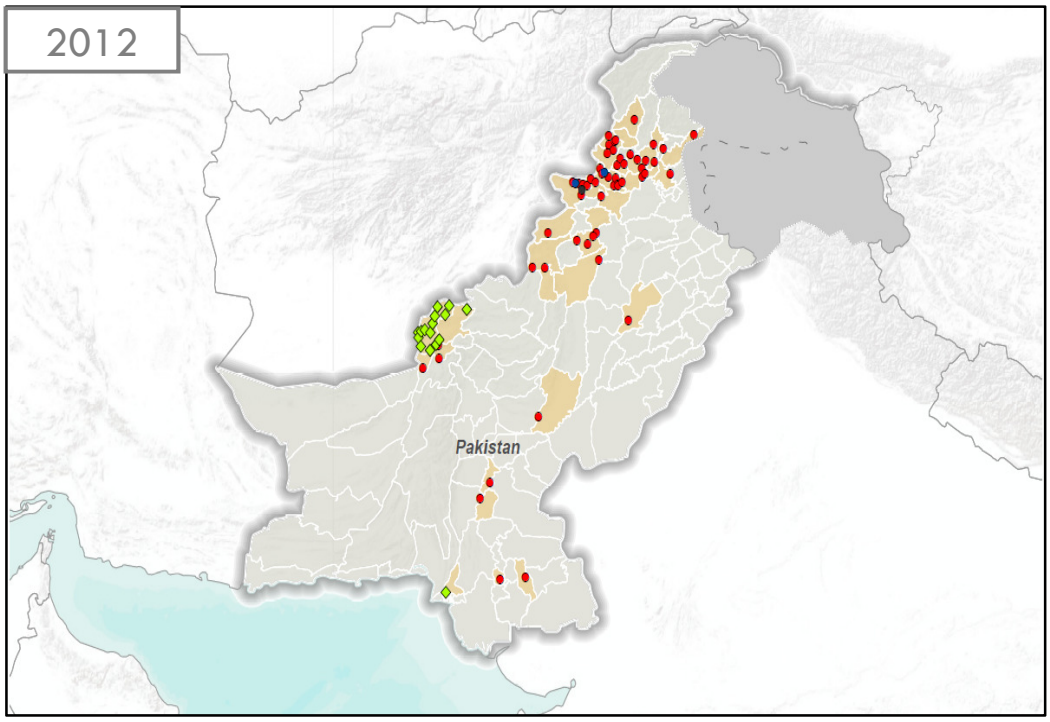
- *Epidemiology:* Case counts decreased 54% in 2012 compared with 2011, and show a 76% decrease to date in 2013 compared with this time in 2012. Since the last reported indigenous WPV case in the endemic zone occurred in November 2012, there is the prospect that interruption of endemic WPV transmission in Afghanistan may have occurred. Nevertheless, previous gaps in surveillance make any conclusion tentative. The eight WPV cases that have occurred in Afghanistan since November 2012 have all been reported in provinces bordering the

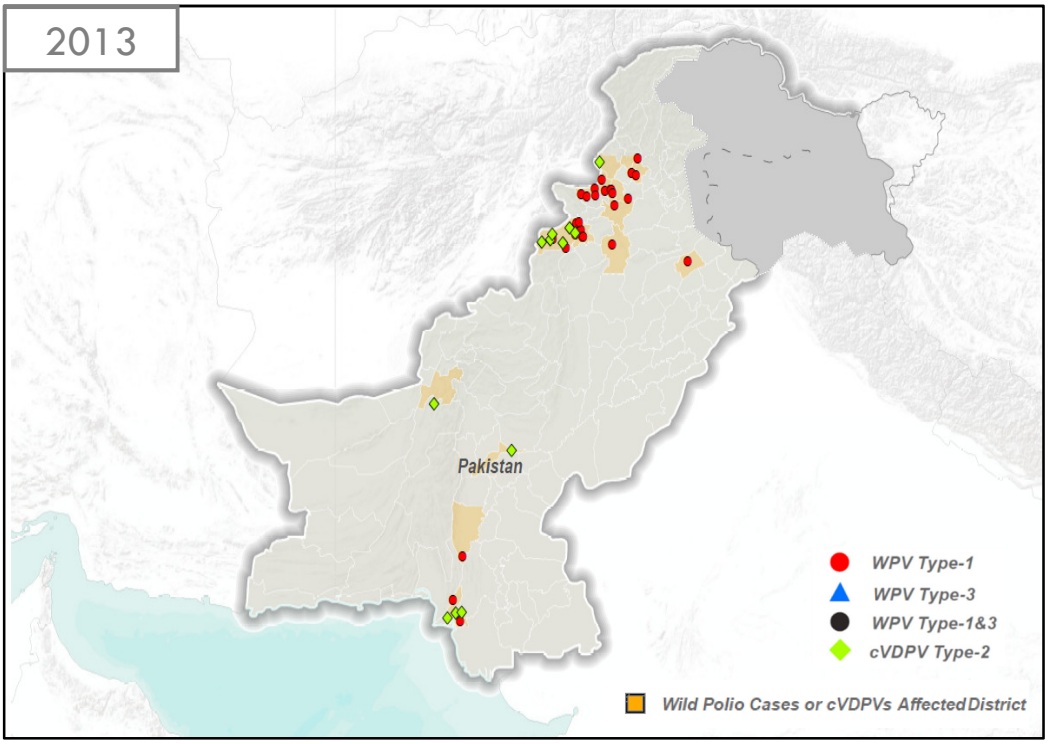
KP and FATA sanctuaries in Pakistan. WPV importations from neighboring Pakistan into the Eastern Region have not established ongoing transmission. WPV3 has not been detected in more than 3 years. No cases of cVDPV2s have been detected in >6 months. Afghanistan will continue to remain at very high risk of importations of WPV as long as transmission continues in Pakistan.

- *Immunization:* From December 2012 to July 2013, the proportions of children missed in SIAs as measured by independent monitoring decreased from 10.7% to 6.0%. NPAFP data from the endemic Southern Region suggest improvements in vaccination coverage during the previous 12 months overall, except in Helmand province. Despite these developments, 4 of Afghanistan's 34 provinces failed to achieve rates of ≥80% of children with >3 doses of OPV among NPAFP cases. Circulation of cVDPV2 into early 2013 highlights weaknesses in the routine immunization system in the Southern Region. These weaknesses may have been mitigated in part by tOPV SIAs and permanent polio team use of tOPV.
- *Security:* The security situation in the South has steadily improved since 2012. Negotiations through the International Committee of the Red Cross in the Southern Region have been successful in reducing children missed due to inaccessibility. The Eastern Region of Afghanistan has a high proportion of "zero-dose" children aged 6–23 months with NPAFP, in part due to the inability of vaccination teams to enter parts of the region safely due to insecurity and anti-government elements, as well as programmatic issues.
- *Surveillance:* AFP performance indicators and virologic data had in the past suggested substantial surveillance gaps. In the most recent period, specimen adequacy has improved and recent virologic evidence suggests improved performance.
- *Ownership:* At the national level, indicators suggest strong ownership within the Ministry of Public Health but weaker ownership elsewhere. The President appointed a senior advisor, reporting directly to his office, to oversee the eradication effort. Nevertheless, the endorsement of the National Emergency Action Plan for 2012-2013 was delayed for months, and meetings for both the Inter-ministerial Task Force and high-level governors with the President have been consistently postponed. Ownership is strong at the provincial level but variable at the district level.
- *Community demand:* Vaccine refusal accounted for up to 25% of missed children among all 11 LPDs in the Southern Region and represented up to 5% of targeted children in some critical districts. Trends indicate a decline from previous levels on average in the 11 LPDs, from 2.3% in January to 1.5% in July 2013.

PAKISTAN

NATIONAL POLIO OVERVIEW





The number of WPV cases in Pakistan decreased from 198 in 2011 to 58 in 2012. During 2013 to date, there have been 28 cases compared with 30 for the same time period in 2012. Most cases have occurred in FATA and the majority of the remainder in KP. Although environmental surveillance in Pakistan also indicated a decrease in overall intensity of circulation, there was evidence of continued indigenous transmission in Southern Sindh in early 2013. SIAs primarily have been with bOPV during the reporting period. SIAD SIAs (an additional round 10 days later) have been conducted in the highest-risk areas since 2011. Although SIAs were temporarily suspended in some areas of Pakistan after targeted attacks occurred against health workers, law enforcement has supported the security of vaccination teams in those areas. In Karachi, campaigns are conducted discretely, without advance notice. The quality of SIA implementation, as determined by LQAS, showed progressive improvement during 2012 but major quality deterioration in 2013, particularly in the Quetta block and KP. LQAS surveys have been suspended in Karachi and substantially impaired in KP. Cases of cVDPV2 have declined in Quetta but are now evident in FATA and continued in Karachi into the second quarter of 2013.

ENVIRONMENTAL SURVEILLANCE

Environmental surveillance is currently being conducted in 23 sites throughout the country, including in 3 of the 4 poliovirus sanctuaries (all but FATA). In 2011, 136 of 204 (67%) samples were positive. In 2012, this had decreased to 87 of 239 (36%). So far in 2013, 10 of 53 (19%) have been positive, compared with 21 of 39 (54%) during the same time period in 2012. The frequency of detection of WPV from several environmental sites declined in late 2012 and early 2013. Environmental specimens from Hyderabad in Southern Sindh and Peshawar in KP are the only environmental specimens that have consistently contained WPV1 throughout 2013. WPV1 was isolated sporadically from environmental specimens from Faisalabad, Quetta, and Rawalpindi in early 2013. WPV1 was isolated from environmental samples from Gadap Karachi sites during much of 2012 and sporadically in 2013; these viruses were related to indigenous virus. Two polio cases occurred in Bin Qasim town, near the three high-risk Karachi towns, in January and July 2013.

No WPV3 viruses have been detected in environmental specimens since October 2010. The last identified WPV3 polio case occurred in April 2012.

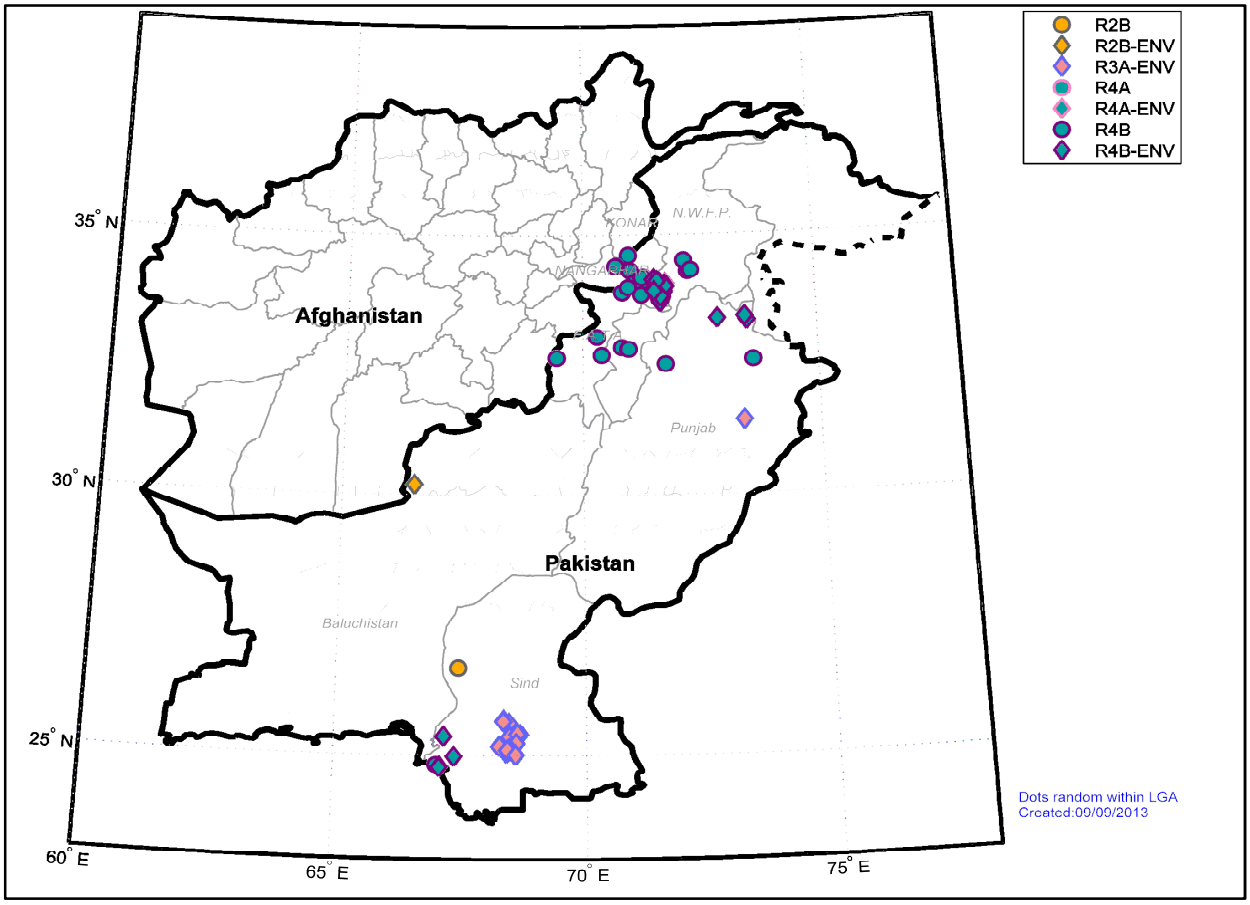
2012 - 2013 environmental surveillance sampling sites, Pakistan

VIROLOGY

(See also maps of WPV1 and WPV3 by genetic cluster, Afghanistan & Pakistan, 2011–2013 as of 4 Sept 2013 on page 3). Six genetic clusters of WPV1 were represented in specimens from polio cases and environmental specimens in the past 12 months; during 2013 to date, four clusters have been represented. In Hyderabad, where WPV1 has been consistently detected in environmental samples and not through AFP surveillance, there was evidence of continued local transmission. Viral genetic diversity and levels of virus circulation were highest in KP in late 2012 and in FATA in 2013. After several months of environmental specimens from Quetta testing negative for WPV, WPV1 was isolated from Quetta environmental specimens in late 2012. These specimens were of the same lineage as earlier isolates from these sites and from a June 2012 case in Quetta, indicating that this lineage was circulating undetected in the vicinity. Of note, virus from the most recent Balochistan case (October 2012) was most closely related to these Quetta viruses, and the genetic linkage was less than what would have been expected with effective surveillance.

The potential for surveillance gaps exists at the sub-national level, as evidenced by a few chains of transmission that were detected only from environmental surveillance (particularly in Hyderabad, Southern Sindh). Nevertheless, the percentage of WPV1 isolates with much less genetic linkage than expected has declined from 21% in 2009 to 5% in 2012 and 6% in 2013 (1 out of 17 isolates).

WPV1 cases and environmental isolates by genetic cluster, Pakistan, 2013 to date*



* Data as of 04 September 2013.

1. WPV1 circulation decreased in 2013 compared with 2012, especially in the Quetta and Karachi sanctuaries.
2. Viral genetic diversity and levels of virus circulation were highest in KP in 2012 and in FATA in 2013.
3. No WPV3 viruses have been detected in environmental specimens since October 2010 and no WPV3 cases detected since April 2012.
4. The percentage of WPV1 isolates with less genetic linkage than expected has declined, indicating improved AFP surveillance. Nevertheless, the detection of long-standing WPV circulation by environmental surveillance in Hyderabad and Quetta block indicates gaps in AFP surveillance.

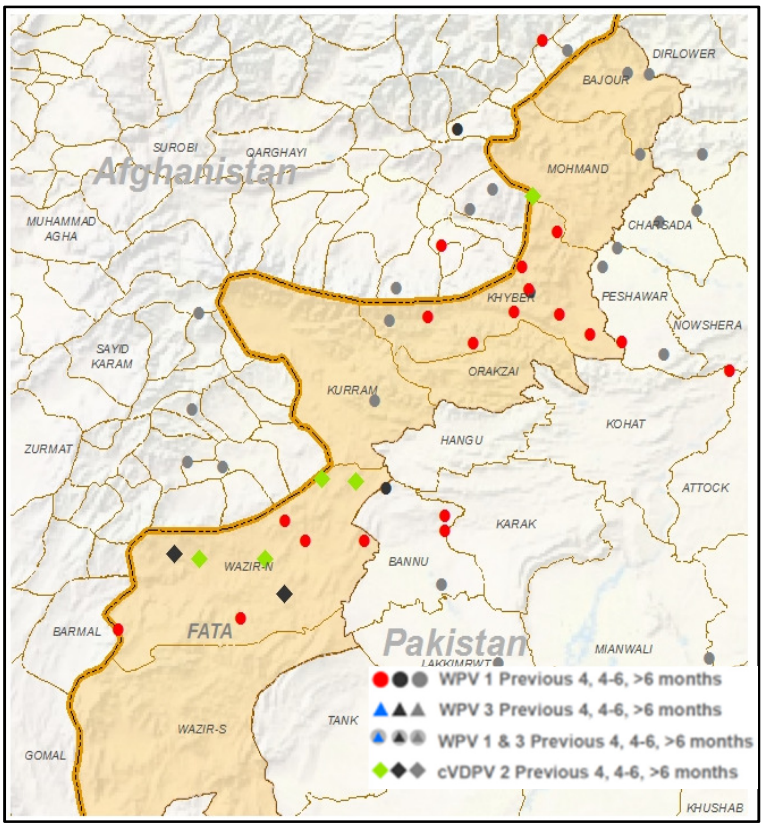
POLIOVIRUS SANCTUARIES

At the time of this report, Pakistan has four designated virus sanctuaries:

1. Federally Administered Tribal Areas (FATA)
2. Khyber Pakhtunkhwa province (KP)
3. Karachi area, the three high-risk towns of Baldia, Gadap, and Gulshen-e-Iqbal
4. Quetta area, the three high-risk districts of Quetta, Killa Abdullah, and Pishin

FATA POLIOVIRUS SANCTUARY

WPV and cVDPV cases, FATA, 11 September 2012 to 10 September 2013



Lot quality assurance sampling (LQAS) surveys provide an assessment of SIA quality through a limited sample obtained from random cluster sampling. LQAS surveys in many areas affected by conflict or security problems in Pakistan have not been conducted at all, so as to avoid raising the visibility of the program (in Karachi), or are not conducted in randomly selected areas but rather are conducted in areas selected based on feasibility regarding the security situation. This will lead to correspondingly biased results that overstate SIA quality.

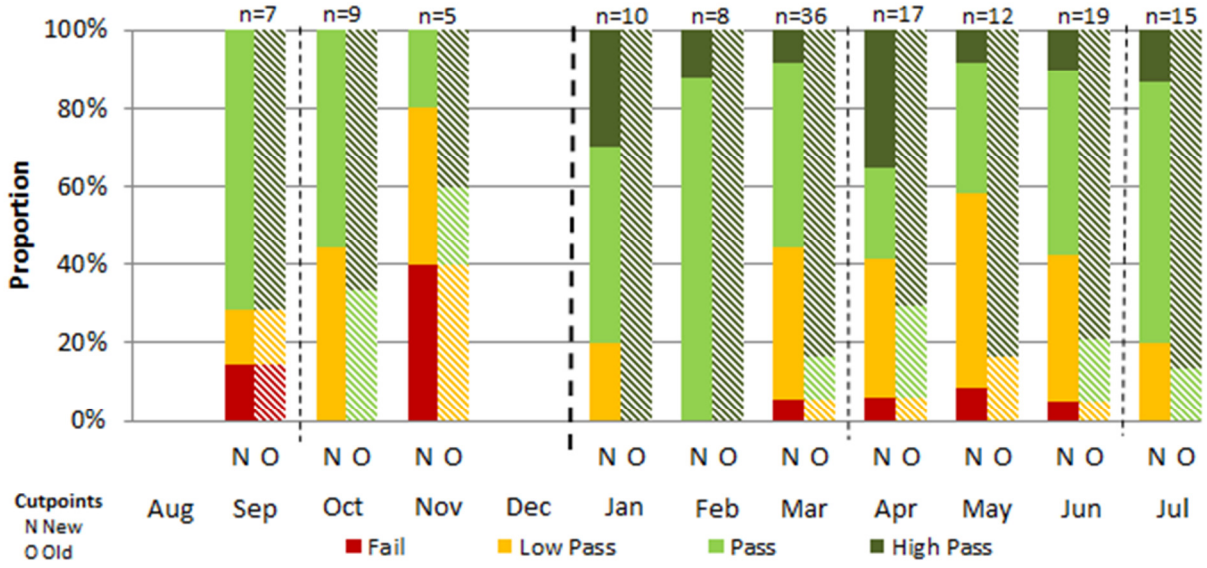
Notes regarding LQAS:

- Pakistan has used "old" decision rules of 5, 7, and 16 for samples of five clusters of 10 children (50) and six clusters of 10 (60) for testing at thresholds of 95%, 90%, and 80%. These rules result in overstating SIA quality. Please refer to discussion of methodological limitations in previous reports.
- "New" decision rules of 0, 2, and 6 for sample sizes of 50 and 0, 3, and 8 for sample sizes of 60 provide a more reasonable quality assessment at 95% (**High Pass**), 90% (**Pass**), and 80% (**Low**) thresholds (or **Fail** if below) for programmatic purposes under the same assumption of variability.

WPV cases by week of onset and environmental surveillance results, FATA sanctuary

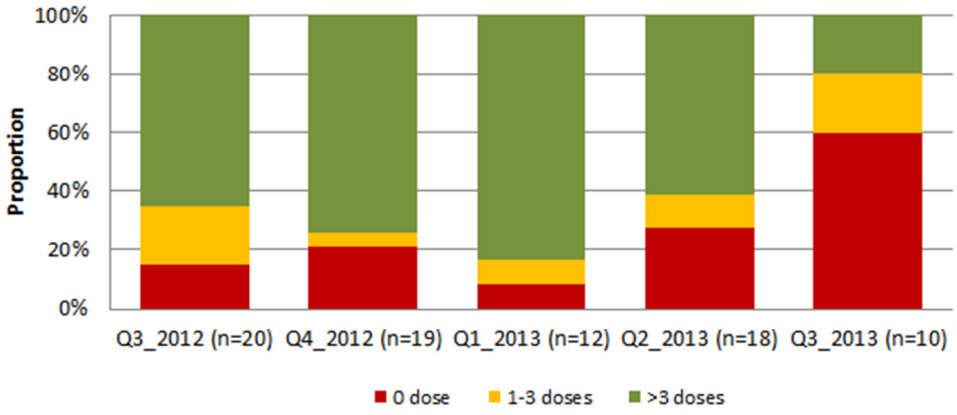
Note: both sites are located in neighboring Peshawar

Proportion of Union Councils with LQAS survey results* by SIA, FATA sanctuary



** Old cutpoint criteria overestimated SIA quality*

Proportion of NPAFP cases 6 to 35 months, by OPV status, FATA sanctuary



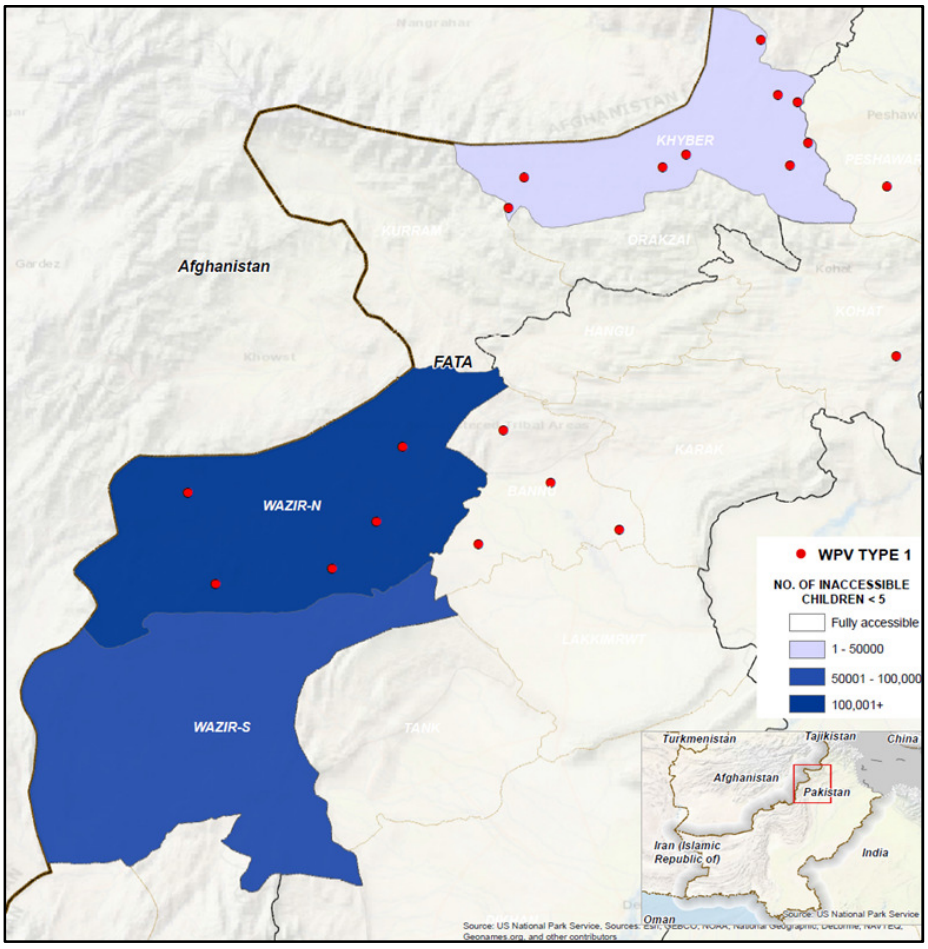
*Data as of 13 August 2013

INACCESSIBILITY AND INSECURITY

Targeted attacks of healthcare workers in Pakistan remain a frightening and deplorable reality that continues to have effects on vaccinators and their efforts. Since the first attack in July 2012 in Karachi, 22 polio workers have been killed in such attacks in Pakistan as have 4 police officers assigned to protect polio staff. No group has claimed responsibility for these attacks and the motivations behind the attacks are unclear. The latest fatal attack occurred in July 2013. No attacks have occurred during the September SIAs. Nevertheless, intimidation and the risk of serious attacks continue.

In Pakistan, insecurity has resulted in decreased access to key populations (especially in KP) and has impaired the ability of the program to provide on-site supervision and to make changes needed for program improvement. The program has adapted to improve security by encouraging Provincial Security Coordination Committees in KP and Sindh to convene regularly. Chaired by Home Secretary, the committees seek engagement of police and security forces in District Polio Eradication Committees in key districts of KP and Karachi and ensure that Civil-Military Coordination Committees are functional for FATA.

Inaccessible areas and the estimated number of children affected—FATA, Pakistan, July 2013 SIA



In FATA, Northern and Southern Waziristan remain inaccessible to the program. Parts of Khyber Agency have been inaccessible.

OWNERSHIP

Percent of Union Councils with indicators met for each campaign

FATA Sanctuary	Jun '12	Jul '12	Sep '12	Oct '12	Dec '12	Jan '13 R1	Jan '13 R2	Feb '13	Mar '13	Apr '13	Jun '13	Jul '13	Aug '13
UPEC meeting held	71	82	98	81	79						77	78	79
UPEC chaired by UCMO	68	82	97	81	79						77	78	79
Microplan Validated	84	91	99	100	100	99		99	100	100	99	99	98

Percent of teams with indicators met for each campaign

≥1 Government member	74	85	88	96	93	94		93	95	94	86	87	91
≥1 Local member	85	95	100	100	99	99		99	100	100	97	99	99
≥1 Female member	16	23	14	25	23	13		13	13	16	13	13	12

Abbreviations: UPEC=Union Council Polio Eradication Committee
UCMO=Union Council Medical Officer

No campaign
No data

Source: Pakistan National Emergency Action Plan Indicators, WHO-Pakistan

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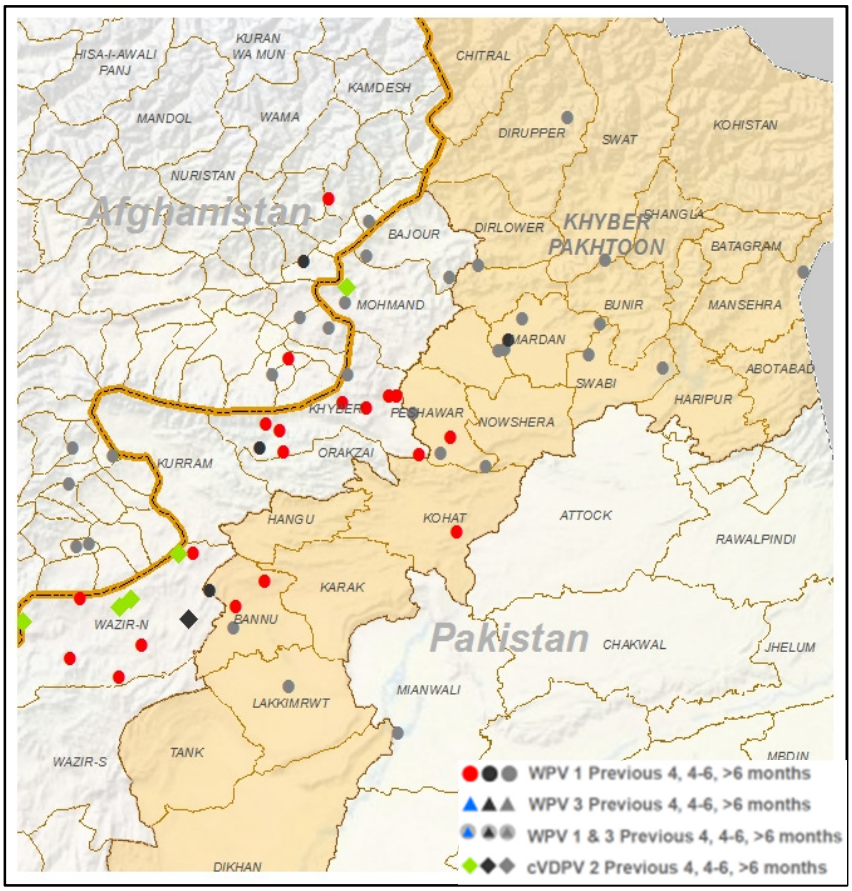
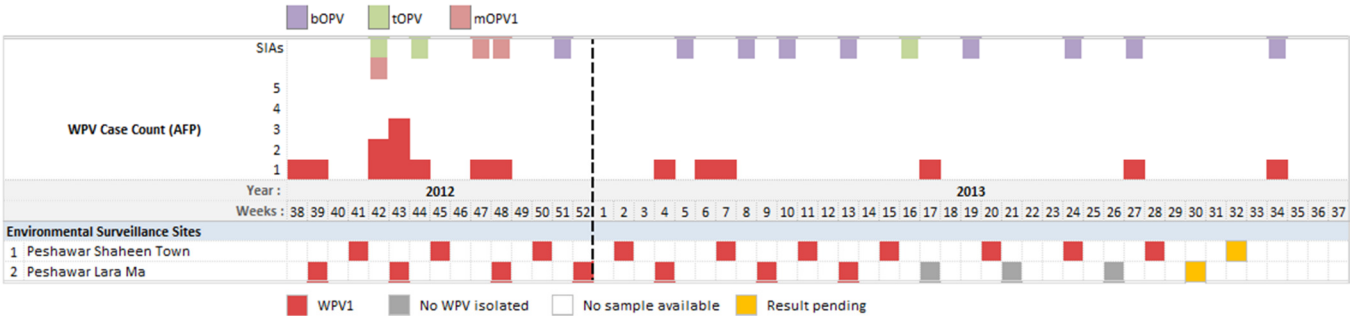
KHYBER-PAKHTUNKHWA SANCTUARY

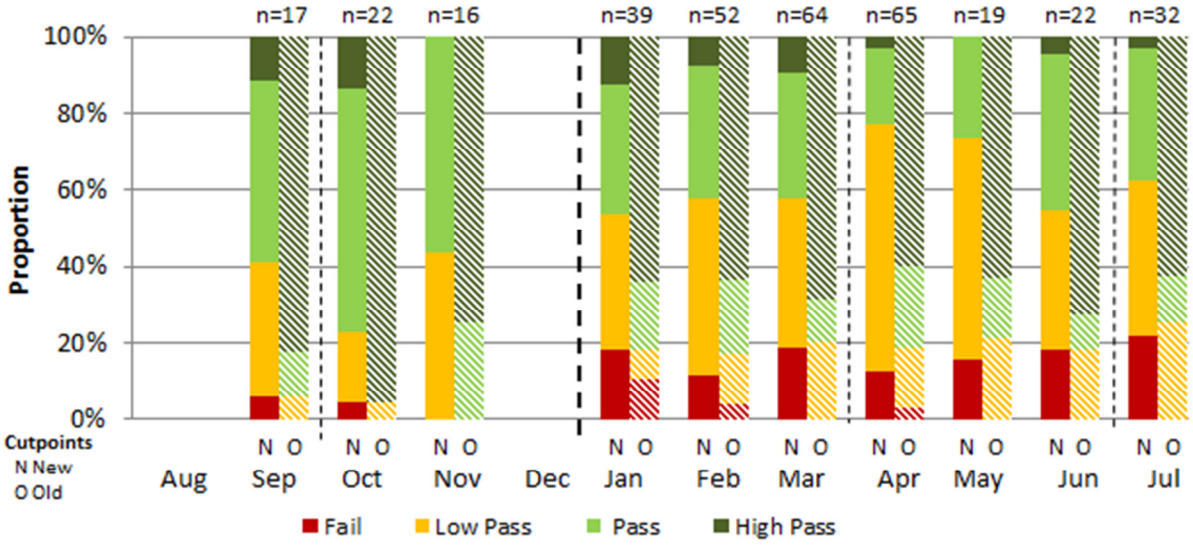
WPV and cVDPV cases, KP sanctuary, 11 September 2012 to 10 September 2013



WPV cases by week of onset and environmental surveillance results, KP sanctuary

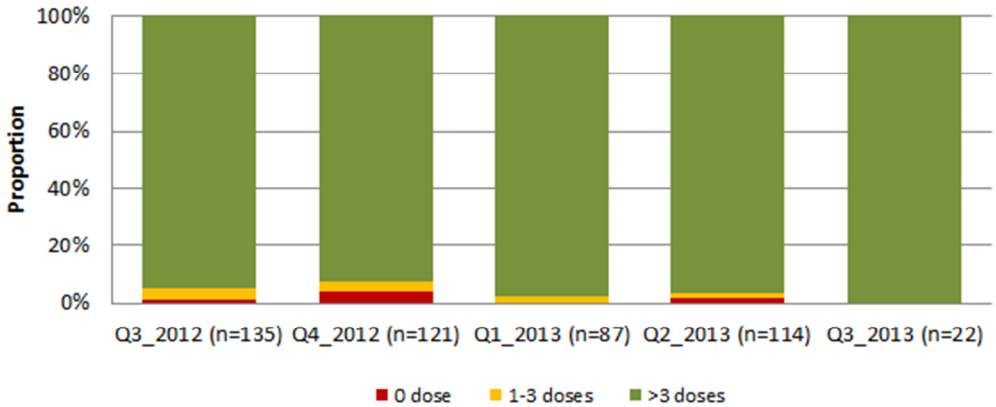


Proportion of Union Councils with LQAS survey results* by SIA, KP sanctuary



** Old cutpoint criteria overestimate SIA quality*

Proportion of NPAFP cases 6 to 35 months, by OPV status, KP sanctuary



*Data as of 13 August 2013

OWNERSHIP

Percent of Union Councils with indicators met for each campaign

KP Sanctuary	Jun '12	Jul '12	Sep '12	Oct '12	Dec '12	Jan '13 R1	Jan '13 R2	Feb '13	Mar '13	Apr '13	Jun '13	Jul '13	Aug '13
UPEC meeting held	70	76	67	74	64	99	74	53	56	77	62	66	86
UPEC chaired by UCMO	69	76	67	74	64	99	74	68	83	77	70	74	86
Microplan Validated	50	53	58	64	56	98	68	72	90	75	70	72	74

Percent of teams with indicators met for each campaign

≥1 Government	61	62	68	68	55	92	60	65	88	74	73	72	84
≥1 Local	63	62	68	69	56	97	64	67	90	75	75	73	88
≥1 Female	51	44	51	60	44	61	51	50	68	49	64	55	64

Abbreviations: UPEC=Union Council Polio Eradication Committee
UCMO=Union Council Medical Officer

No campaign
No data

Source: Pakistan National Emergency Action Plan Indicators, WHO-Pakistan

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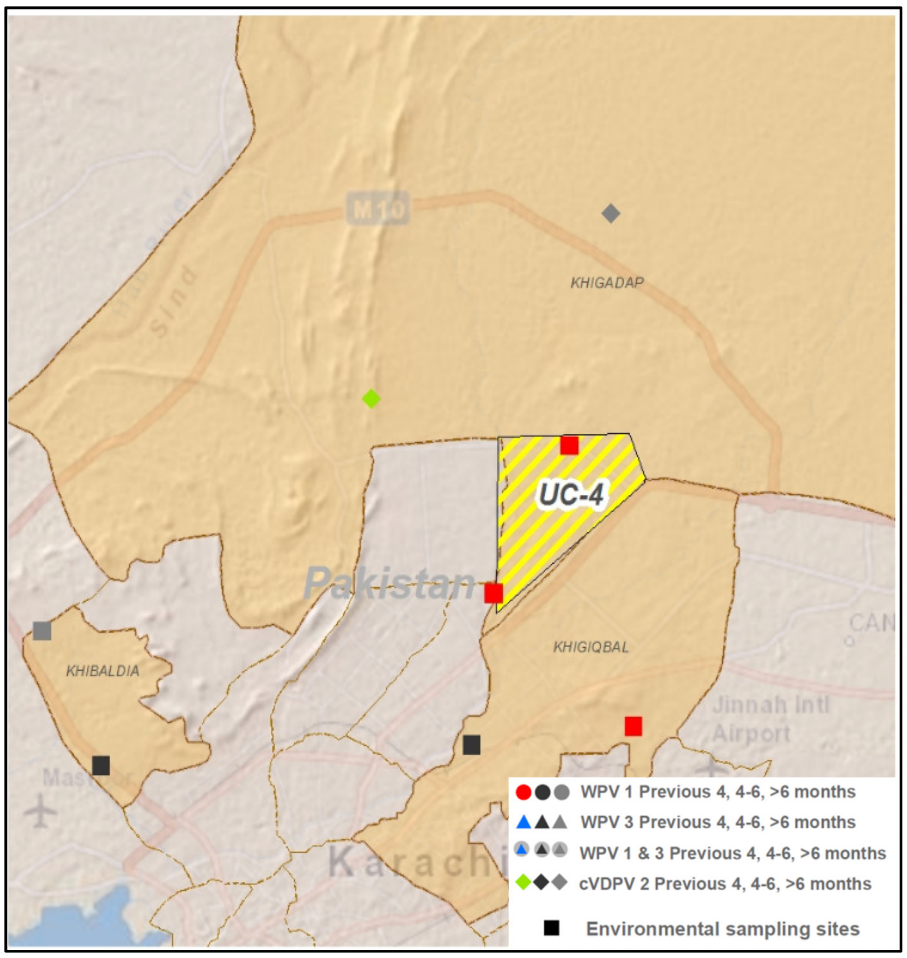
KARACHI POLIOVIRUS SANCTUARY

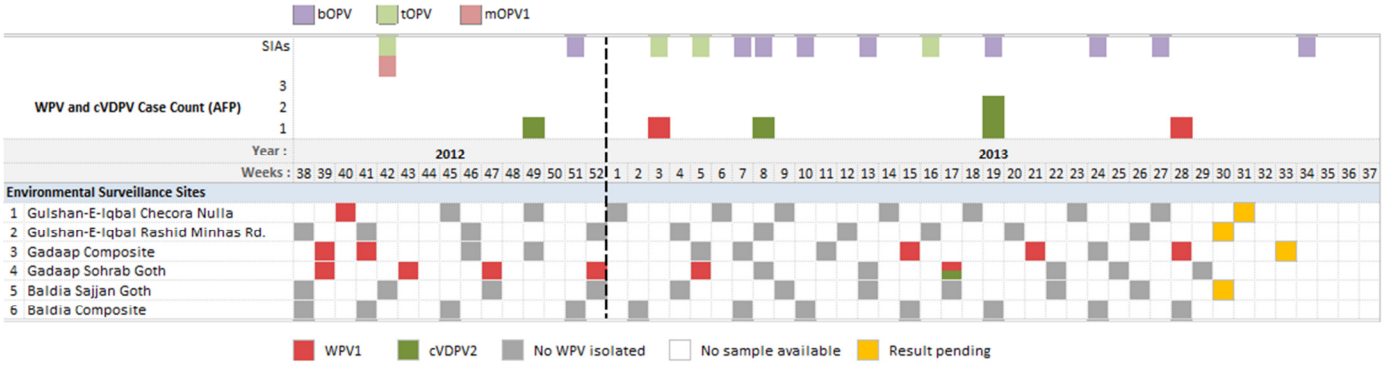
WPV & cVDPV cases and environmental surveillance results, Karachi sanctuary, 11 September 2012 to 10 September 2013



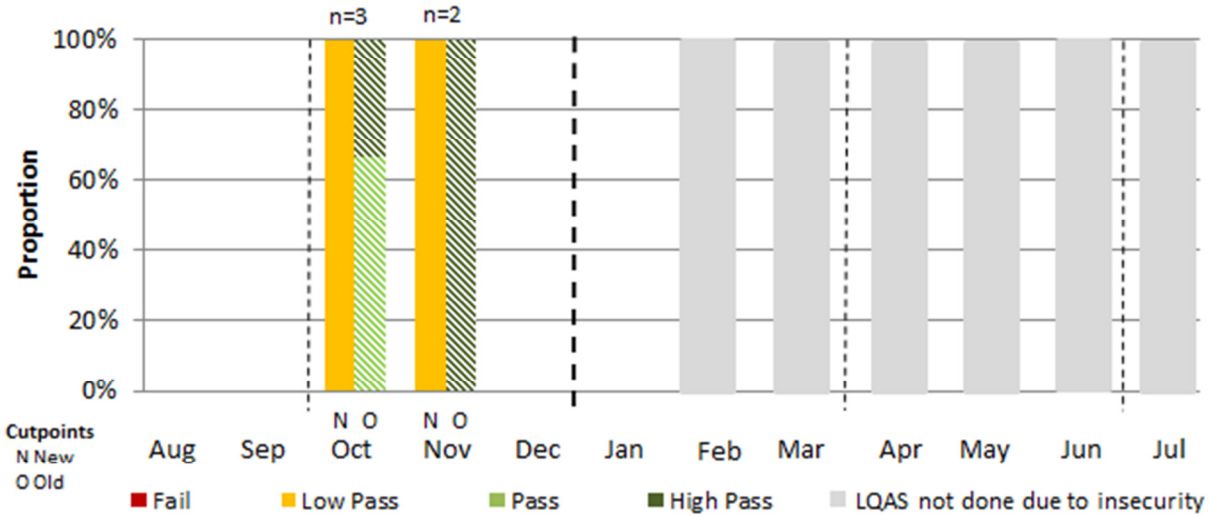
Red squares indicate environmental sampling sites where WPV1 were detected.

WPV cases by week of onset and environmental surveillance results, Karachi sanctuary *

** WPV1 cases reported in weeks 3 and 28 of 2013 were not in the 3 high risk towns of Karachi but in an adjacent town, Bin Qasim*

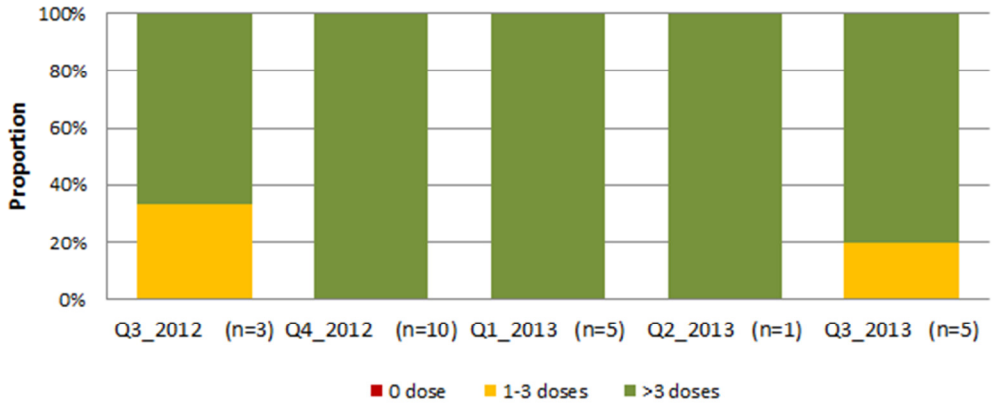


Proportion of union councils with LQAS survey results* by SIA, Karachi sanctuary



**Old cutpoint criteria overestimate SIA quality*

Proportion of NPAFP cases 6 to 35 months, by OPV status, Karachi sanctuary



*Data as of 13 August 2013

OWNERSHIP

Percent of Union Councils with indicators met for each campaign

Sindh	Jun '12	Jul '12	Sep '12	Oct '12	Dec '12	Jan '13 R1	Jan '13 R2	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13
UPEC meeting held	87	100	99	100	96		96	100	88	95	100	70	99
UPEC chaired by UCMO	88	99	99	100	96		97	100	88	100	100	100	99
Microplan Validated	100	98	98	100	100		96	100	96	100	93	83	82

Percent of teams with indicators met for each campaign

≥ 1 Government member	96	98	97	98	98		95	99	95	98	99	98	98
≥ 1 Local member	98	99	98	99	99		96	100	95	99	99	99	98
≥ 1 Female member	92	94	95	95	95		91	96	94	94	95	93	93

Abbreviations: UPEC=Union Council Polio Eradication Committee
UCMO=Union Council Medical Officer

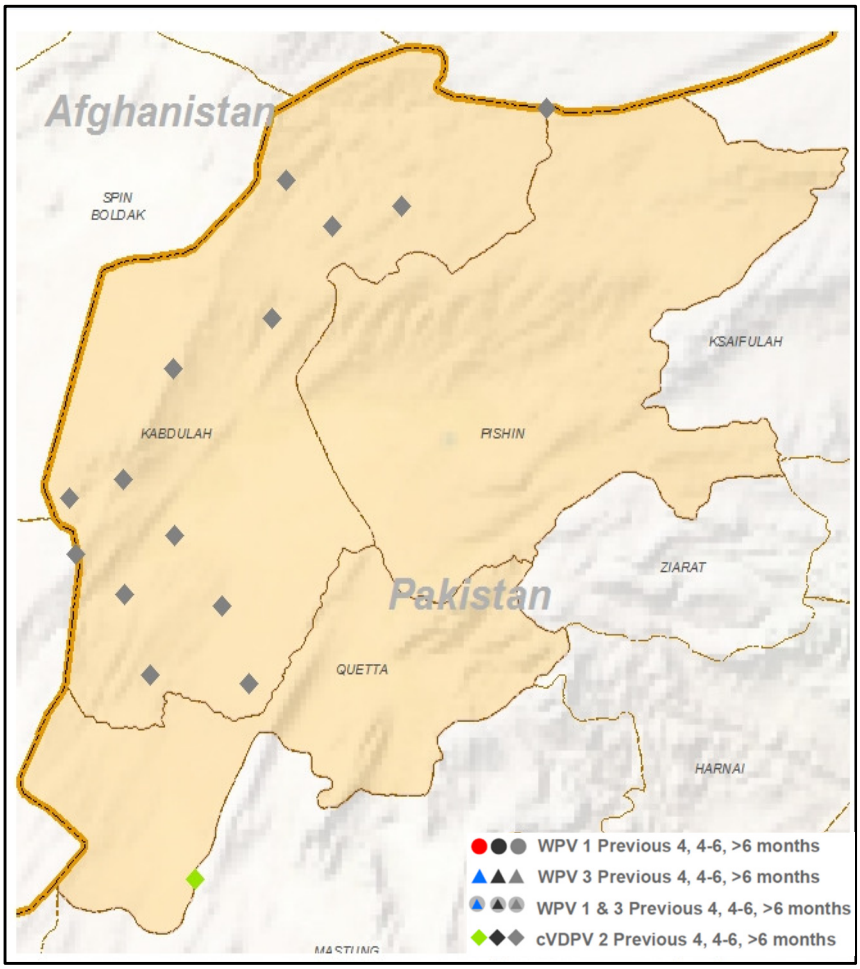
No campaign
No data

Source: Pakistan National Emergency Action Plan Indicators, WHO-Pakistan

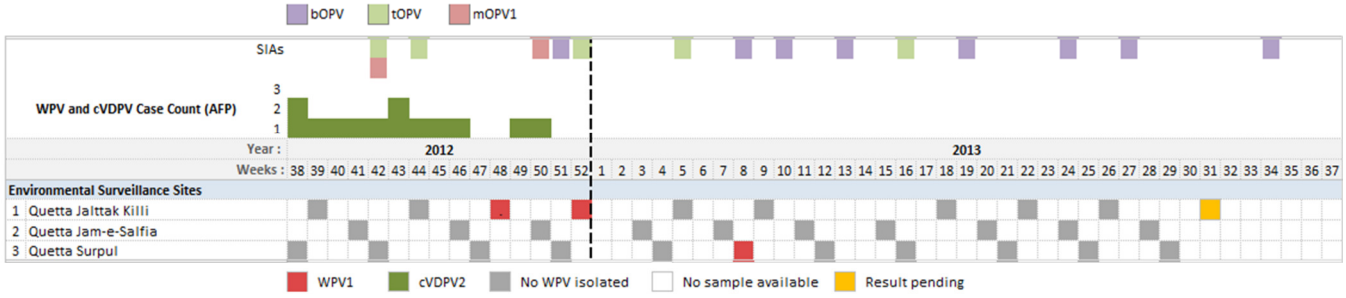
Data shown above are for all of the Sindh Province

QUETTA POLIOVIRUS SANCTUARY

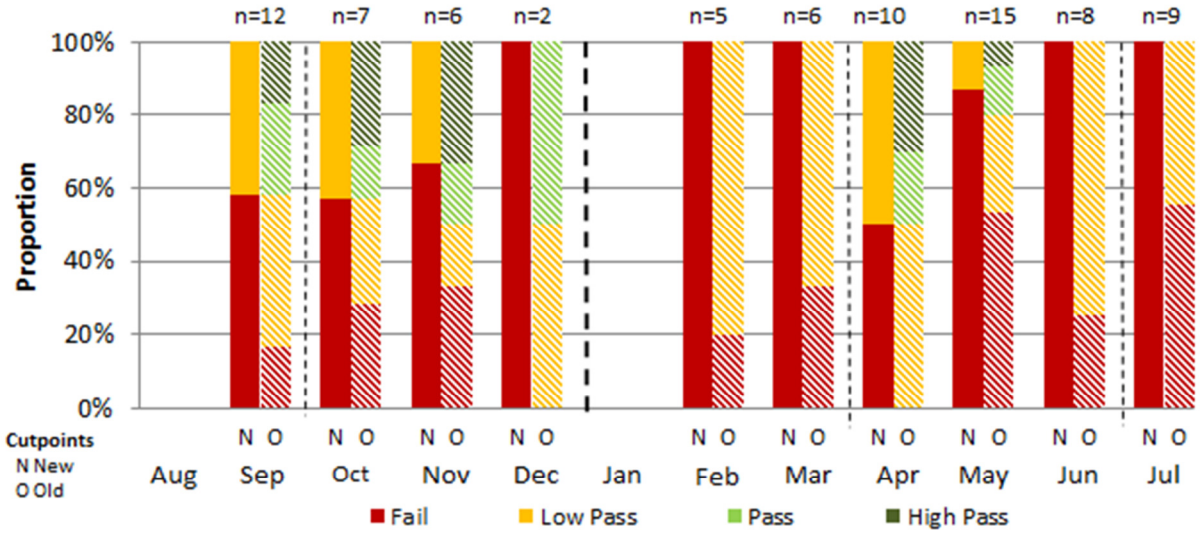
WPV and cVDPV2 cases, Quetta sanctuary, April 2012 to March 2013



WPV cases by week of onset and environmental surveillance results, Quetta sanctuary

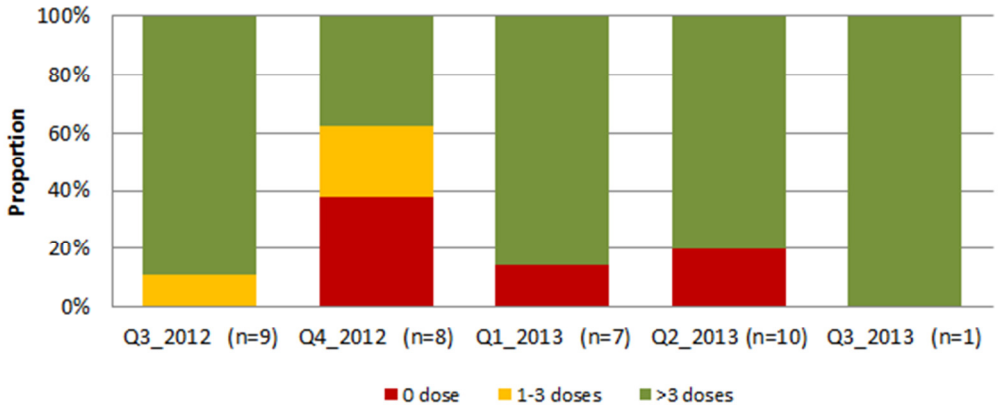


Proportion of Union Councils with LQAS survey results* by SIA, Quetta sanctuary



** Old cutpoint criteria overestimate SIA quality*

Proportion of NPAFP cases 6 to 35 months, by OPV status, Quetta sanctuary



*Data as of 13 August 2013

OWNERSHIP

Percent of Union Councils with indicators met for each campaign

Balochistan	Jun '12	Jul '12	Sep '12	Oct '12	Dec '12	Jan '13 R1	Jan '13 R2	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13
UPEC meeting held	71	86	99	92	94	89		99	96	85	97	100	84
UPEC chaired by UCMO	82	75	97	85	96	91		99	96	81	98	100	84
Microplan Validated	41	44	68	58	83	79	100	99	97	82	92	95	80

Percent of teams with indicators met for each campaign

≥ 1 Government member	64	67	69	52	53	56	13	63	62	62	57	44	46
≥ 1 Local member	89	88	99	72	61	67	26	93	90	81	98	65	72
≥ 1 Female member	96	56	61	30	37	46	28	63	60	42	40	62	44

Abbreviations: UPEC=Union Council Polio Eradication Committee
UCMO=Union Council Medical Officer

No campaign
No data

Source: Pakistan National Emergency Action Plan Indicators, WHO-Pakistan

Data shown above are for all of the Balochistan Province

PROGRAM INFORMATION

HUMAN RESOURCES

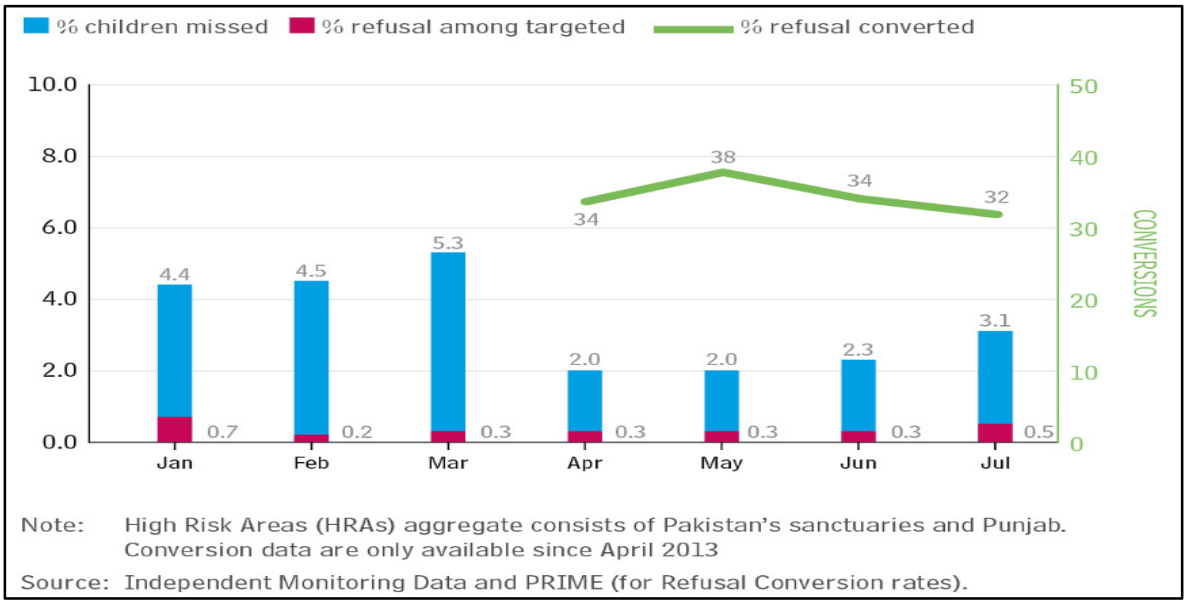
Location (sanctuary)	Total number of house to house vaccination teams	Number (%) of house to house vaccination teams with at least one female member	Number (%) of house to house vaccination teams with a local member	Salary per vaccinator / day
FATA*	2,128	255 (12%)	2,107 (99%)	$2.50
KP (province)	13,006	8,324 (64%)	11, 445 (88%)	$2.50
	4,377	3,064 (70%)	3,370 (77%)	
Karachi (High-risk towns: Baldia, Gadap, and Gulshen Iqbal)	1,385	1330 (96%)	1,385 (100%)	$2.50
Quetta (High-risk districts: Quetta, Killa Abdullah, and Pishin)	1,531	903 (59%)	1,409 (92%)	$2.50

* Accessible areas only

COMMUNITY DEMAND

While refusals in Pakistan remain generally low, approximately 0.5% among targeted children, there is a steady increase in the estimated number of refusals in Pakistan in the second quarter of 2013, from less than 37,000 in June to more than 43,000 in August. Refusals are increasing in most high risk areas, except for Punjab and FATA. The latter has reduced refusal rates by more than 60% since January. Conversion of refusals is, on average, higher in Community Mobilizer Network (COMNet) areas than non-COMNet areas, but only 40% of refusals are converted on average in Pakistan's high risk areas, with even lower rates in some of the most critical reservoirs.

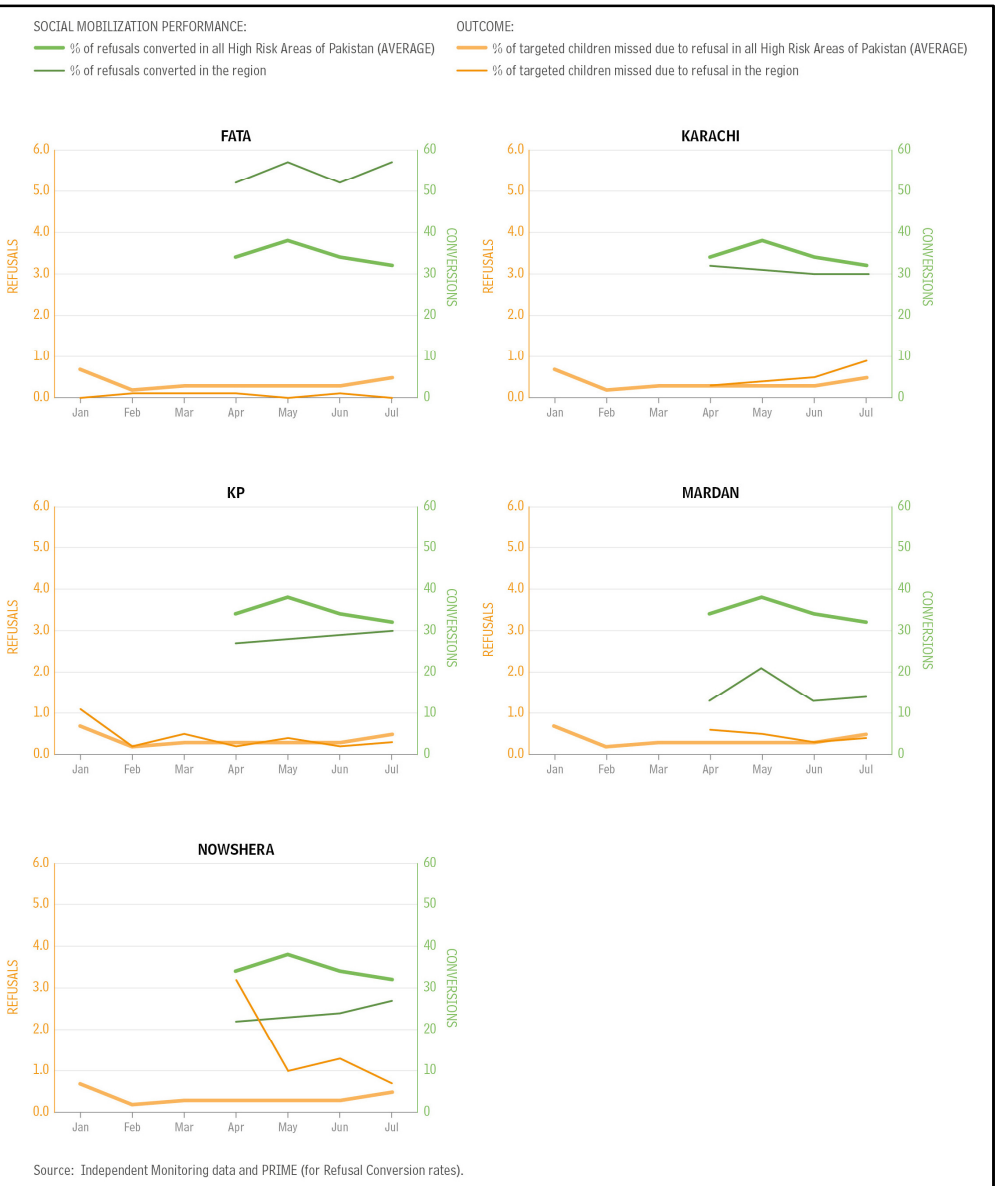
Proportion of missed children, refusal, and refusal conversion rate (High Risk Areas [HRAs] aggregated), January – July, 2013



Note: High Risk Areas (HRAs) aggregate consists of Pakistan's sanctuaries and Punjab. Conversion data are only available since April 2013

Source: Independent Monitoring Data and PRIME (for Refusal Conversion rates).

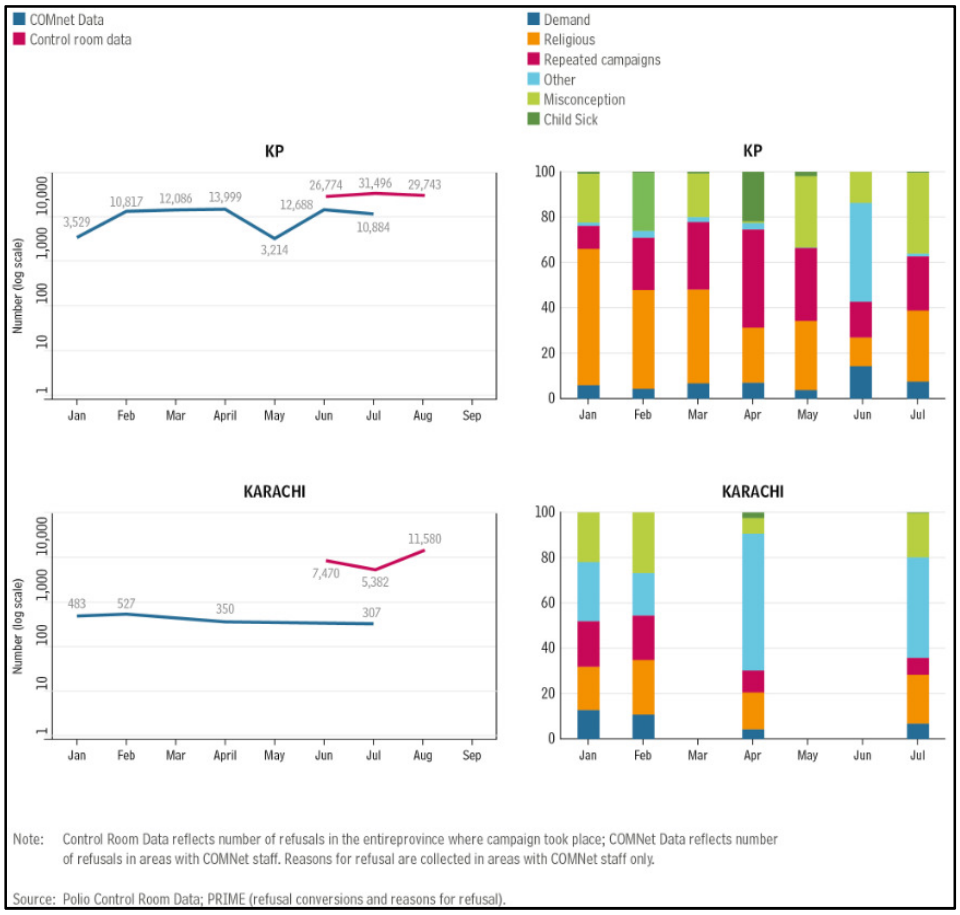
Percentage of refusals among those targeted, and percent of refusals converted in selected areas of Pakistan, January – July, 2013.



Refusals tend to be higher in pockets where vaccination rates are already low and insecurity is high, such as Karachi and northern KP. Conversion of refusals in these areas is also below average, due to more chronic challenges of poor team performance, lack of trust, and a demand for other services.

Source: Independent Monitoring Data (Refusals), Redo Data (Refusal Conversion rates)

Reasons for refusals—KP, and Karachi, Pakistan, January – July 2013 SIAs



Note: Control Room Data reflects number of refusals in the entireprovince where campaign took place; COMNet Data reflects number of refusals in areas with COMNet staff. Reasons for refusal are collected in areas with COMNet staff only.

Source: Polio Control Room Data; PRIME (refusal conversions and reasons for refusal).

While refusals in the province of KP have been rising since June, there has been a downward trend in the number of refusals in COMNet areas. More than 50% of KP's refusals remain in Peshawar and Mardan districts. Religious refusals as a proportion of all refusals have been reduced most significantly in KP, but still account for more than 30% in these districts.

In Karachi, refusals in COMNet areas are a miniscule proportion of the total, which may indicate a need to expand COMNet based on the rising figures in areas that are not currently covered and the high risk of transmission in Karachi. The majority of refusals here are classified as "other", making it difficult to develop locally relevant communication plans until this can be further probed. Data quality needs improvement.

Tackling the issue of refusal requires in-depth understanding of reasons for refusal, which differ among geographic areas and have changed over time.

- In some areas such as FATA, "demand for other services" is the dominant reason for refusal.
- In many other areas, "religious concerns" seemed to be consistently the primary reason, such as in Peshawar, Punjab, Hyderabad, and Balochistan.
- In almost all areas and at all times, "repeated campaigns" is a significant reason.
- In all KP areas where data were available, "misconception" appeared to be another significant reason for refusal.

ROTARY INTERNATIONAL'S WORK IN PAKISTAN

Rotarians in Pakistan are working with local non-governmental organizations in targeted areas to help reach children through the development of Rotary Polio Resource Centers (RPRC), which aim to enhance social mobilization and build confidence among refusal communities. One RPRC recently established in Nowshera, KP, in collaboration with Youth Catalyst-Pakistan, is already having an impact. The Union Council (UC) Kheshgi Bala reported 77 refusal cases after the August NID. The project team at the RPRC responded by implementing social mobilization strategies and, in September 2013, traveled with District and Field Coordinators to visit the Ahmed Abad village of Kheshgi Bala. Refusal families there indicated that the program was not concerned with their general health and only promoted polio vaccinations. The team organized a Rotary Health Camp to address the community's concerns. Local institutions were engaged. The newly formed Health & Hygiene Committees assisted with organizing the Health Camp and motivating the parents to get their children vaccinated against polio. As a result, the team was able to vaccinate children from the most resistant families. Camps providing free medication have also been arranged in Peshawar, Mardan, and Charsadda (all high risk UCs). Clinical specialists have provided services in the most recent two health camps and free reading glasses have also been provided. Rotarians will continue to expand the resource center network in high-risk areas.

In addition to the RPRCs, Rotarians have created Permanent Transit Posts (PTPs) where migrant populations can receive immunizations as they cross borders or move into high-risk areas. Currently there are PTPs at the Toll Plaza, Super Highway in Karachi, and in Killa Abdullah, as well as the Karachi and Peshawar airports. Rotarians plan to establish additional transit points in Peshawar, Swabi, Nowshera, and Burhan entry-exit points of the Lahore Peshawar Motorway.

PERFORMANCE INDICATORS

See also Six month-annualized standard surveillance and immunization indicators by province among children aged 6-35 months with NPAFP, Afghanistan and Pakistan February 2012 to July 2013 on page 13.

GPEI POLIO ERADICATION AND ENDGAME STRATEGIC PLAN 2013–2018, PAKISTAN

STRATEGIC PLAN OBJECTIVE	OUTCOME INDICATORS (2013)	RESULTS	STATUS
Poliovirus Detection and Interruption: Complete the interruption of wild poliovirus transmission globally and more rapidly detect and interrupt any new outbreaks due to vaccine-derived polioviruses	All wild poliovirus transmission stopped by the end of 2014		**NA***
	All new cVDPV outbreaks stopped within 120 days	All cVDPV cases in 2013 were continuation of 2012 emergence.	**NA**
	OUTPUT INDICATORS (2013)		
	Achieve and maintain an NPAFP rate of › 2/100,000 in all states/provinces of high-risk countries and maintain an NPAFP rate of › 2/100,000 in all states/provinces	National NPAFP rate in previous 12 months is 5.7/100,000. 100% of provinces have maintained NPAFP >2/100,000.	**Met**
	Achieve and maintain adequate stool sample collection in 80% of cases in all states/ provinces	86% of provinces have maintained adequate stool collection in ≥80% of AFP cases in the previous 12 months.	**Not Fully Met**
	LQAS passed at 90% threshold in all high-risk areas	LQAS assessments have been limited in Karachi. To date, of the 482 LQAS assessments conducted in all sanctuaries in 2013, 41% have passed at the 90% threshold and 79% have passed at the 80% threshold.	**Not Met**
	Establish full safety and security framework	A plan to provide security to UN polio workers has been developed and is supported by all stakeholders. A framework for operating in insecure areas has been incorporated into the current version of the National Emergency Action Plan. Discussions and efforts with provincial and national authorities continue to enhance security for all government health workers involved in SIAs,	**Established**
	All current cVDPV outbreaks stopped by end-2013	cVDPV cases have occurred within the previous 6 months in FATA and Karachi; ongoing observation is warranted	**Too Soon to Assess**

* Not applicable

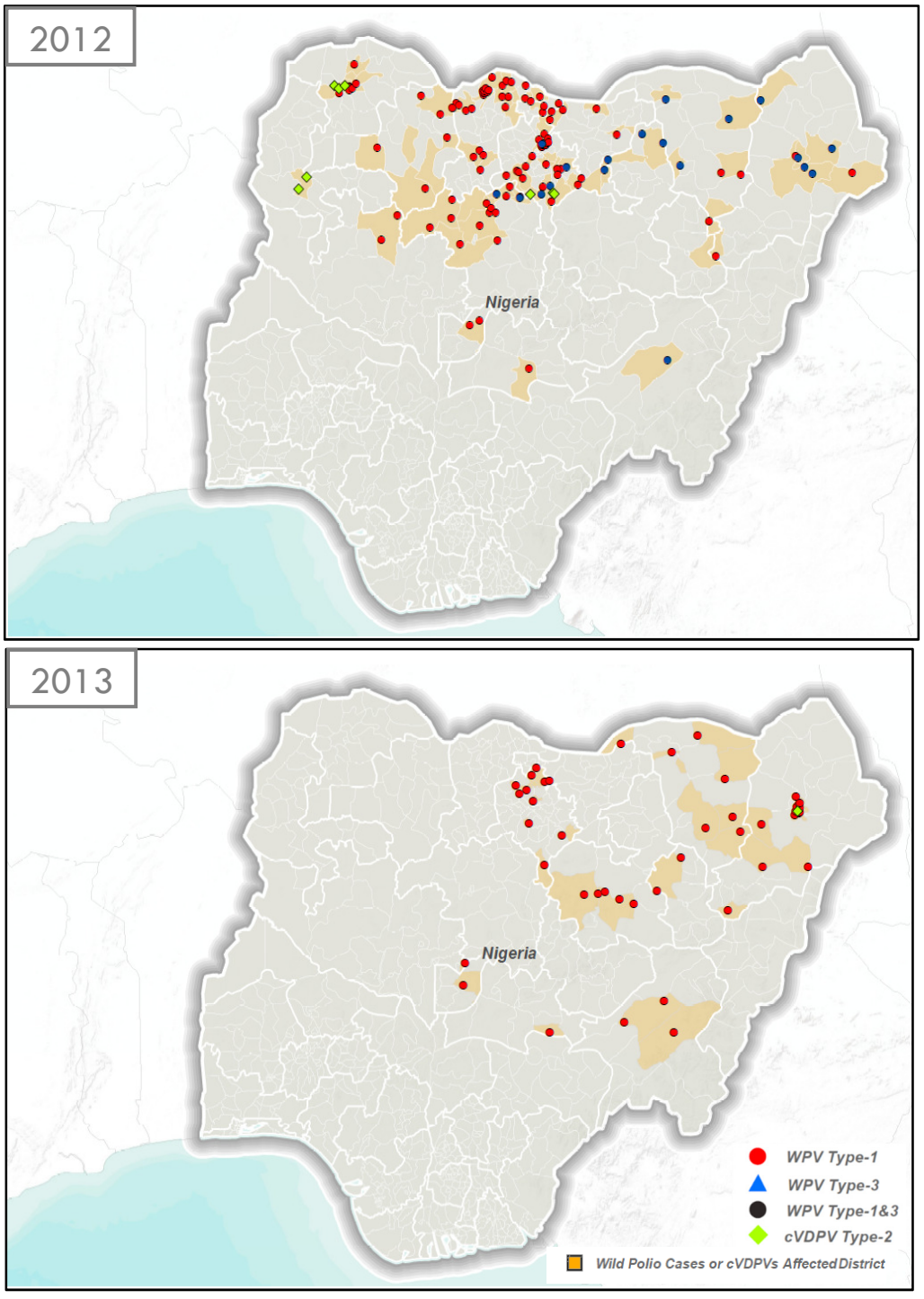
SYNOPSIS

- *Epidemiology*: FATA is now the most active zone of WPV1 and cVDPV2 transmission. In four districts near the city of Peshawar (Peshawar District, Charsadda, Mardan, and Nowshera) in KP, WPV1 transmission remains active. There have been fewer WPV1 cases outside of FATA and KP in the last 6 months. cVDPVs have emerged as a significant problem in the North Waziristan Agency of FATA. Environmental surveillance continues to be intermittently positive in some other parts of the country. WPV3 has not been detected in more than a year and may have been eliminated from Asia.
- *Immunization*: Although the program has indisputably made much progress in the past two years, immunization indicators remain suboptimal in some key high-risk areas, and have deteriorated substantially in Quetta. LQAS surveys were stopped in Karachi after the December killings and have been compromised in KP, limiting the ability of the program to monitor campaign quality.
- *Security*: In total, assailants have killed 22 polio workers and 4 law enforcement officers assigned to protect them, most recently in July 2013. Although security threats remain substantial in Karachi, they are most intense in Union Council Four (UC4) of Gadap. The limited geographic area of this union council has permitted the program to implement elaborate security measures to ensure the safety of workers.
- *Surveillance*: Environmental surveillance continues to detect chains of transmission not found in AFP surveillance, suggesting gaps in surveillance, notably in Hyderabad. The program has reported a decrease in AFP reporting since last year, from approximately 400 cases per month to about 380 per month currently. Nevertheless, AFP reporting nationally remains above 2/100,000 children <15 years of age. Sub-nationally, reporting problems remain in FATA where the NPAFP target rate has not been met in 2012 or 2013 and there are delays in notifications of AFP cases with resulting failure of meeting the adequate specimen indicator target. Notably, rates of detection of distantly related "orphan" viruses are substantially decreased during 2012-2013 from what they were 2-3 years ago.
- *Ownership*: Indicators of ownership are generally positive but lag in both Balochistan and KP compared with other provinces. UC ownership is high, by the indicators tracked.
- *Community Demand*: While refusals remain low on the whole, they are clustered in the most dangerous areas for virus transmission, and there are signs that refusals are increasing in Peshawar and surrounding cities, as well as Karachi. The proportion of WPV cases that occurred in refusal families decreased from 26% in 2011 to 12% in 2012 (7 of 58 cases). So far in 2013, 5 of 27 cases (19%) occurred in families who refused the vaccine. Caregivers' intent to vaccinate if vaccinators come to their door is high; and remains high even when caregivers must go to a health center to receive OPV.

NIGERIA

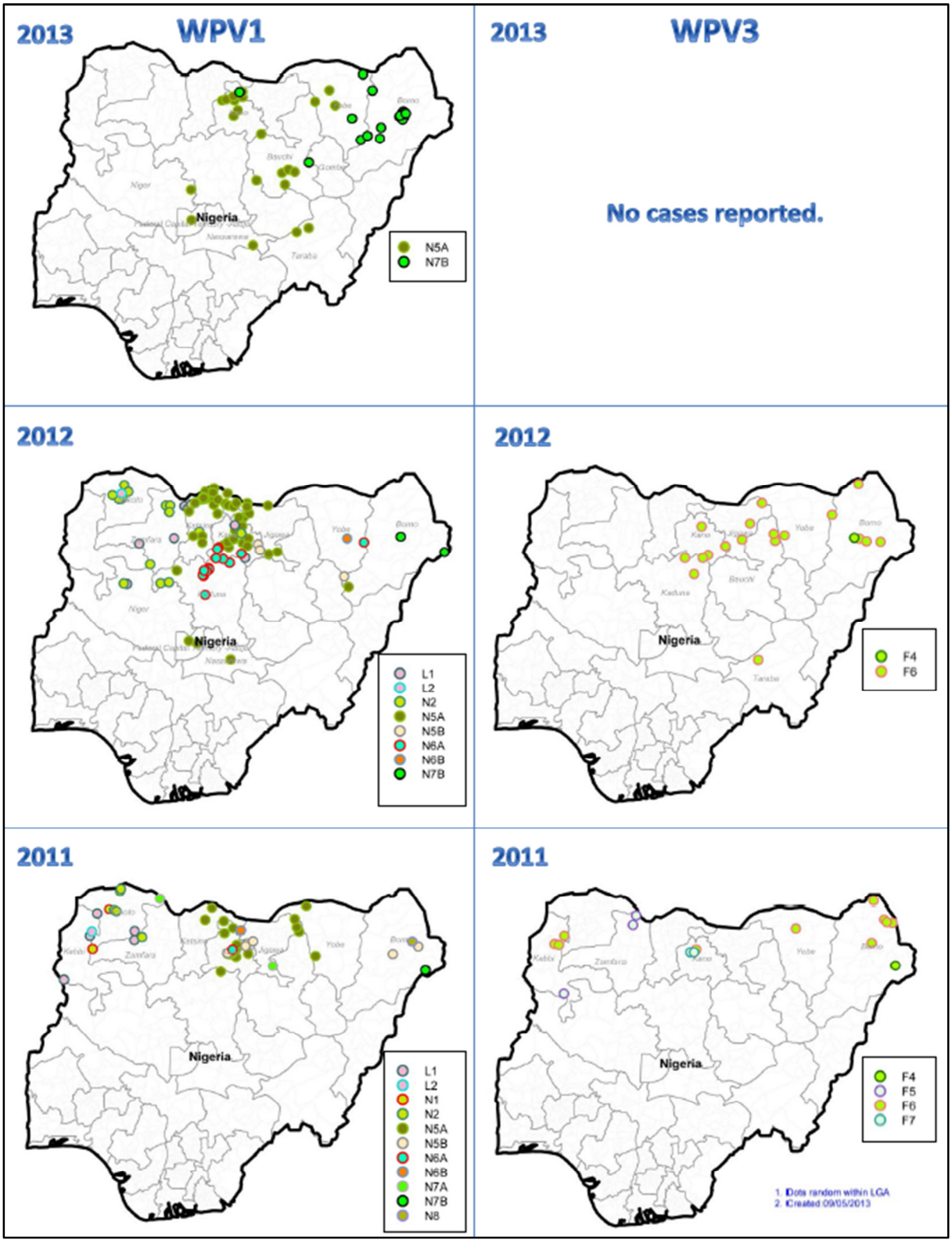
NATIONAL POLIO OVERVIEW

The number of WPV cases in Nigeria increased from 60 in 2011 to 122 in 2012. During 2013, there have been 46 WPV1 cases confirmed so far, compared with 84 WPV cases (65 type 1 and 19 type 3) during the same time period in 2012. Since December, the foci of transmission have shifted primarily to Kano State (North Central Zone) and to the Northeastern Zone. SIAs were temporarily suspended in some areas after targeted attacks against health workers in early February 2013. Although vaccination has continued under increased security, some LGAs in Borno have yet to conduct further SIAs. The quality of SIA implementation, as determined by LQAS surveys, showed progressive improvement during 2012 through early 2013 but little improvement since, particularly in the states with cases in the previous 6 months. The most recent indigenous cVDPV2 case was in November 2012, and the most recent detection in environmental surveillance was in March 2013 in Sokoto. The 2013 cVDPV case in Borno represents importation from the cVDPV outbreak in Chad. There remains virologic evidence of substantial gaps in AFP surveillance.



VIROLOGY

Wild poliovirus type 1 (WPV1) and type 3 (WPV3) by genetic cluster, Nigeria, 2011–2013 to date*



* Data as of 4 September 2013

After a substantial decline in the genetic diversity of WPV1 strains from 21 clusters in 2009 to 4 clusters in 2010, the number of clusters increased to 11 in 2011 with enough diversity to designate one new genotype (WEAFB2). The genetic diversity of the WPV1 virus chains of transmission declined slightly from 2011 to 2012 (to 8 clusters). In 2012, each of the three sanctuaries (Northwest, North Central, and Northeast) harbored viruses from specific clusters and lineages, with occasional transmission between adjacent sanctuaries. No WEAFB2 virus (clusters L1, L2) has been detected since September 2012; all viruses detected since then have been WEAFB1. In 2013, viruses from two clusters have been detected to date. One cluster (N5A) was found in areas inside and outside the North Central sanctuary and another cluster (N7B) was found primarily in the Northeast sanctuary. There has been a recent increase in the number of polio cases in Kano. Most of these cases represent indigenous transmission of cluster N5A WPV1 strains that circulated in that region (Kano, Katsina, and Jigawa) in previous years. No WPV cases have been detected in the Northwest sanctuary since September 2012. Viruses from the Federal Capital Territory (FCT) in late 2012 and 2013 were from two different lineages of the N5A cluster, indicating two separate introductions into the region, one from Katsina and a second from Jigawa.

WPV1 was isolated from three environmental samples taken from Sokoto in March and April 2013. All three viruses were most closely related to strains circulating in the North Central and Northeast Sanctuaries at the time. Environmental surveillance in Kano has detected WPV only once in 2013 (in February). No WPV has been detected in new environmental sites initiated in Kaduna and FCT in June 2013.

Genomic sequence analysis indicates surveillance gaps, including some chains of WPV transmission during 2012 and 2013 that went undetected for more than a year. In 2013, six viruses from AFP cases from five different states (Borno, Gombe, Bauchi, Kano, and FCT) had less genetic linkage than expected with sensitive AFP surveillance. Nationally, the percentage of WPV1 isolates with much less genetic linkage than expected declined substantially from 88% in 2010 to 13% in 2012 and 17% (6 of 36) in the first half of 2013.

WPV3 has not been detected in Nigeria since November 2012. In 2012, prior to this last detection, a significant proportion (4 of 19, 21%) of WPV3 isolates had much less genetic linkage than expected.

1. No WPV3 has been detected in Nigeria since November 2012.
2. The genetic diversity of WPV1 strains declined slightly from 2011 to 2013.
3. WPV1 isolation from environmental specimens declined substantially during the high season of 2013 (May through July).
4. Virologic data indicate remaining gaps in AFP surveillance.

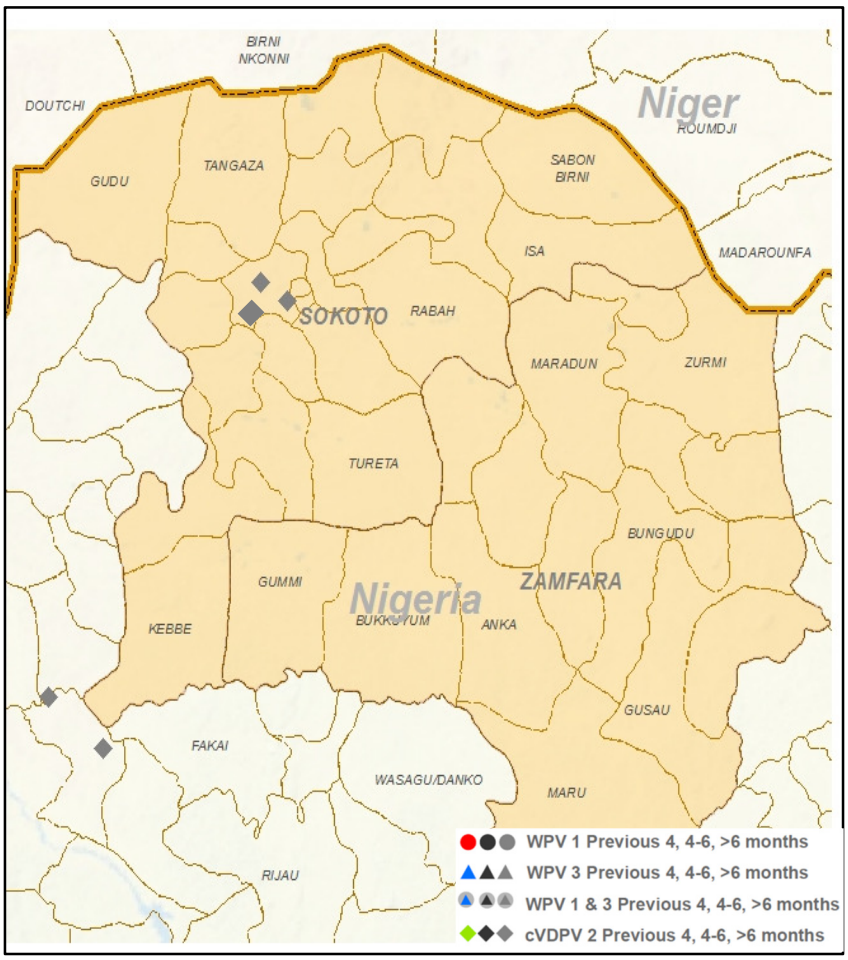
POLIOVIRUS SANCTUARIES

At the time of this report, Nigeria has three virus sanctuaries:

1. Northwest (Sokoto and Zamfara)
2. North Central (Kano, Katsina, Jigawa, and Kaduna)
3. Northeast (Borno and Yobe)

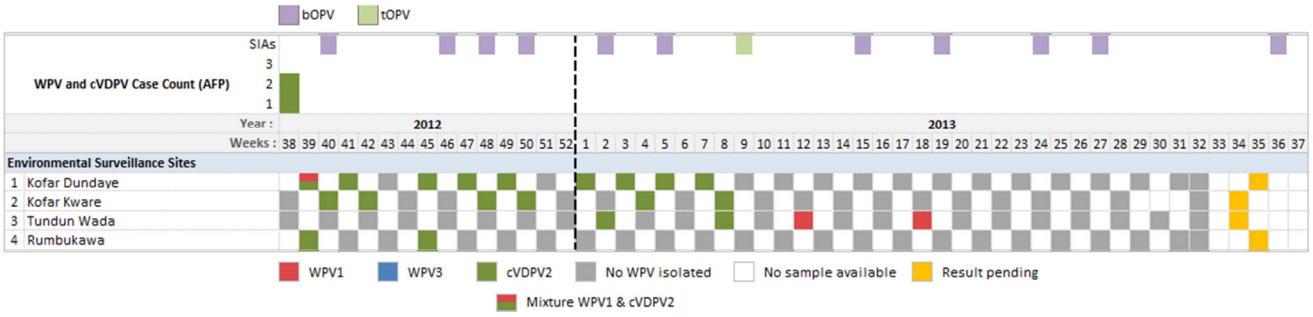
NORTHWEST SANCTUARY

WPV and cVDPV2 cases, Northwest sanctuary, April 2012 to March 2013

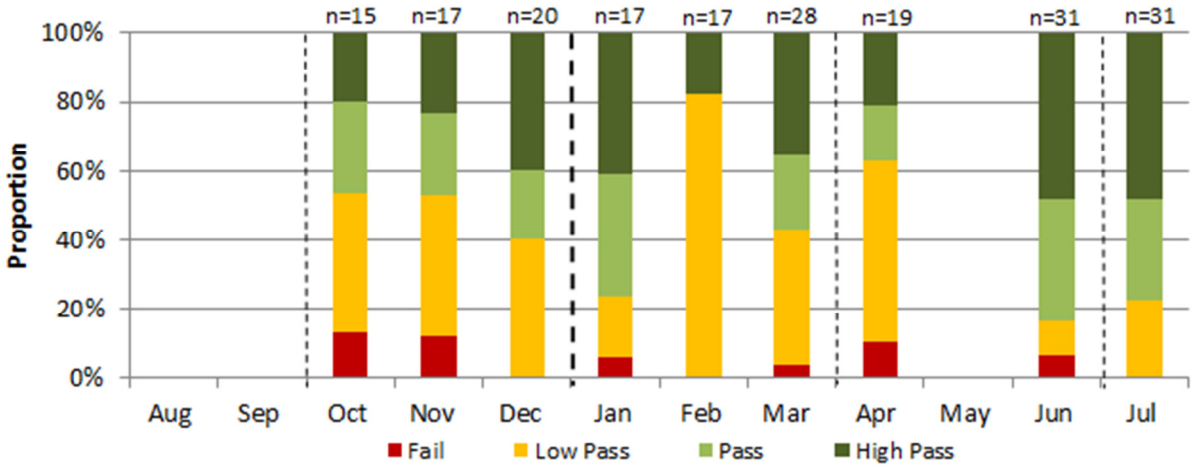


Notes regarding Nigeria's LQAS survey results (see next page). Decision rules of 3, 8, and 19 for sample sizes of 60 in Nigeria provide a reasonable assessment of SIA quality at 90% (**High Pass**), 80% (**Pass**), and 60% (**Low**) thresholds (or **Fail** if below) for programmatic purposes under the assumption of moderate variability in cluster-level results. These surveys do not allow accurate statements about vaccination coverage.

WPV cases by week of onset and environmental surveillance results, Northwest sanctuary

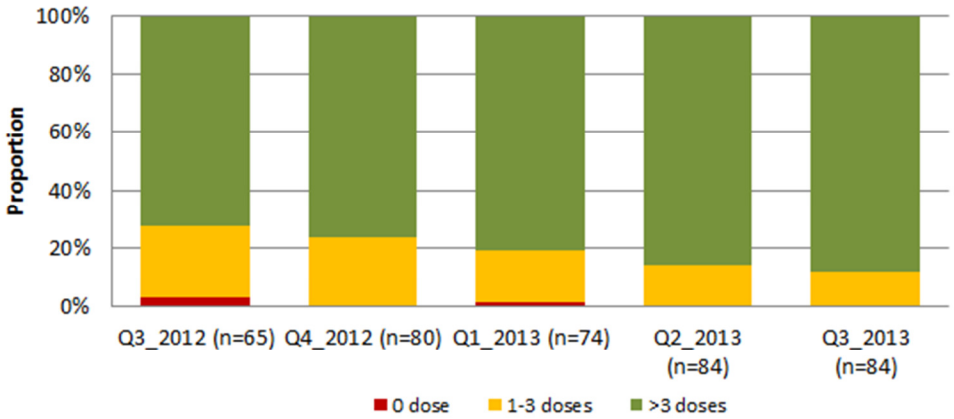


Proportion of LGAs with LQAS survey results by SIA, Northwest sanctuary



Note: The January 2013 SIA was targeted at a limited number of LGAs and LQAS was conducted over a smaller area than after other SIAs.

Proportion of NPAFP cases 6 to 35 months, by OPV status, Northwest sanctuary



*Data as of 13 August 2013

OWNERSHIP

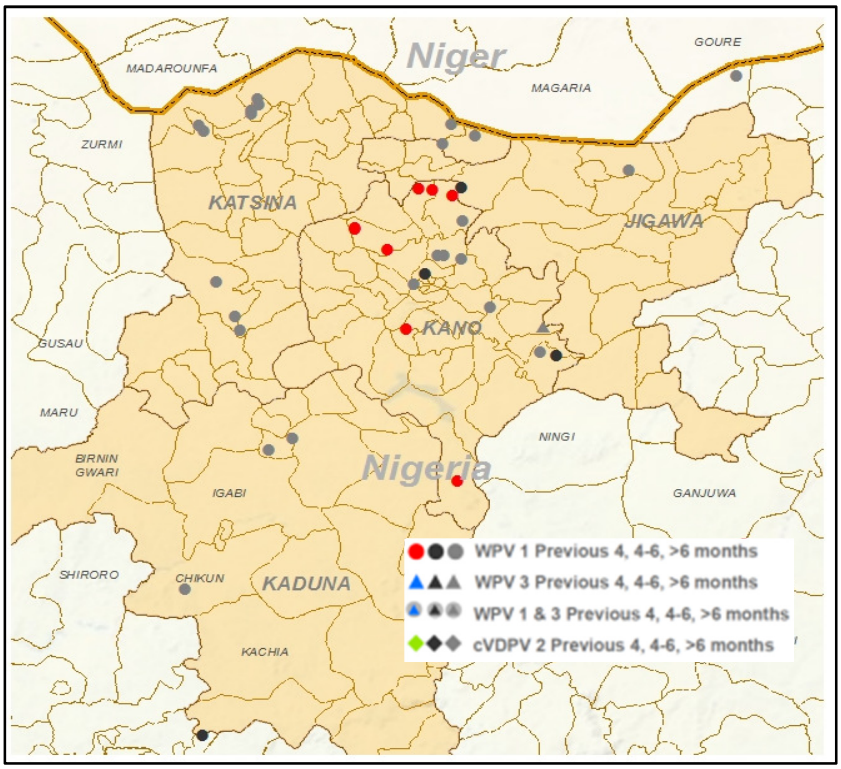
Northwest Sanctuary	Percent of LGAs meeting indicators 1 week pre-campaign							Percent of LGAs meeting indicators 3 days pre-campaign						
	Dec '12	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Dec '12	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13
LGAs participating	24	37	37	37	37	34	37	24	37	37	37	37	34	37
LGA task force met	46	62	84	51	54	56	46	92	100	97	100	100	91	86
LGA counterpart funding released	3	0	0	0	0	0	0	13	100	62	24	43	56	11
Sokoto														
State task force met	No	Yes	Yes	No	No	No	No	No	Yes	Yes	No	No	No	No
State counterpart funding released	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	No	No
Zamfara														
State task force met	No	No	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
State counterpart funding released	No	No	No	No	No	No	No	No	Yes		No	Yes	Yes	No

Abbreviations: LGA=Local Government Area
Source: Nigeria Polio Campaign Dashboard, WHO-Nigeria

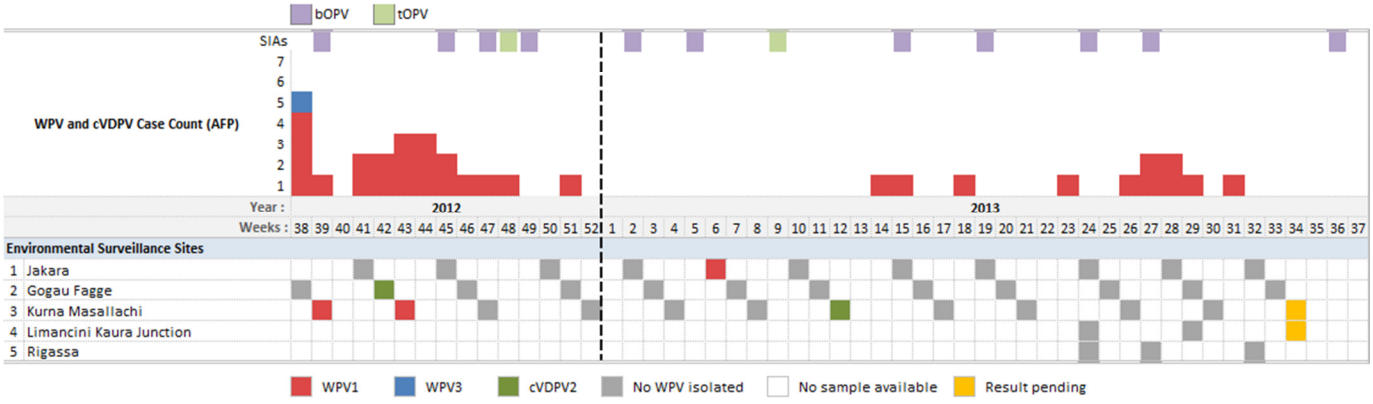
No campaign
No data

NORTH CENTRAL SANCTUARY

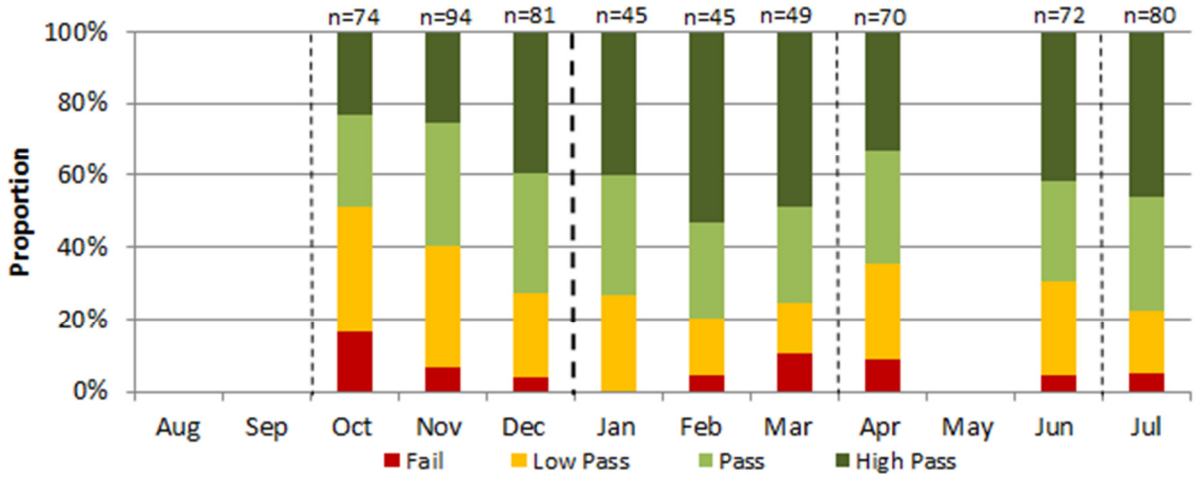
WPV and cVDPV cases, North Central sanctuary, 11 September 2012 to 10 September 2013



WPV cases by week of onset and environmental surveillance results, North Central sanctuary



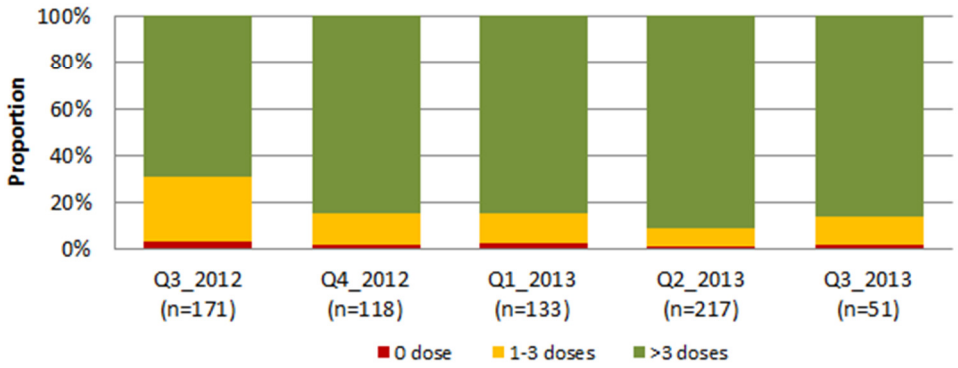
Proportion of LGAs with LQAS survey results by SIA, North Central sanctuary



Note: The January 2013 SIA targeted a limited number of LGAs and LQAS was conducted over a smaller area than other SIAs.

In Kano, only 40-45% of LGAs assessed met the 80% threshold in June–July.

Proportion of NPAFP cases 6 to 35 months, by OPV status, North Central sanctuary



*Data as of 13 August 2013

OWNERSHIP

North Central Sanctuary	Percent of LGAs meeting indicators 1 week pre-campaign							Percent of LGAs meeting indicators 3 days pre-campaign						
	Dec '12	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Dec '12	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13
LGAs participating	128	128	84	128	128	114	128	128	128	84	128	128	114	128
LGA task force met	59	68	60	78	41	75	42	74	96	100	99	66	79	96
LGA counterpart funding released	30	34	5	33	10	58	33	46	57	73	52	48	82	82
Jigawa														
State task force met	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State counterpart funding released	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kano														
State task force met	No	Yes		No	No	Yes	No	No	Yes		Yes	Yes	Yes	No
State counterpart funding released	No	No		Yes	No	Yes	Yes	Yes	No		Yes	Yes	Yes	Yes
Kaduna														
State task force met	Yes	No	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes		Yes
State counterpart funding released	Yes	No	No	No	No	No	No	Yes	No	No	No	No		No
Katsina														
State task force met	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State counterpart funding released	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes		Yes	Yes	Yes

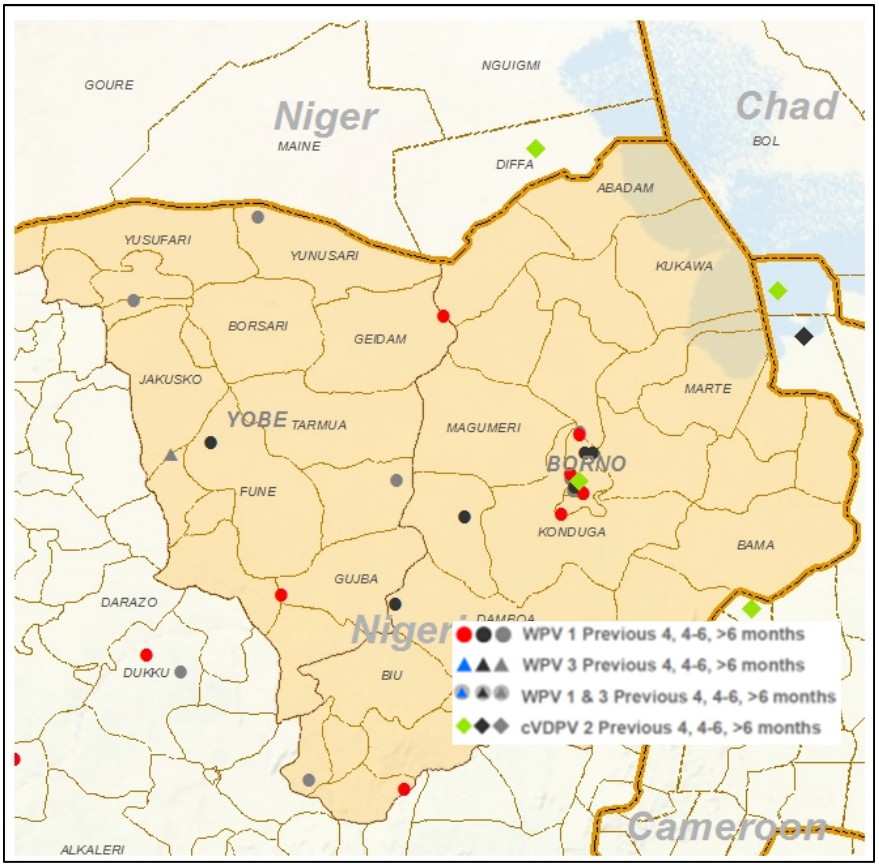
Abbreviations: LGA=Local Government Area

Source: Nigeria Polio Campaign Dashboard, WHO-Nigeria

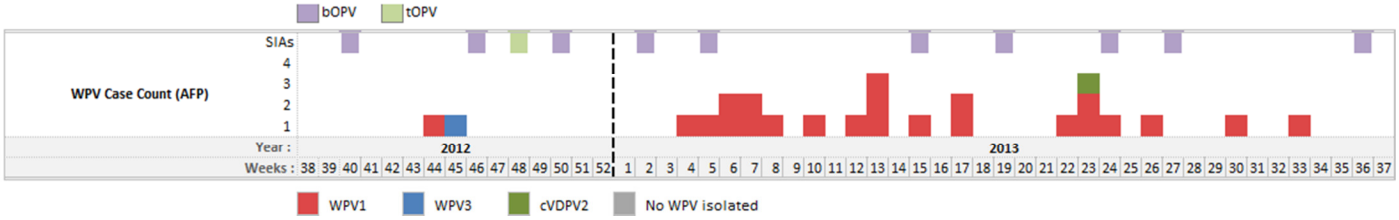
No campaign
No data

NORTHEAST SANCTUARY

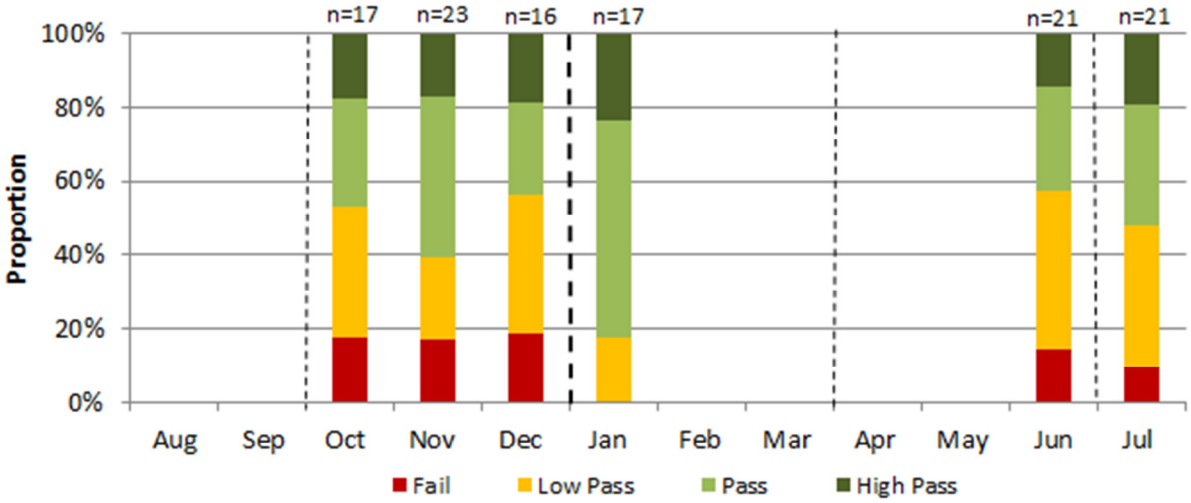
WPV and cVDPV cases, Northeast Sanctuary, 11 September 2012 to 10 September 2013



WPV cases by week of onset, Northeast sanctuary

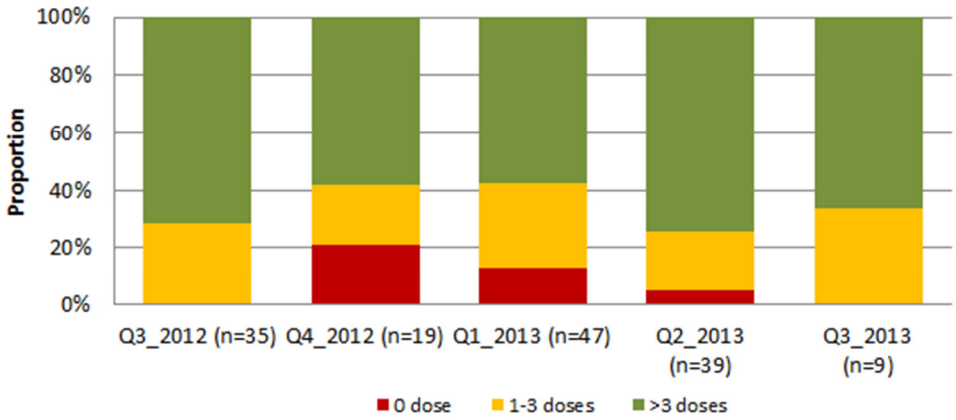


Proportion of LGAs with LQAS survey results by SIA, Northeast sanctuary



Note: The January 2013 SIA targeted at a limited number of LGAs and LQAS was conducted over a smaller area than other SIAs. The LQAS survey after the February 2013 round was stopped pre-maturely and is incomplete.

Proportion of NPAFP cases 6 to 35 months, by OPV status, Northeast sanctuary



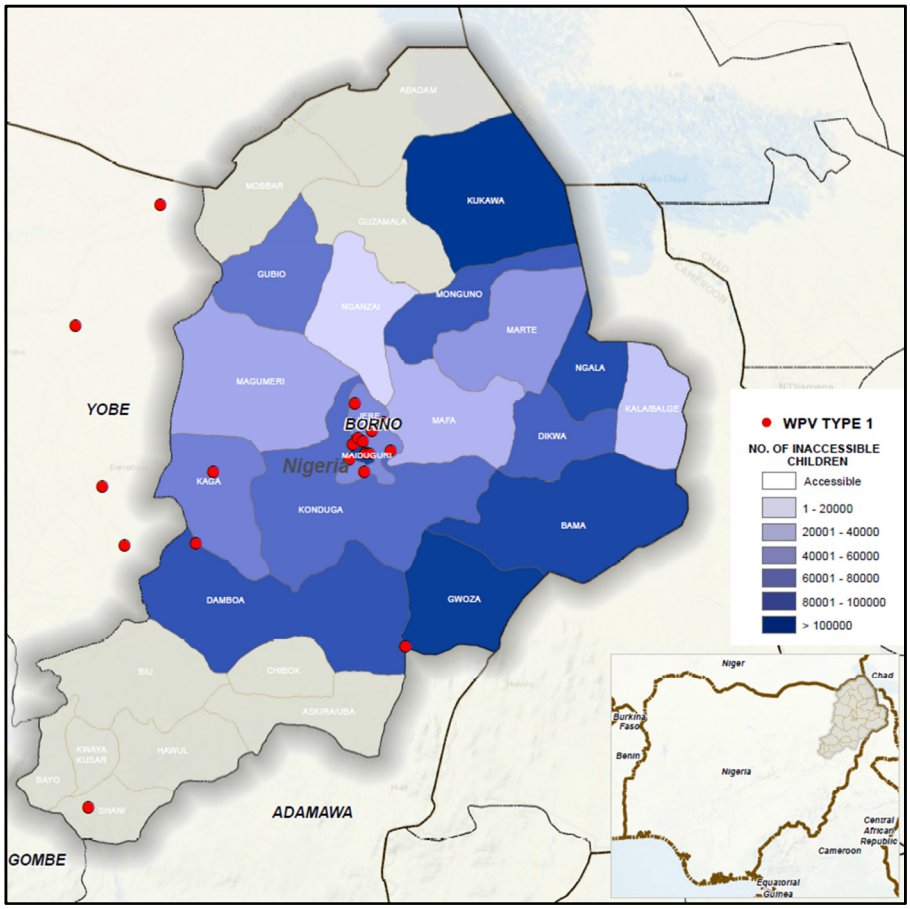
*Data as of 13 August 2013

PROGRAM INFORMATION

INACCESSIBILITY AND INSECURITY

Like Pakistan, Nigeria has also experienced targeted fatal attacks against vaccinators and healthcare workers. In early February 2013, an attack in Borno killed three health workers and two attacks in Kano killed nine workers and one clinic patient. The motives and perpetrators remain unknown. In addition, there is considerable anti-polio sentiment at the community level due to wide-scale distribution of a video disc developed by religious and academic leaders in the North.

Inaccessible areas, WPV1 cases, and the estimated number of children affected during the July 2013 SIA—Borno, Nigeria



Although there has been no further targeted violence, the threat of violence remains. Anti-government elements have altered the security situation in Nigeria severely since 2011, particularly in Borno and Yobe. In Borno and Yobe, insecurity has resulted in decreased access to key populations and has impaired the ability of the program to provide on-site supervision and to implement changes needed to improve the program. The Emergency Operations Centres (EOCs) in Kano and Borno have developed specific strategies and an operational plan to help continue vaccination in both states, with support from the Abuja EOC. Based on some improvement in access, the number of inaccessible children in Borno has decreased from the entire state's target age group of 1.56 million in May 2013 to 760,000 (51% reduction) in the June and 480,000 (69% reduction) in July.

OWNERSHIP

Northeast Sanctuary	Percent of LGAs meeting indicators 1 week pre-campaign							Percent of LGAs meeting indicators 3 days pre-campaign						
	Dec '12	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Dec '12	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13
LGAs participating	26	44	17	44	31	29	36	26	44	17	44	31	29	36
LGA task force met	35	32	0	64	65	62	0	19	84	100	55	81	83	47
LGA counterpart funding released	18	0	0	0	0	0	0	89	57	0	34	55	41	0
Borno														
State task force met	No	Yes		Yes	Yes	Yes			Yes		Yes		Yes	
State counterpart funding released	No	No			No	No			Yes			Yes	Yes	
Yobe														
State task force met		No	No	Yes	Yes	No	No		No	No	Yes	Yes	No	No
State counterpart funding released		No	No	No	No	No	No		No	No	No	No	No	No

Abbreviations: LGA=Local Government Area
Source: Nigeria Polio Campaign Dashboard, WHO-Nigeria

No campaign
No data

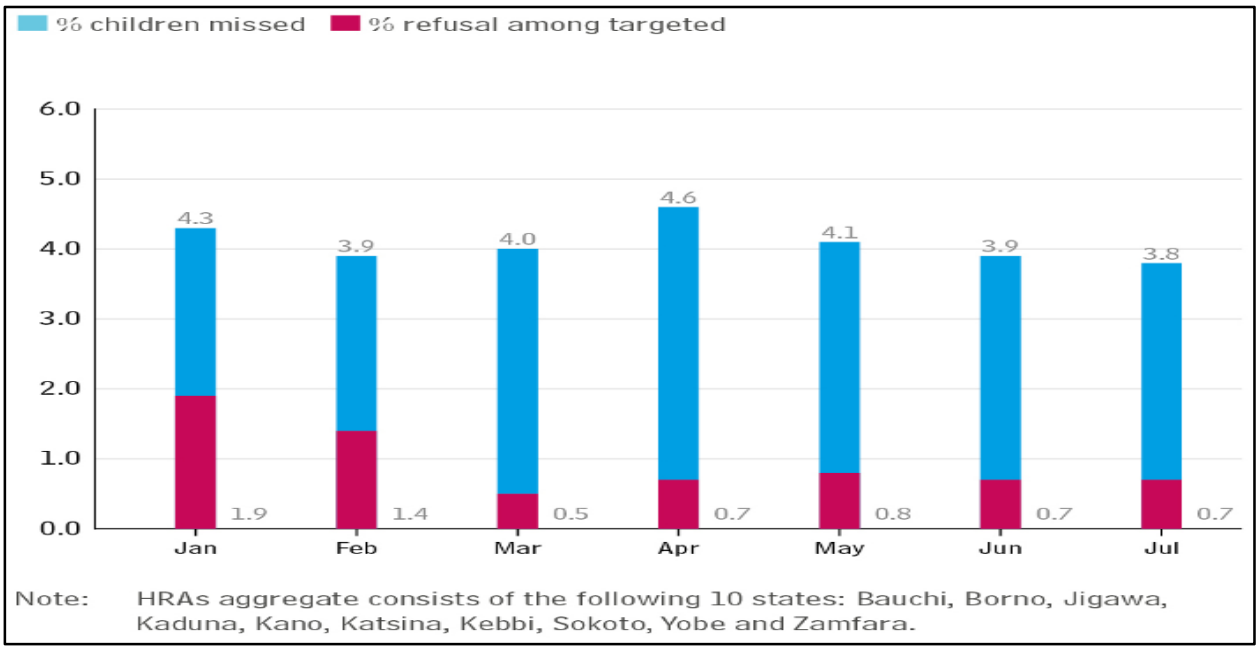
HUMAN RESOURCES

Location (sanctuary)	Total number of vaccination teams	Number (%) of vaccination teams with a female member	Number (%) of vaccination teams with a local member	Salary per vaccinator / day	Number of current GPEI staff	Number of additional GPEI staff needed (if surge is planned)
Northwest (Sokoto and Zamfara)	3,962	3,962 (100%)	3,962 (100%)	$4.32	284	0
North central (Kano, Katsina, Jigawa, and Kaduna)	23,849	23,849 (100%)	23,849 (100%)	$4.32	1,122	48
Northeast (Borno and Yobe)	3,554	3,447 (97%)	3, 555 (100%)	$4.32	344	1

COMMUNITY DEMAND

While the estimated proportion of children missed has remained constant at about 4% from January to July in Nigeria's high risk areas based on independent monitoring, the proportion of missed children due to refusal has declined by 60% in the last 6 months, from nearly 2% of targeted children in January to less than 1% in July. The Volunteer Community Mobilization Network has increased to 3,770 mobilizers in the highest-risk areas, an increase from 2,197 in March.

Proportion of missed children and refusals among targeted children—Nigeria, 2013.

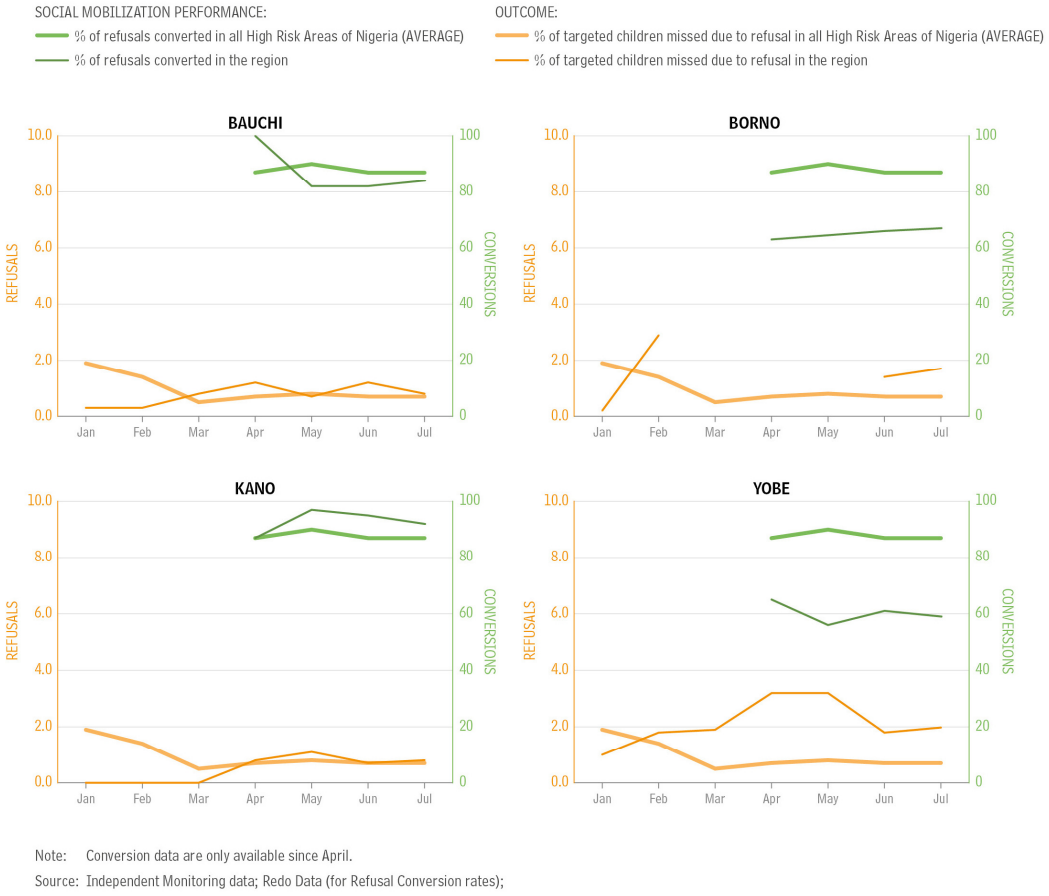


Source: Independent Monitoring Data

Note: Independent monitoring data in Nigeria correlate poorly with LQAS results and overestimate SIA quality, so independent monitoring survey results about reasons for missed children provide unique information but may not be entirely representative.

The highest refusal rates tend to cluster in 4 states: Bauchi, Borno, Kano and Yobe, where refusals are consistently higher than the average of the eight high-risk states and/or increasing. In Borno and Yobe, the high refusals are coupled with a proportion of refusals resolved that is significantly lower than the HRA average level of 85%, indicating performance challenges in these areas. Insecurity and demand for other services beyond OPV is a significant reason for lower performance and more difficulty in generating demand for multiple rounds of polio vaccine

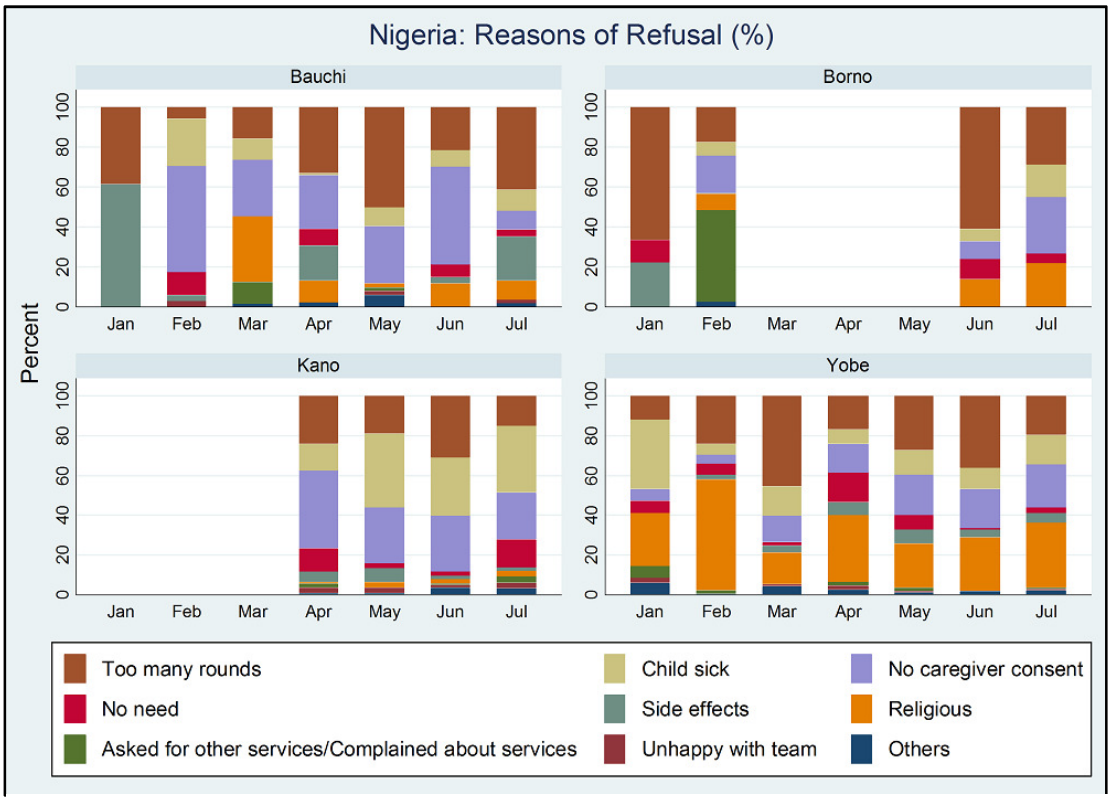
Proportion of target children missed due to refusal and refusal conversion rates in selected states—Nigeria, January –July 2013



Note: Conversion data are only available since April.
Source: Independent Monitoring data; Redo Data (for Refusal Conversion rates);

Source: Independent Monitoring Data (Refusals), Redo Data (Refusal Conversion rates)

Reasons for refusal in four states—Nigeria, January–July 2013.



Source: Independent Monitoring Data

Among the four states where refusals were most prevalent, there are several patterns:

- "Too many rounds" was a consistently significant reason across all four states.
- "Religious concern" was a dominant reason in Yobe and recently a substantial reason in Borno.
- "Child sick" was a dominant reason in Kano.
- "Flat refusal with no reason"/"Caregiver absent" was dominant in Kano and became quite substantial in Borno and Yobe recently.

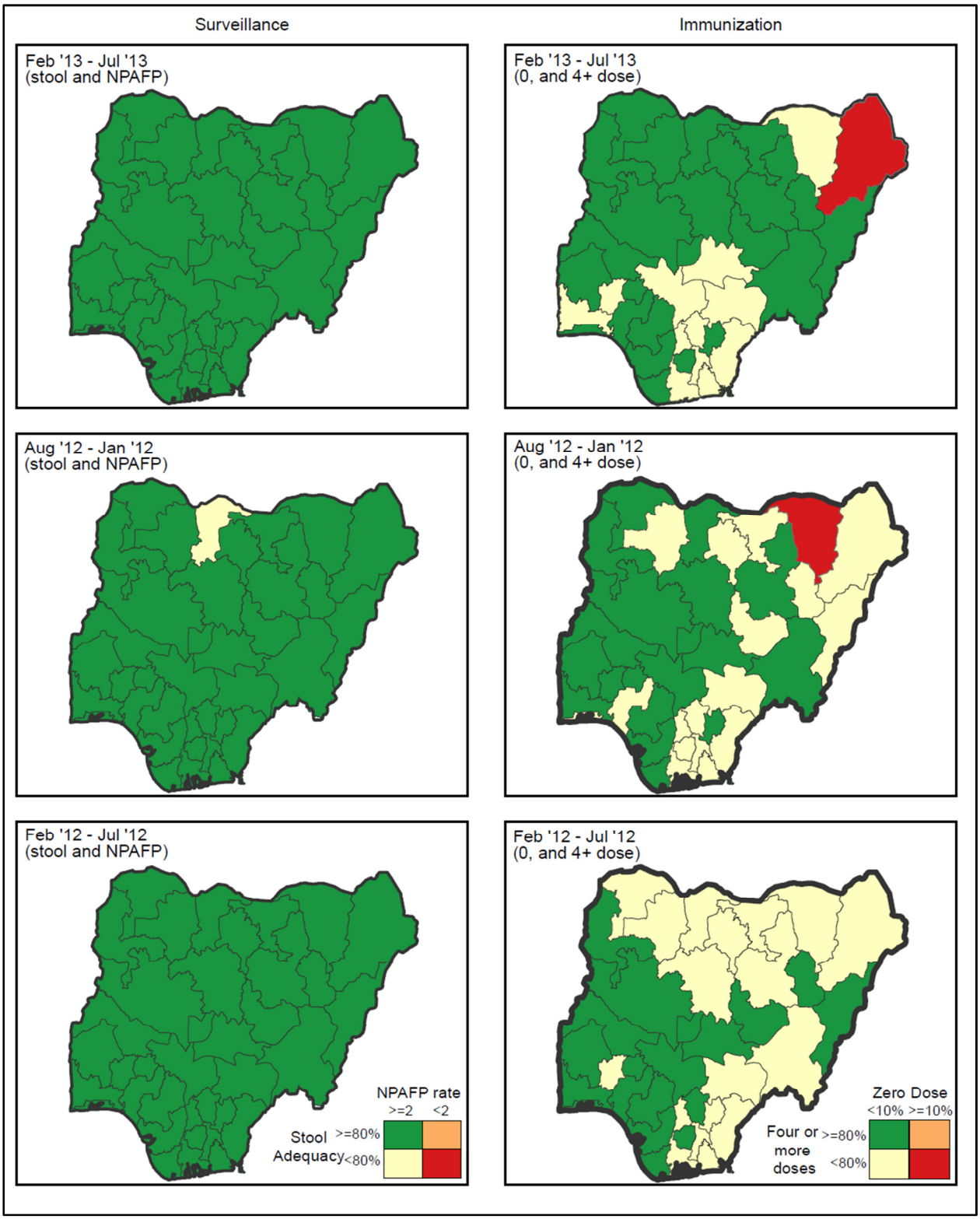
ROTARY INTERNATIONAL'S WORK IN NIGERIA

In August, Rotary's Nigeria National Polio Plus Committee conducted a formal training in Kano for 22 of the 30 LGA Polio Ambassadors. The training was also supported by WHO, UNICEF, and the Kano State Primary Health Care Development Agency. The training was conducted in Hausa to ensure that messages were clearly understood by all participants.

The Nigeria National PolioPlus Rotary committee supported the September 2013 Immunization Plus Days in Kano during which nationally recognized actor and Rotary Polio Ambassador Dani Sanja traveled to four LGAs encouraging parents to have their children immunized against polio. The Nigeria EOC approved a radio public service announcement which was aired before and during the immunization activities to create further awareness and ensure that more families were reached with information about how to have their children vaccinated.

PERFORMANCE INDICATORS

Six month annualized standard surveillance and immunization indicators by province among children aged 6-35 months with AFP, Nigeria, October 2011 to March 2013



GPEI POLIO ERADICATION AND ENDGAME STRATEGIC PLAN 2013–2018, NIGERIA

STRATEGIC PLAN OBJECTIVE	OUTCOME INDICATORS (2013)	RESULTS	STATUS
Poliovirus Detection and Interruption: Complete the interruption of wild poliovirus transmission globally and more rapidly detect and interrupt any new outbreaks due to vaccine-derived polioviruses	All wild poliovirus transmission stopped by the end of 2014		**NA***
	All new cVDPV outbreaks stopped within 120 days	All cVDPV cases in 2013 were continuation of 2010 emergence. Importation from Chad is noted.	**NA**
	OUTPUT INDICATORS (2013)		
	Achieve and maintain an NPAFP rate of › 2/100,000 in all states/provinces of high-risk countries and maintain an NPAFP rate of › 2/100,000 in all states/provinces	National NPAFP rate in previous 12 months is 9.3/100,000. 100% of provinces have maintained NPAFP >2/100,000.	**Met**
	Achieve and maintain adequate stool sample collection in 80% of cases in all states/ provinces	100% of provinces have maintained adequate stool collection in ≥80% of AFP cases in the previous 12 months.	**Met**
	LQAS passed at 80% threshold in all high-risk areas	From February–July 2013, of the 658 LQAS assessments conducted in the three sanctuaries, 71% have passed the 80% threshold.	**Not Met**
	Establish full safety and security framework	A UN security management and enhancement plan has been developed and funded. The national program has developed a specific operational plan with innovative strategies to vaccinate children in highly insecure LGAs of Borno. An Emergency Operations Center has been established in Borno.	**Established**
	All current cVDPV outbreaks stopped by end-2013	More than 6 months have passed since the most recent cVDPV case or environmental isolation of indigenous strains; ongoing observation is warranted given virologic evidence of surveillance gaps.	**Too Soon to Assess**

* Not Applicable

STATUS

Throughout 2012, Nigeria implemented a broad array of innovations that were accompanied by substantial improvements in SIA quality. The Northwest Sanctuary has not seen a case of polio or indigenous WPV in environmental sampling for more than a year. While these improvements are encouraging, many problems remain. Security challenges interfered with SIAs in Kano, Yobe, and Borno early in the year and continue to limit access in Borno and Yobe. Even in areas without security challenges, certain LGAs persistently perform poorly in SIAs and continue to act as potential harbors for the virus. Consistent improvements in SIA quality (by LQAS results) seen in 2012 did not continue into 2013. To address these problems, the program has continued to roll out additional

innovations. Since mid-2013, the EOC has formed and deployed "management support teams" to the poorest performing LGAs ahead of SIAs. More recently, the program has experimented with "staggered SIAs" in the poorest performing wards. This innovation moves staff to these wards to begin the SIA 4 days early, before expanding the SIA on day 5 to the rest of the LGA. The Nigerian National STOP program (NSTOP) has expanded to include an additional 100 LGA-based staff whose role is to improve both SIAs and routine immunization services. An EOC was established in Maiduguri as a special strategy to support Borno and Yobe. Permanent health teams have been put in place for certain LGAs and the program has stationed vaccinators at border crossings. This innovative strategy allows for quick implementation of SIAD campaigns when opportunities arise in previously inaccessible areas because trained teams are already in place.

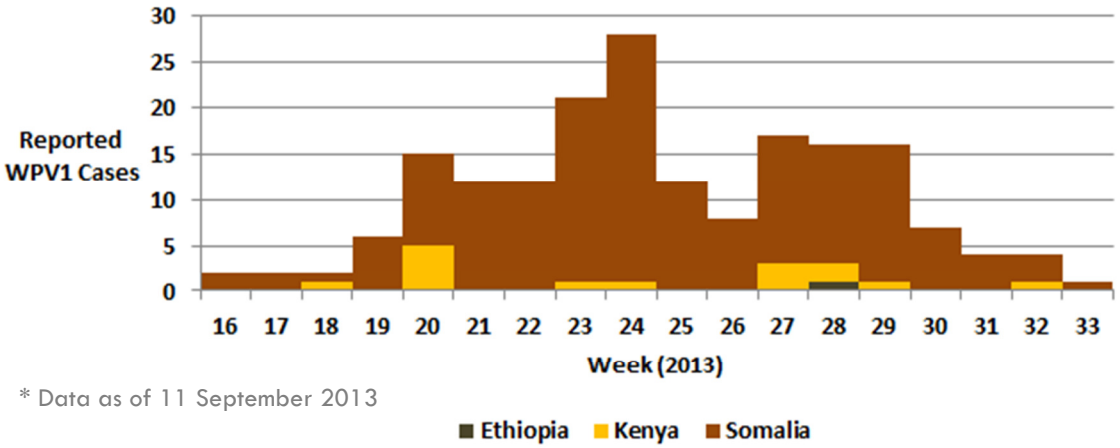
SYNOPSIS

- *Epidemiology*: The WPV case count as of 10 September 2013 (46), although lower than at the same time period in 2012 (84), is higher compared to the time period in 2011 (26). Cases are almost exclusively in the Northeast Sanctuary and in Kano State; Bauchi has also reported 5 cases in 2013. cVDPVs continued to circulate into 2013 but AFP surveillance and environmental testing since March have found no further indigenous isolates. An importation of cVDPV from Chad indicates remaining weaknesses in delivering immunization services in Borno. Since late 2012, there has been a recurrence of polio in FCT, Nasarawa, and Taraba that highlights weak program performance in these areas. The recent Taraba case represents continued undetected transmission in the area since the previous case. WPV3 has not been detected since 10 November 2012.
- *Immunization*: LQAS and NPAFP dose history data showed steady improvements throughout 2012, except in the Northeast. Improvements in SIA quality leveled out between December and May—a time period during which SIAs were adversely affected by the killings of polio workers—but there were slight improvements in the June and July SIA LQAS results. Other states in the North Central Sanctuary have shown improvement in LQAS results since December. In Kano, performance has decreased to only 40-45% of LQAS meeting the 80% threshold in June–July 2013. Three states had >70% of LGAs passing at the 80% threshold in July. LGAs, particularly in Kano, have consistently poor SIA performance, including in Nasarawa, Dambata, Gwale, Kumbutso, Takai, Tudun Wada, and Ungogo. The Program innovations include management support teams and staggered SIA schedules. The focus of the NSTOP program was expanded to include both SIAs and routine immunization services. Immunization indicators in FCT and Nasarawa show poor performance.
- *Security*: In early February 2013, an attack in Borno killed three health workers and two attacks in Kano killed nine workers and one clinic patient. Insecurity has decreased access to key populations in Yobe and particularly Borno, where 47% of children (residents in several LGAs) remain without access to SIAs since last year.
- *Surveillance*: Surveillance gaps continue based on the ongoing detection of WPVs and cVDPVs with less genetic linkage than expected.
- *Ownership*: There is evidence of strong ownership at the national level, but the indicators of ownership are lower at the state level and highly variable at the LGA level. These indicators have shown improvement in 2013 at both state and LGA levels in all areas, though less so in the Northwest.
- *Community Demand*: Vaccine refusal in specific communities remains a concern in Nigeria. The anti-vaccination groups developed and widely distributed an anti-polio vaccine video that had considerable negative impact on participation in vaccine campaigns in many communities. Aggressive efforts by anti-vaccination groups continue into the present. To offset the impact of the negative messages conveyed by this video, a video explaining the importance and need for families to participate in vaccine campaigns has been developed and is being widely circulated. Additionally, resources are being directed for engaging religious and community leaders at the local level to support polio vaccination campaigns. Increased efforts to address vaccine refusal in early 2013 appear to be having a positive effect. Refusals are down by more than 60%, from about 2% of targeted children at the beginning of the year to 1% currently. Approximately 30% of polio cases in 2012 and 2013 are in children of refusal families. In 2013, all 15 (out of 45 cases) of these children with refusal reside in the four states with the highest case load and lowest immunization rates: Bauchi, Borno, Kano, and Yobe.

NON-ENDEMIC, VULNERABLE COUNTRIES

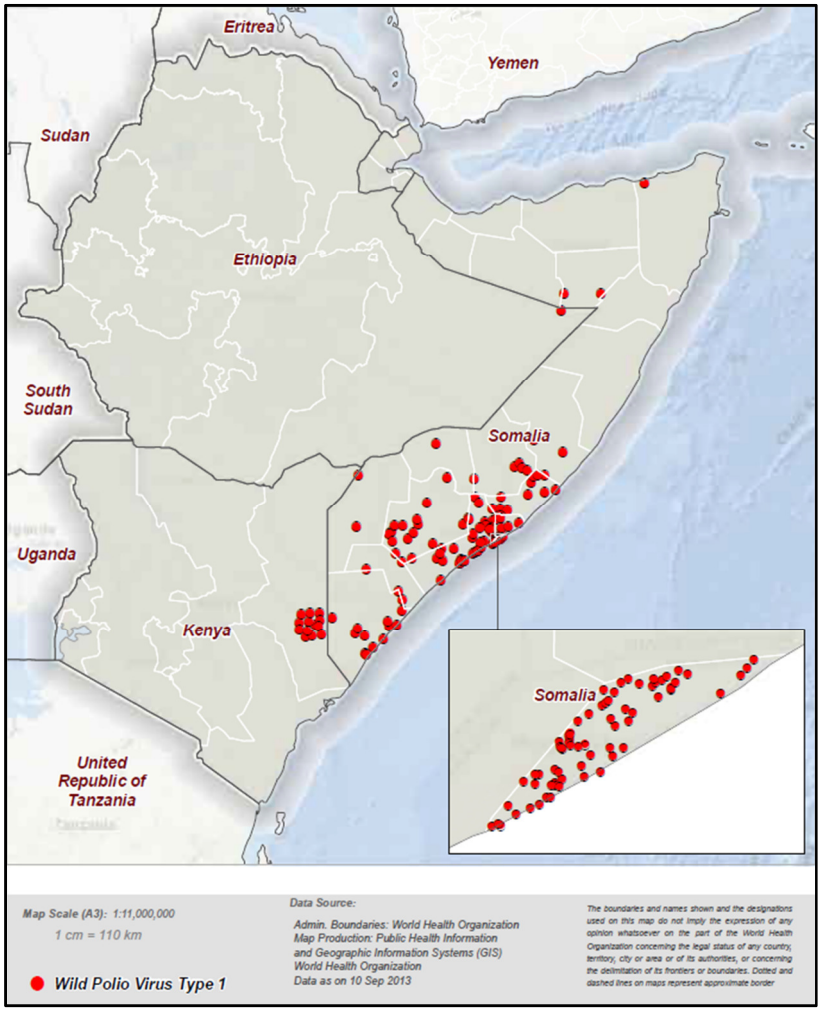
HORN OF AFRICA OUTBREAK

WPV1 cases in the Horn of Africa, 2013*



* Data as of 11 September 2013

Location of WPV1 Cases in the Horn of Africa, 2013*

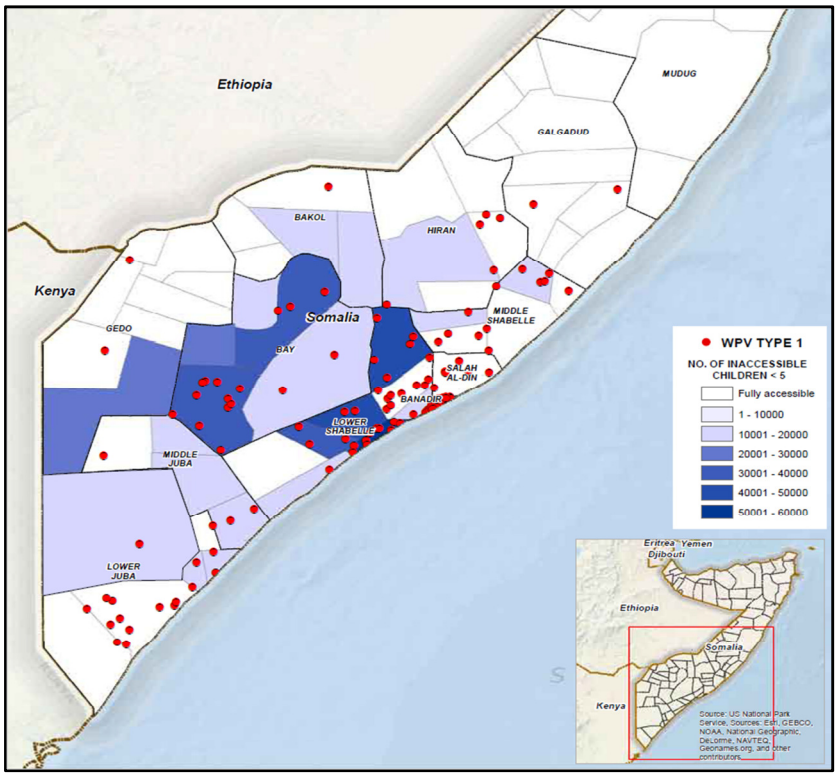


In May 2013, WPV1 cases were confirmed in rapid succession in Somalia and Kenya. Genetic analyses of isolates indicate that they are closely related, with evidence of a single introduction of a virus lineage from the North Central Nigerian sanctuary and subsequent transmission in the area before detection. New cases in both countries continue to be identified and a case was reported in Ethiopia in August. Other AFP cases are under investigation. As of 10 September 2013, there were 178 cases reported.

SOMALIA

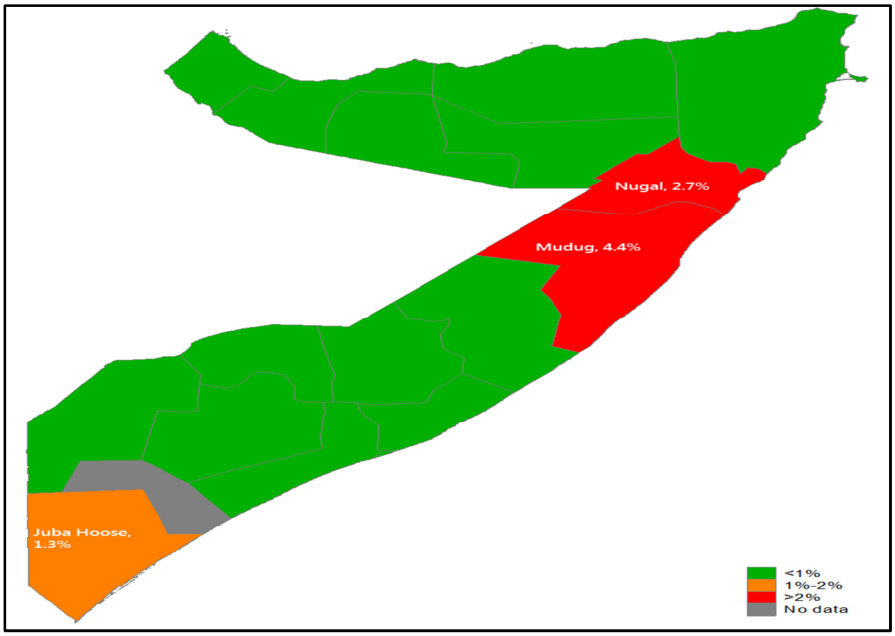
On 9 May 2013 a WPV1 case in a 32-month-old child from Mogadishu (Banadir Region) was confirmed. This was the first WPV case in Somalia since 2007. As of 10 September, 162 additional WPV1 cases have been confirmed. Forty percent of cases are from inaccessible or partially accessible areas. Half of cases have never received a dose of OPV; 18 cases (11%) are in children ≥5 years of age (including a 27-year-old). To date, six SIAs

Inaccessible children in Somalia, July 2013

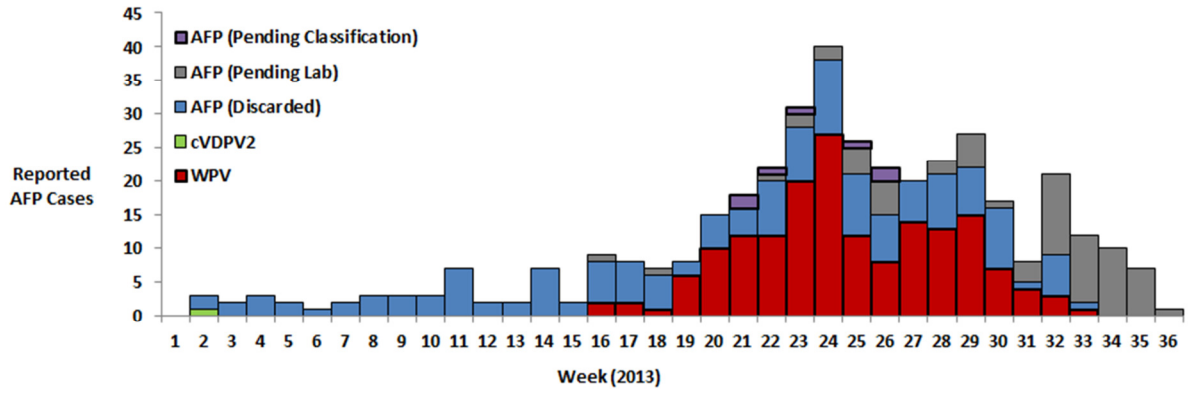


have been conducted; the first (in Banadir with tOPV) occurred within five days of the outbreak being confirmed. An estimated one half-million children in South Central Somalia are not accessible for vaccination through SIAs (>40% of targeted children) because of long-standing security issues. bOPV SIAs have taken place in all accessible districts of Somalia and targeted expanded age groups. Preliminary monitoring results indicate high coverage (>90%) in most districts. Four additional SIAs are planned in 2013. More than 300 transit and cross-border sites have been identified and will be staffed by permanent vaccination teams to reach children commuting to and from inaccessible parts of Somalia and neighboring countries.

Percentage of missed children due to refusal among targeted children---Somalia, July 2013 SIA



Reported AFP Cases in Somalia, 2013*



* Data as of 12 September 2013

KENYA

On 17 May 2013, two contacts of a four-month-old child with AFP from the Dadaab refugee camp in Kenya tested positive for WPV1; paralysis onset was 30 April 2013. As of 10 September, 13 additional WPV1 cases have been identified. To date, all cases are located in the North Eastern Province of Kenya. Although cases were initially found within the Dadaab camp, half of the cases have occurred in residents outside of the camps. Case-patients range in age from 4 months to 22 years; 3 case-patients are aged ≥15. Four SIAs have been conducted in the refugee camps and surrounding Garissa County. The last two rounds of SIAs included large areas in Kenya including parts of Nairobi. Several of these rounds targeted expanded age groups. A fifth sub-national SIA is being conducted in September and NIDs will be held in November and December.

ETHIOPIA

A single case of WPV1 was reported from Injiro near Geladi of the Somali Region in an 18-month-old child with a date of onset of 10 July 2013. A preventive SIA had already been conducted in the area in response to the Somalia outbreak, and another occurred shortly after onset of this case. After case confirmation, a mop-up campaign was conducted in mid-August targeting children <15 year olds in the surrounding area. An SIA, initially planned to be a sub-national campaign, will be expanded to a national SIA to be implemented in early October. Additionally, two national SIAs are scheduled for November and December. Two new WPV cases have been confirmed since 10 September 2013.

OTHER COUNTRIES WITH DETECTION OF ACTIVE WPV TRANSMISSION

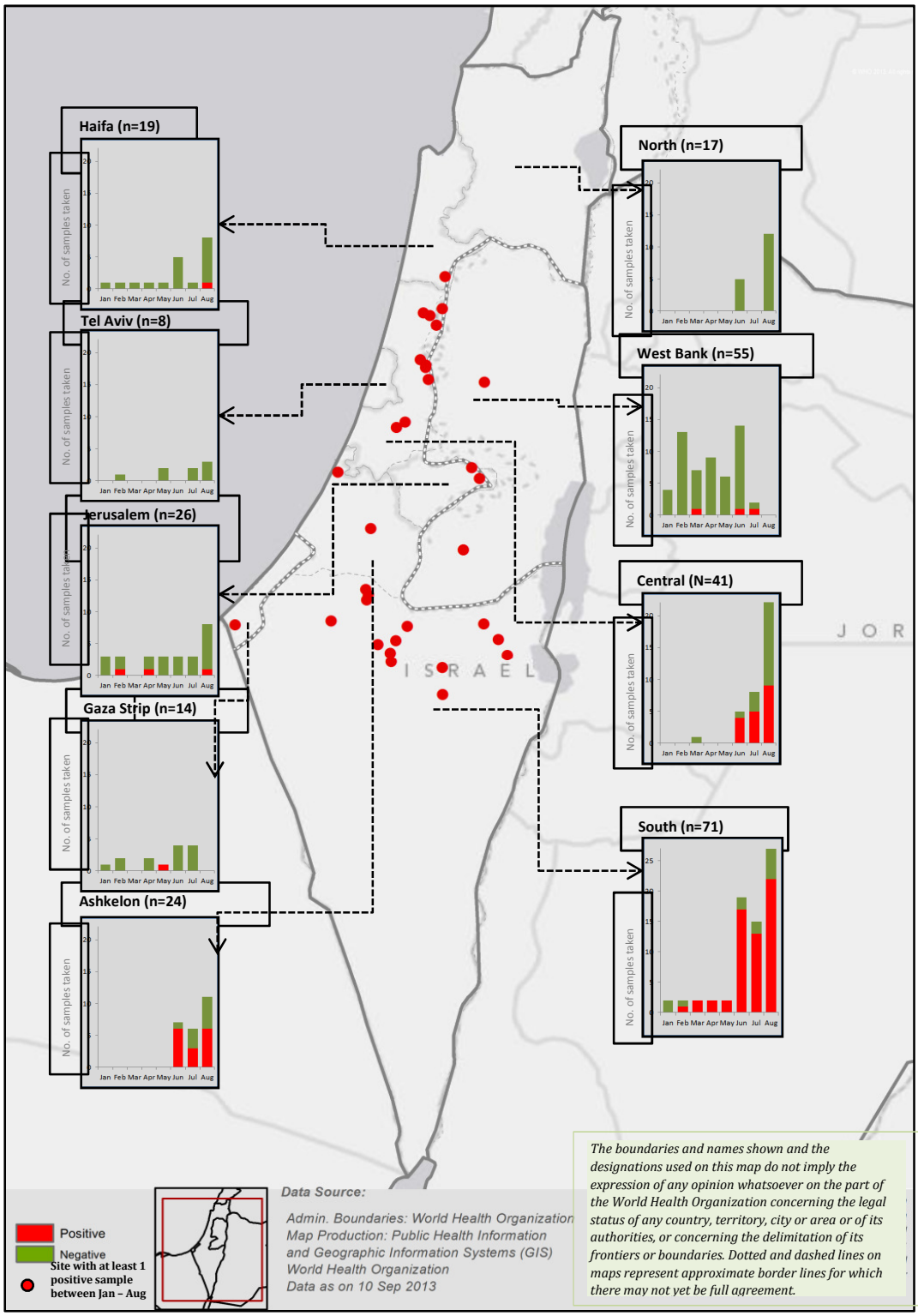
ISRAEL; WEST BANK AND GAZA STRIP

In June 2013, the Israel Ministry of Health notified WHO that WPV1 had been detected in sewage samples taken in May in a Bedouin town in the Southern District of Israel. Retesting and further sampling revealed WPV1 presence in 30 sewage samples taken at this and 9 other sites in the Southern District during February – June 2013. Since that time, samples from additional districts have been positive. During 3 February–20 September, 107 samples taken from sites in the Southern, Central, and Haifa Districts and in Jerusalem have yielded WPV1, including transient positive specimens from one site in Jerusalem in February–April, recent detection from a site in East Jerusalem, and a single specimen in Haifa. Stool surveys (convenience sampling) have identified WPV1 in specimens collected at health facilities from children residing in the Southern District who had been fully-vaccinated with IPV. WPV1 has also been transiently detected in a sewage sample taken at one routinely sampled site in the West Bank in July and in recent samples taken at two additional routinely tested sites in the West Bank and one site in the Gaza Strip. Genomic sequencing and preliminary phylogenetic analysis suggests that WPV1 was imported from Sindh, Pakistan to Egypt, where the virus was transiently detected in environmental specimens in December 2012. Subsequently, the virus was apparently imported from Egypt to the Southern part of Israel, from where it has spread. No human polio cases have been identified to date in Israel, the West Bank, and the Gaza Strip.

In Israel, only IPV has been administered in routine childhood immunization since 2005. Childhood vaccination coverage with 4 doses of IPV is very high (90%–95%). An "intercalated" schedule of IPV/OPV was used from 1990 until 2005. In the West Bank and the Gaza Strip, a sequential IPV/OPV schedule was introduced in 1990 and remains in use.

Upon the initial finding of WPV1 in sewage samples in February, the Israel Ministry of Health recommended administering a catch-up IPV vaccination for children who had not completed the IPV series, expanding environmental surveillance to additional sites, and expanding the age range of AFP surveillance to include adults. Response to WPV1 circulation was initiated within 90 days of detection. The Ministry of Health consulted with WHO and invited a WHO mission (23–25 June) to meet with public health officials, procured bOPV vaccine, and prepared educational information about the campaign for both clinicians and the public. On 4 August 2013, the Ministry of Health initiated a campaign to use bOPV to vaccinate all children aged >2 months born since 2004 in the southern district of Israel. Two weeks later, the Minister of Health expanded the campaign nationally when WPV1 was detected in other sewage samples outside the southern district. As of 22 September, 55% of the target population had been vaccinated with a dose of bOPV, including districts/sub districts with large Arab populations. Plans to conduct SIAs in the West Bank and the Gaza Strip are being finalized.

Number and results of environmental samples tested for poliovirus, Israel and the West Bank and the Gaza Strip, January – August 2013



This map does not reflect a position of the United Nations, CDC, or GPEI on the status of any country or territory or the delimitation of any frontiers, including usage of the term "State of Palestine." Final status issues pertaining to the State of Israel and the Palestinian territories can only be resolved through direct negotiations between the parties.

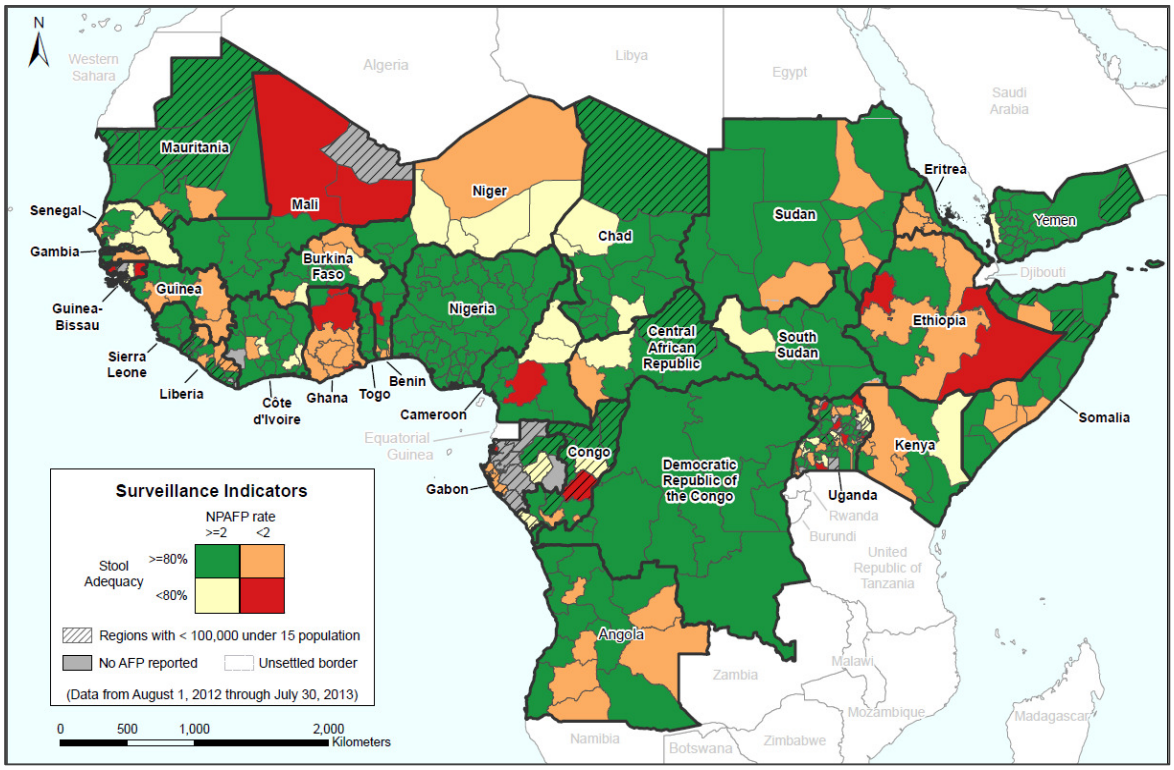
COUNTRIES AT RISK

IMPORTATION COUNTRIES AND COUNTRIES WITH RECENT POLIOVIRUS TRANSMISSION

Countries which have stopped transmission of indigenous wild poliovirus are susceptible to importations of the virus. Depending on the level of immunity in the population, outbreaks can result from these importations. Many outbreaks with West African B (WEAF-B) WPV genotype occurred since 2003 in the "WPV importation belt" – a band of countries stretching from West Africa to the Horn of Africa. Additional outbreaks due to South Asian (SOAS) WPV genotype occurred in Angola, Burundi, Central African Republic (CAR), Congo, Democratic Republic of the Congo (DRC), and Gabon.

Including Nigeria (the endemic country in WHO African Region [AFR]), there are 30 countries in an overall WPV importation zone: Angola, Benin, Burkina Faso, Cote d'Ivoire, Cameroon, CAR, Chad, Congo, DRC, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Somalia, South Sudan, Sudan, Togo, Uganda, Yemen. Of these countries, Somalia, South Sudan, Sudan, and Yemen are in the WHO Eastern Mediterranean Region (EMR) and the remaining countries are in AFR.

SURVEILLANCE PERFORMANCE

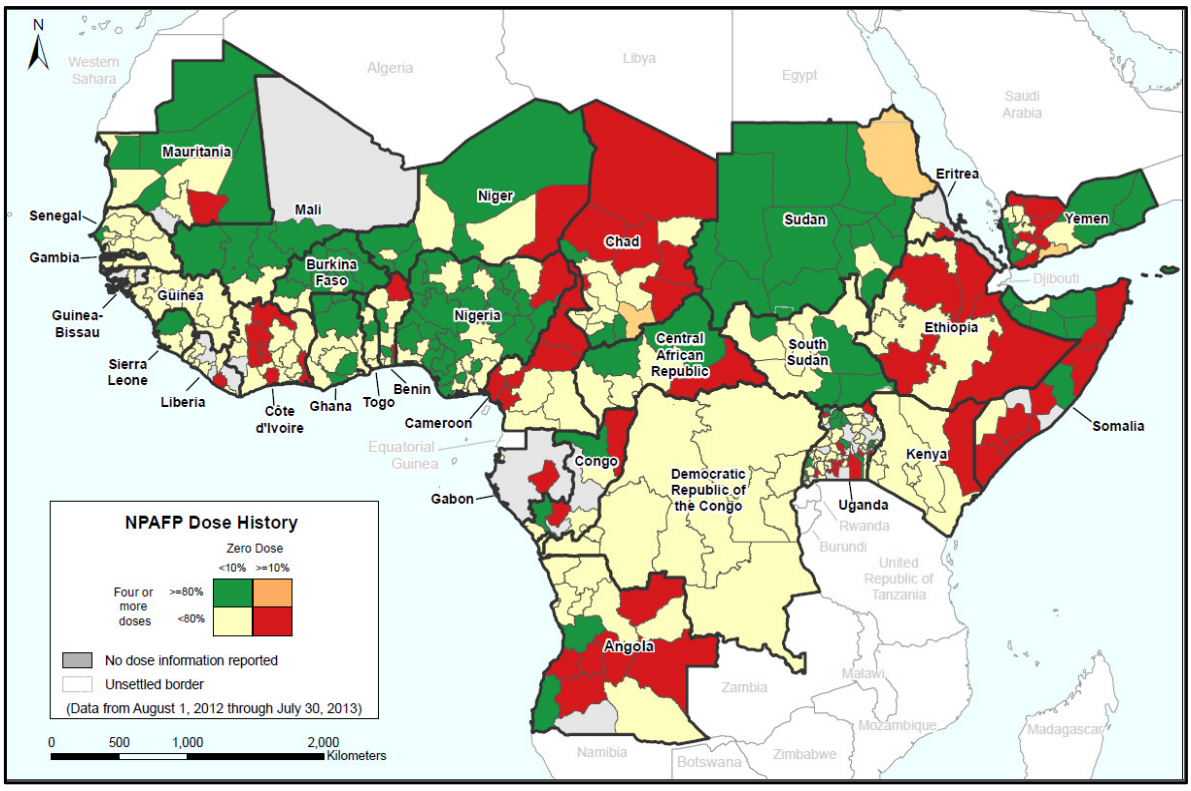


This map presents surveillance indicators at a sub-national level (state/province) for countries reporting poliovirus (WPV and/or cVDPV) transmission during 2011–2013, as well as neighboring countries in the WPV importation zone. As of 30 July 2013, 25 of these 30 countries on the map (83%) met the national target of an annual rate of ≥2 NPAFP cases per 100,000 population aged <15 years over the last 12 months. The five countries where the NPAFP rate indicator did not meet the national target were Eritrea (0.85), Ethiopia (1.97), Gabon (0.87), Ghana (0.75), and Guinea (1.80). The national target of ≥80% of AFP cases with adequate stool specimens was met by 26 of 30 (87%) countries over the last 12 months. The four countries where the stool adequacy rate indicator did not meet the target were Gabon (67%), Guinea-Bissau (48%), Niger (77%), and Senegal (75%).

Sub-national AFP surveillance quality was variable, noting a failure to meet one or both indicators in major areas of several countries in close proximity to Nigeria, including Cameroon, CAR, Chad, Ghana, Mali, and Niger. In addition,

failures to meet one or both indicators in major areas of the Horn of Africa occurred in Eritrea, Ethiopia, Kenya, South Sudan, Sudan, and Uganda.

IMMUNIZATION STATUS



This map represents immunization status indicators at a sub-national level (state/province) for countries reporting poliovirus (WPV and/or cVDPV) transmission during 2011–2013, as well as neighboring countries in the WPV importation zone. The immunization status of children was assessed using dose history for children 6–35 months of age with NPAFP over the previous 12 months and looked at the proportion of children with no history of OPV doses (0-dose) and the proportion with >4 OPV doses. Despite SIAs in most of these countries, a high number of countries have numerous sub-national areas in which <80% of children have >4 OPV doses, and many of those areas have >10% of children with 0-dose history. Because of their proximity to Nigeria, Chad, Niger, and Cameroon are of particular concern for outbreaks following importation of polio, as well as Angola, CAR, DRC, many areas of West Africa, and all of the countries in the Horn of Africa.

Validity and interpretation of data is of concern when dose history is missing for ≥20% of NPAFP cases, as in Eritrea (50% [two of four]), Ethiopia (24%), Guinea Bissau (33%), and Senegal (27%).

STAFFING AND CAMPAIGNS IN 2013

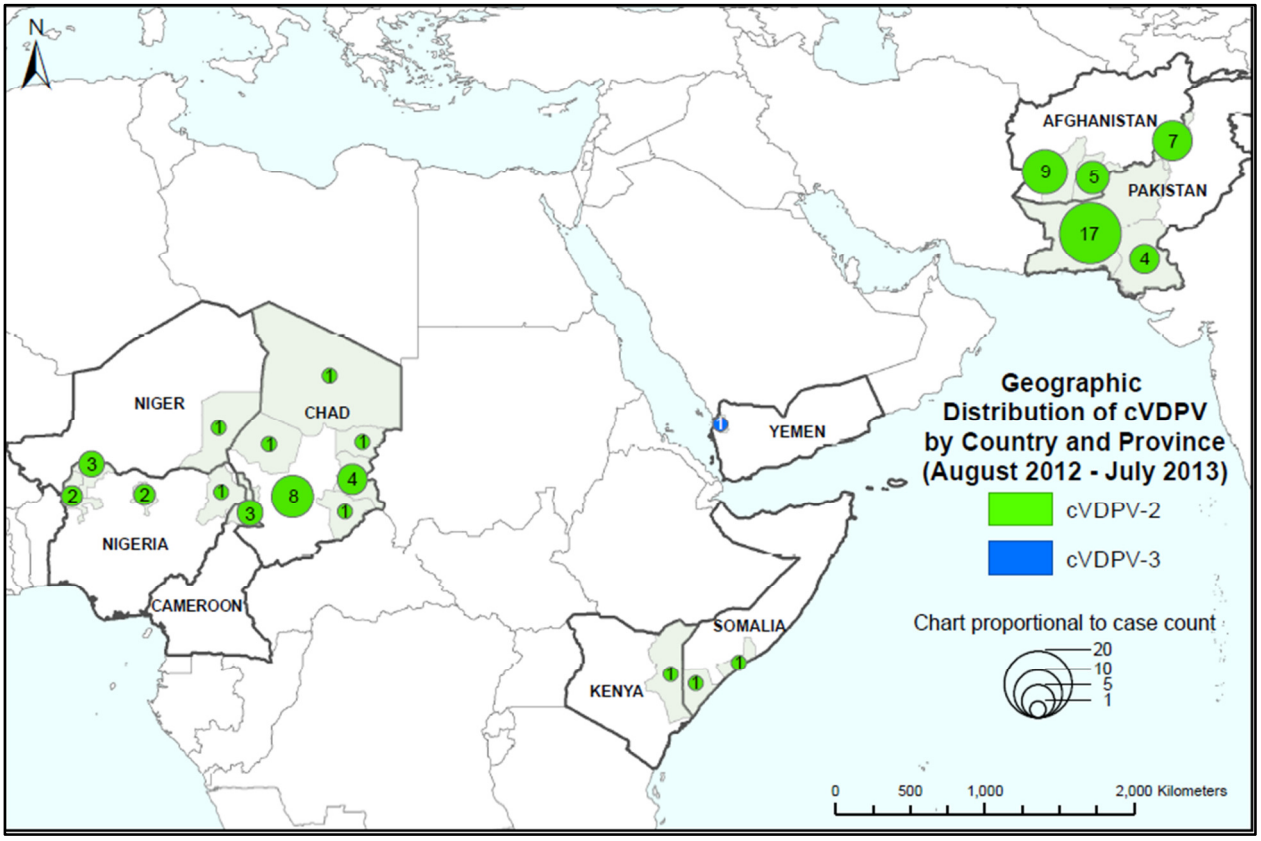
Region	Country	Country Staffing for Polio[1]								2013 Polio Campaigns[2]					Polio Program Costs[3] (USD, millions)
		CDC		Rotary[5]	WHO		UNICEF		STOP[7]	Total No.	NIDs		SNIDs		
		CDC Staff & NSTOP	Supporting partners[4]		Core[6]	Surge	Core	Surge & Soc Mob			No.	Target (thousand)	No.	Target (thousand)	
Endemic	Afghanistan	2		4	153	119	16	3,482	4		4	32,154	10	22,787	$52.37
	Pakistan	32	1	41	597	342	65	1,056	15		4	105,027	8	179,182	$129.46
	Nigeria	134[8]	1	25	431	2297	25	3,770	27		2	139,079	8	118,556	$286.66
AFR	Algeria														Unk
	Angola		2	3	103	7	3		9		2	12,261	1	3,873	$25.19
	Benin			5	7				3		4	12,645			$6.99
	Burkina Faso		1	16	15				2		4	24,446	1	1,630	$13.20
	Cameroon			3	7				2		1	3,994	4	7,420	$5.93
	Cape Verde										1	70			$0.15
	Central African Republic				22						1	813	3	1,220	$3.21
	Chad[9]	3	2	3	80	35	25		14		5	14,906	4	4,371	$23.06
	Congo			4	16				2		2	1,748			$1.80
	Côte d'Ivoire			15	15				3		3	22,645			$9.00
	Democratic Republic of the Congo[10]		2	6	99	43	22	18,688	19		2	30,296	3	2,368	$52.86
	Eritrea				7						2	1,854			$0.65
	Ethiopia			11	116				2		2	24,424	4	7,285	$24.78
	Equatorial Guinea				5										Unk
	Gabon			5	4										Unk
	Gambia				2						2	842			$0.54
	Ghana			7	3				1		2	10,158			$5.07
	Guinea			3	2				1		3	9,188	1		$4.51
	Guinea-Bissau				4						2	573			$0.67
	Kenya[9]			6	17	1					2	12,432	4	15,878	$18.36
	Liberia			3	15				5		3	2,810			$2.65
	Madagascar				7				2						Unk
	Malawi				2										Unk
	Mali			6	9				1		4	25,638	2	4,506	$13.74
	Mauritania				1				1		2	1,278			$1.45
	Mozambique				13				2						Unk
	Namibia				3										Unk
	Niger[9]			5	21				5		4	20,125	4	12,018	$17.15
	Rwanda				11										Unk
	Senegal				3				2		2	5,432			$3.12
	Sierra Leone				7				4		4	5,699			$3.94
	South Africa				14										Unk
	Swaziland				5										Unk
	Tanzania				13	1			2						Unk
	Togo			3	5						2	3,577			$1.97
	Uganda			3	15	1			3		1	7,152	2	5,341	$3.56
	Zambia				7										Unk
	Zimbabwe				4										Unk

Region	Country	Country Staffing for Polio[1]								2013 Polio Campaigns[2]					Polio Program Costs[3] (USD, millions)
		CDC		Rotary[5]	WHO		UNICEF		STOP[7]	Total No.	NIDs		SNIDs		
		CDC Staff & NSTOP	Supporting partners[4]		Core[6]	Surge	Core	Surge & Soc Mob			No.	Target (thousand)	No.	Target (thousand)	
AMR	Haiti								4						Unk
EMR	Djibouti				2				1		2	261			$0.34
	Egypt			11	6						1	12,671	3	6,962	Unk
	Somalia[9]	3	1		196			12	5		5	22,762	10	9,508	$14.54
	South Sudan				356		12		15		4	13,108	1	1,470	$20.60
	Sudan[9]			4	37				1		2	13,658	2	6,009	$13.40
	Syrian Arab Republic											0			Unk
	Yemen				5				3		2	9,429	2	7,589	$7.31
EURO	Kyrgyzstan												2	681,792	$0.13
	Russian Federation												2		Unk
	Tajikistan				1						2	1,230,174			$0.35
	Uzbekistan				2								2	1,943 - 1,963	$0.04
SEAR	Bangladesh			21	103						2	49,974			$12.34
	India		1	33	2120		24	9125			2	360,470	4	346,052	Unk
	Indonesia			6	49										Unk
	Myanmar				50										Unk
	Nepal			11	57						1	4,228			$3.67
WPR	Cambodia								1						Unk
	China[9]		1												Unk
	Phillipines				3				3						Unk
	Viet Nam														Unk

1. Does not include staff at other levels
2. Includes National Immunization Days (NIDs), Subnational Immunization Days (SNIDs), Mop ups, and Child Health Days (CHDs)
3. Includes AFP surveillance, Social Mobilization, Technical Assistance, OPV, and Operational Costs. Costs for CHDs and CDC
4. CDC secondees to WHO country offices and contractors are also counted as WHO core staff
5. Includes both volunteers and paid staff
6. Includes international and national technical staff
7. Stop Transmission of Polio (STOP) round 41, deployed February-June 2013
8. Includes National STOP (NSTOP) staff
9. Concurrent SNIDs in different geographical areas were counted separately

CIRCULATING VDPV (AUGUST 2012 – JULY 2013)

April 2012 – March 2013 Geographic Distribution of cVDPV by country and province



	July 2012 - July 2013 Quarterly cVDPV case counts					13 month total	Onset of most recent case
Country	Jul-Sep '12	Oct-Dec '12	Jan-Mar '13	Apr-Jun '13	Jul '13		
Afghanistan		11	3			14	13-Mar-13
Cameroon				2	1	3	19-Jul-13
Chad	8	4	1	3		16	12-May-13
Kenya	1					1	29-Aug-12
Niger					1	1	11-Jul-13
Nigeria	5	2		1		8	6-Jun-13
Pakistan	5	11	2	8	2	28	13-Jul-13
Somalia	1		1			2	9-Jan-13
Yemen	1					1	24-Aug-12

AFGHANISTAN

There have been 14 cVDPV2 cases in Afghanistan during July 2012 – March 2013 following internal emergence and transmission as well as cross-border transmission from Pakistan. Eight cases in Helmand, Farah, and Kandahar are associated with a lineage that was circulating in 2009-2010 and had gone undetected until cases were confirmed in November 2012. In 2012 there was a new emergence, with one associated cVDPV case with two positive non-

household contacts. Additionally, there were four cases of cVDPDV2 in Helmand and Kandahar following cross-border spread of the cVDPV2 outbreak in Quetta block, the most recent with onset in March.

CHAD

Three different VDPV emergences in Chad during April 2012 – August 2013 have resulted in 17 cVDPV2 cases, one AFP in Ndjamena associated with a related type 2 "pre-VDPV" (five nucleotide changes), and an ambiguous vaccine-derived poliovirus (aVDPV) case. Fifteen genetically linked cVDPV2s were isolated from AFP cases during August 2012 through June 2013. AFP cases are scattered throughout Chad. Another emergence was associated with two cVDPV2 cases in Abeche, the latest with onset in October. A cVDPV2 case associated with the third emergence was detected in February in Mayo Kebbi Province, south of Ndjamena. In the spring and summer of 2013, viruses linked to the Chad outbreak were detected in surrounding countries. Three Cameroon cVDPV2 cases were found to be genetically linked to Chad cVDPV2 lineages. There had not been a case of cVDPV or WPV since 2009. Two Nigerian isolates, one from Kano environmental specimens and one from an AFP case in Borno, are genetically linked to the Chad cVDPV2 outbreak. A Niger cVDPV2 was found to be genetically linked to Nigerian viruses that are part of the Chad cVDPV2 outbreak.

NIGERIA

The number of cVDPV2 cases associated with circulating Nigerian lineages has declined substantially from 22 in 2011 to 8 in 2012 and 0 in 2013. The most recent onset was in November 2012 in Kebbi state, preceded by cases in Kano and Sokoto. Environmental sampling in Kano and Sokoto states resulted in detection of 54 distinct VDPV2s for the reporting period (two in Kano and the remainder in Sokoto); 51 of the 54 environmental sequences are cVDPVs and 3 are aVDPVs. Sampling has been positive for cVDPVs from samples taken in Sokoto most recently in February 2013 and in Kano most recently in October 2012. Three aVDPV cases have been detected in 2013: one from an environmental specimen in Sokoto, one from an AFP case from Kebbi, and one from an AFP case from Gombe. In addition, the VDPV Kano from environmental specimens is genetically linked to the Chad outbreak.

PAKISTAN

VDPV emergence has resulted in 18 cVDPV2 cases in Killa Abdullah and Pishin districts of the Quetta block, Balochistan during August 2012-February 2013. The viral sequences indicate almost 2 years of circulation before detection following emergence. Four related cases were detected in Karachi. The first cVDPV2 to be isolated from Pakistan environmental specimens was isolated in Gadap Karachi on week 16 of 2013. cVDPV2 originating in Killa Abdullah spread to North Waziristan FT, where 6 polio cases occurred from 10 April to 4 July.

SOMALIA AND KENYA

The 2012-2013 Kenya and Somalia VDPV2s are derived from a lineage of virus that emerged in Somalia in 2009 and has circulated continuously with three lineages now identified among recent isolates. Among the cVDPV2 isolates detected in Kenya (two cases, one additional isolate from a contact of a case) and Somalia (two cases), three have much less genetic linkage that expected indicating ~2 years of undetected circulation. Overall, the viral sequencing results provide evidence of significant surveillance gaps in Somalia during the past two years and possibly in Kenya in 2012. All cVDPV2 cases in Somalia have been reported in the south central zone, a major portion of which has not been covered by SIAs in more than 3 years. As additional areas become accessible more children are being reached by SIAs.

YEMEN

Three genetically linked cVDPV3s, from Hajjah, Alhudaidah, and Sa'dah were isolated from AFP cases during April-November 2012. The viral sequences indicate more than 2 years of circulation. These geographic regions are areas where cVDPV2 circulated in 2011.