

Highlights of Polio Fax Bulletin No. 1072 for Week 16 2019

I. Poliovirus Transmission

1. Endemic countries (PAKISTAN & AFGHANISTAN): Three new wild poliovirus type-1 (WPV1) cases from Afghanistan, and 16 new WPV1 positive environmental samples (3 from Afghanistan and 13 from Pakistan) reported this week.
 - a. Human samples: Three new WPV1 cases reported this week from Afghanistan. Total WPV1 cases in 2019 to date are 12 (6 from Afghanistan and 6 from Pakistan). This compares with 9 cases in 2018 in the same period (Afghanistan – 7 and Pakistan – 2).
 - i. Afghanistan: The three new WPV1 cases include two cases from Hilmand and one from Uruzgan province from the southern region of Afghanistan plagued with conflict. Cases are from areas where vaccination ban was imposed for most of the months in 2018 and recently fixed sites vaccination campaign was allowed quality of which remains concerning.

Case No. 1: The case is a 63-month old male child from Sangin district, Hilmand province, with date of onset 6 March 2019. The child has received more than 7 doses of oral polio vaccine (OPV) per recall, which include one from routine and the other from supplementary immunization activities (SIAs). The case is confirmed due to isolation of WPV1 from one of his contacts.

Case No. 2: The case is a 10-month old female child from Chora district, Uruzgan province, with date of onset 20 March 2019. The child has received a total of 5 OPV doses out of which one from routine and 4 from SIAs.

Case No. 3: The case is an 84-month old male child from Washer district in Hilmand province, with date of onset 23 March 2019. The child has received a total of 7 OPV doses all from SIAs.

In 2019 to date six WPV1 cases are reported, two each from provinces of Kandahar, Uruzgan and Hilmand. The most recent reported case has date of onset of paralysis on 23 March 2019.
 - ii. Pakistan: No new wild poliovirus cases reported this week. In 2019 to date, the total number of WPV1 cases in Pakistan is six, two from Khyber Pakhtunkhwa (KP), two from KP Tribal Districts (KPTD), one from Punjab and one from Sindh. The most recent reported case has date of onset of paralysis on 25 February 2019.
 - b. Environmental samples: Sixteen new WPV1 positive environmental samples were reported this week three from Afghanistan and thirteen from Pakistan.
 - i. Afghanistan: The three new WPV1 environmental samples reported this week include one from Nangarhar province (from Jalalabad district) and two from Kandahar province (both from Kandahar district). In 2019 to date, there

are 21 positive environmental samples with most recent positive sample collected on 23 March 2019.

- ii. Pakistan: The thirteen new WPV1 positive environmental samples reported this week include five from Balochistan province (one each from Khuzdar, Kila Abdulla and Pishin districts and two from Quetta district); one from Punjab province (from Lahore district); one from KP province (from Bannu district); and six from Sindh province (4 from Karachi towns - one each from Baldia, Site, Gadap and Saddar towns; one from Hyderabad district and one from Sukkur district). In 2019 to date, there are 91 positive environmental samples with most recent positive sample collected on 9 April 2019.

II. Outbreak response countries

1. SOMALIA:

- No new circulating vaccine derived poliovirus (cVDPV) type-2 or type-3 isolates from human or environmental samples this week.
- a. In 2018 to date, Somalia has reported a total of 12 cases due to cVDPVs, which include 5 due to cVDPV2, 6 due to cVDPV3 and 1 due to co-infection of cVDPV2 and cVDPV3.
- b. cVDPV2:
 - i. The date of onset of the most recent cVDPV2 case is 2 September 2018.
 - ii. In 2018 so far, cVDPV2 has been isolated from 19 sewage samples in Mogadishu and date of specimen collection of recent most positive sample is 11 October 2018.
- c. cVDPV3:
 - i. The date of onset of the most recent cVDPV3 case is 7 September, 2018.
 - ii. In 2018 so far, cVDPV3 isolated from 11 sewage samples in Mogadishu and date of specimen collection of recent most positive sample is 23 August 2018.
- d. Co-infection cVDPV2 and cVDPV3:
 - i. The date of onset of the most recent coinfection is 11 May 2018.
 - ii. In 2018 so far, cVDPV2 and cVDPV3 coinfection is isolated from 1 sewage samples in Mogadishu and date of specimen collection of recent most positive sample is 19 April, 2018.

III. Surveillance performance indicators

1. In 2018 to date, 20 of 22 member states are meeting the global target of both key surveillance indicators, namely non polio AFP rate of 2 per 100,000 children aged below 15 years and percent AFP cases with adequate specimen 80% and above.
 - a. Djibouti is missing both indicators. Djibouti, did not report any AFP case since April 2017.
 - b. Morocco has a percentage of AFP cases with adequate stool specimens of 77.8%
2. Yemen has 72 AFP cases which are not yet finally classified in 2017.

AFP SURVEILLANCE

22-Apr-19

Week 16, ending 21 April 2019

Number 1072

Table 1: Acute Flaccid Paralysis (AFP) cases by week of onset

Country	Reported AFP cases by week of onset - Week (16/19) / Ending on : 21/04/2019														
	Total AFP 2017	Total AFP 2018	Total AFP to date, 2019	W05 03 Feb 19	W06 10 Feb 19	W07 17 Feb 19	W08 24 Feb 19	W09 03 Mar 19	W10 10 Mar 19	W11 17 Mar 19	W12 24 Mar 19	W13 31 Mar 19	W14 07 Apr 19	W15 14 Apr 19	W16 21 Apr 19
Afghanistan	3094	3378	1093	70	86	70	78	82	75	66	68	72	78	29	1
Bahrain	18	35	5	0	0	0	1	0	1	0	0	1	0	0	0
Djibouti	4	0	0	0	0	0	0	0	0	0	0	0	0		
Egypt	1242	1246	420	22	24	20	20	40	31	31	23	43	28	24	4
Iran	820	896	254	23	27	15	27	11	15	15	6	11	11	4	
Iraq	699	1023	340	16	24	25	32	21	17	16	15	17	24	13	
Jordan ****	116	115	55	4	2	7	1	2	4	5	4	4	6	2	0
Kuwait	69	72	17	1	0	1	0	1	3	3	1	0	1	1	
Lebanon ****	75	89	31	2	1	3	4	2	2	1	1	2	1	5	
Libya	88	122	25	1	3	5	0	1	1	1	1	1	2	0	
Morocco	143	212	44	6	4	4	3	4	7	1					
Oman	40	28	4	0	1	0	0	1	1	0	0	0	0	0	0
Pakistan	10319	12268	3666	254	280	283	256	243	241	243	272	201	169	61	
Palestine ****	43	44	14	1	2	1	2	1	1	2	2	0	0	0	
Qatar	18	10	1	0	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	276	241	66	6	4	5	3	6	8	10	1	1	0		
Somalia	345	353	101	7	13	3	4	7	8	8	13	6	7	2	
Sudan	570	578	149	9	8	10	12	18	7	12	3	9	12	0	0
Syria ****	362	362	135	9	17	14	13	10	8	6	4	16	6	3	
Tunisia	67	68	16	0	0	4	0	2	3	0	1	0	0	0	
U.A.E	58	40	14	2	0	1	1	0	1	1	0	0	0	2	0
Yemen	713	730	218	17	18	18	15	14	10	15	11	12	16	9	1
Total EMR	19179	21910	6668	450	514	489	472	466	444	436	426	396	361	155	6

No data = No report received

Table 2: Confirmed polio cases by month of onset

Country	Total year 2017	Total year 2018	21/04		Confirmed polio cases by month of onset											
			2018	2019	May 2018	June 2018	July 2018	August 2018	September 2018	October 2018	November 2018	December 2018	January 2019	February 2019	March 2019	April 2019
Afghanistan	14	21	7	6	0	2	3	2	3	2	1	0	2	1	3	
Bahrain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Djibouti	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Egypt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Iran	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Iraq	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Jordan ****	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lebanon ****	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Libya	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Morocco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Oman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pakistan	8	12	2	6	1	0	0	1	3	1	0	4	4	2		0
Palestine ****	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Qatar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Somalia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sudan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Syria ****	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tunisia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U.A.E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Yemen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total EMR	22	33	9	12	1	2	3	3	6	3	1	4	6	3	3	0

**** UNRWA cases are included with those of country of residence

Table 3: Investigation of AFP cases with paralysis onset in 2018 & 2019 up to Week (16/19) / Ending on : 21/04/2019)

COUNTRY	2018												2019												Latest line List Date				
	AFP									Specimen			Wild cases ****		AFP									Specimen			Wild cases ****		
	Total AFP cases onset 2018	Case classification					Non polio AFP rate **	AFP cases pending classification > 90 days from onset of paralysis	AFP cases pending classification and lab > 90 days from onset of paralysis	% with *** adequate specimens	Wild P1 Poliovirus	Wild P3 Poliovirus	Total AFP cases onset 2019	Case classification					Annualized Non polio AFP rate **	AFP cases pending classification > 90 days from onset of paralysis	AFP cases pending classification and lab > 90 days from onset of paralysis	% with *** adequate specimens	Wild P1 Poliovirus	Wild P3 Poliovirus					
		Total Confirmed Polio Cases *	Polio Compatible	Pending Classification	Discarded (non polio AFP)	VDPV								Total Confirmed Polio Cases *	Polio Compatible	Pending Classification	Discarded (non polio AFP)	VDPV											
Afghanistan	3378	21	0	1	3356	0	16.6	1	0	93.8	21	0	1093	6	0	213	874	0	17.6	11	1	93.7	6	0	18/04/2019				
Bahrain	35	0	0	5	30	0	12.1	5	0	97.1	0	0	5	0	0	5	0	0	5.7	1	1	100.0	0	0	21/04/2019				
Djibouti	0	0	0	0	0	0	0.0	0	0		0	0	0	0	0	0	0	0	0.0	0	0		0	0	10/04/2019				
Egypt	1246	0	0	2	1243	1	3.2	2	0	93.2	0	0	420	0	0	124	296	0	3.6	2	0	86.9	0	0	18/04/2019				
Iran	896	0	0	0	894	2	4.6	0	0	97.0	0	0	254	0	0	28	226	0	4.3	0	0	96.9	0	0	20/04/2019				
Iraq	1023	0	0	0	1023	0	6.7	0	0	89.9	0	0	340	0	0	58	282	0	7.3	0	0	96.5	0	0	18/04/2019				
Jordan	115	0	0	0	115	0	4.1	0	0	100.0	0	0	55	0	0	7	48	0	6.5	0	0	100.0	0	0	21/04/2019				
Kuwait	72	0	0	0	72	0	8.1	0	0	90.3	0	0	17	0	0	7	10	0	5.9	0	0	88.2	0	0	18/04/2019				
Lebanon	89	0	0	1	88	0	4.8	1	0	96.6	0	0	31	0	0	14	17	0	5.5	3	0	87.1	0	0	18/04/2019				
Libya	122	0	0	0	122	0	4.9	0	0	96.7	0	0	25	0	0	7	18	0	3.3	0	0	100.0	0	0	20/04/2019				
Morocco	212	0	0	1	211	0	2.4	1	0	77.8	0	0	44	0	0	32	12	0	1.6	4	1	54.5	0	0	22/03/2019				
Oman	28	0	0	0	28	0	3.2	0	0	92.9	0	0	4	0	0	1	3	0	1.5	0	0	50.0	0	0	21/04/2019				
Pakistan	12268	12	1	12	12243	0	15.7	12	0	87.1	12	0	3666	6	0	510	3150	0	15.4	43	0	91.0	6	0	20/04/2019				
Palestine	44	0	0	0	44	0	2.3	0	0	90.9	0	0	14	0	0	11	3	0	2.4	0	0	100.0	0	0	14/04/2019				
Qatar	10	0	0	0	10	0	2.8	0	0	100.0	0	0	1	0	0	1	0	0	0.9	0	0	0.0	0	0	21/04/2019				
Saudi Arabia	241	0	0	0	241	0	3.0	0	0	95.9	0	0	66	0	0	50	16	0	2.7	7	1	87.9	0	0	11/04/2019				
Somalia	353	0	0	0	341	12	5.5	0	0	97.7	0	0	101	0	0	18	83	0	5.2	0	0	99.0	0	0	20/04/2019				
Sudan	578	0	0	0	578	0	3.2	0	0	97.2	0	0	149	0	0	20	129	0	2.7	2	1	98.0	0	0	21/04/2019				
Syria	362	0	0	0	362	0	4.7	0	0	87.3	0	0	135	0	0	26	109	0	5.7	0	0	91.1	0	0	19/04/2019				
Tunisia	68	0	0	0	68	0	2.6	0	0	80.9	0	0	16	0	0	4	11	1	1.8	0	0	75.0	0	0	19/04/2019				
U.A.E	40	0	0	2	38	0	3.2	2	1	97.5	0	0	14	0	0	6	8	0	3.7	0	0	92.9	0	0	18/04/2019				
Yemen	730	0	0	401	329	0	5.2	401	367	91.6	0	0	218	0	0	215	3	0	5.1	41	37	89.9	0	0	20/04/2019				
EMR	21910	33	1	425	21436	15	8.7	425	368	89.8	33	0	6668	12	0	1357	5298	1	8.7	114	42	91.7	12	0					
2017	19179	22	3	72	19006	76	7.7	72	58	88.9	22	0																	

* Confirmed polio cases refer to wild isolation from AFP cases or from contacts of negative index AFP cases

** Non-polio AFP per 100,000 children <15 years

*** Adequate here refers to two stool specimens collected at least 24 hours apart, within 14 days of paralysis onset and specimens received in the lab in Good Condition

**** AFP cases co infected with P1 and P3 are counted separately as wild isolates

World Health Organization – Regional Office for Eastern Mediterranean
AFP SURVEILLANCE
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Table 4 (a): Lab results of contacts' samples in EMR, 2018 - 2019

COUNTRY	2017						2018					
	# OF CONTACTS	LAB RESULTS					# OF CONTACTS	LAB RESULTS				
		WILD	VDPV	SL	NPEV	PENDING		WILD	VDPV	SL	NPEV	PENDING
AFG	1009	4	0	52	217	0	394	1	0	16	54	49
BAH	2	0	0	0	0	0	0	0	0	0	0	0
DJI	0	0	0	0	0	0	0	0	0	0	0	0
EGY	495	0	0	11	58	17	150	0	0	5	4	42
IRN	145	0	0	3	6	0	43	0	0	0	2	0
IRQ	811	0	0	22	93	9	170	0	0	3	6	35
JOR	0	0	0	0	0	0	0	0	0	0	0	0
KUW	0	0	0	0	0	0	0	0	0	0	0	0
LEB	218	0	0	3	16	20	16	0	0	0	0	13
LIB	1	0	0	0	0	0	0	0	0	0	0	0
MOR	161	0	0	0	9	9	19	0	0	1	0	9
OMA	70	0	0	2	16	0	10	0	0	0	3	0
PAK	4209	3	0	207	882	0	1470	0	0	91	136	146
PAL	0	0	0	0	0	0	0	0	0	0	0	0
QAT	0	0	0	0	0	0	0	0	0	0	0	0
SAA	5	0	0	0	0	5	0	0	0	0	0	0
SOM	1050	0	10	49	133	2	311	0	0	2	22	55
SUD	350	0	0	3	24	88	91	0	0	0	3	29
SYR	670	0	0	8	17	0	270	0	0	5	6	56
TUN	1	0	0	0	0	0	4	0	0	0	0	0
UAE	0	0	0	0	0	0	0	0	0	0	0	0
YEM	1557	0	0	0	0	1557	214	0	0	0	0	215
EMR	10754	7	10	360	1471	1707	3162	1	0	123	236	649

Table 4 (B): Most recent wild contacts in EMRO, 2018 - 2019

Year	Country	Data	
		Count of wild contacts	Date of Most Recent stool collection
2019	Afghanistan	1	6-Mar-19
2018 Total		1	6-Mar-19
2018	Afghanistan	4	7-Aug-18
	Pakistan	3	12-Oct-18
2018 Total		7	12-Oct-18

Table 4 (C): Number and distribution by district of -ve index AFP cases identified as wild positive by contact in EMR, 2018-2019

YEAR	COUNTRY	PROVINCE	DISTRICT	COUNT	First case	Last case
2019	AFG	HILMAND	SANGIN	1	6-Mar-19	6-Mar-19
	2019 Total			1	6-Mar-19	6-Mar-19
2018	AFG	NANGARHAR	PACHIERAGAM	1	17-Jul-18	17-Jul-18
		URUZGAN	SHAHID-E-HASSA	1	8-Jul-18	8-Jul-18
	PAK	FATA	BAJOUR	1	1-Sep-18	1-Sep-18
		BALUCHISTAN	DUKKI	1	15-Apr-18	15-Apr-18
2018 Total			4	15-Apr-18	01-Sep-18	

Table 5: Laboratory investigation of AFP cases with paralysis onset in 2019 up to Week (16/2019) / Ending on : (21/04/2019)

Country	Polio laboratories ITD / Nucleotide Sequencing (Nucleotide Sequencing performed by EGY, PAK, TUN, CDC and RIVM laboratories)	AFP cases with specimens	Preliminary virus isolation results of AFP cases						Poliovirus intratypic differentiation results #											Indicators				Latest report Date		
			Referred for ITD		NPEV only	Negative	Pending		Type 1			Type 2			Type 3		Discordant pending sequence	NPEV by PCR	Non-EV	Pending ITD	% specimens positive for NPEV*	% AFP cases with culture results within 14 days	% AFP cases with ITD results within 7 days		% AFP cases with ITD results within 45 days of onset**	
			L20B+	L20B+/NPEV			received < / = 14 days	received > 14 days ago	Wild	Sabin	VDPV	Wild	Sabin	VDPV	Wild	Sabin										VDPV
Afghanistan	RRL Pakistan	1062	86	5	119	752	109		5	55						62				3	11%	100%	100%	98%	20/04/2019	
Bahrain	NPL Oman / CDC																								15/04/2019	
Djibouti	NPL Kenya / CDC																								10/04/2019	
Egypt***	RRL Egypt	369	22		14	272	20	41		11						14			1	1	4%	98%	100%	99%	18/04/2019	
Iran	NPL Iran / CDC	280	5		3	240	32			1						4					1%	100%	100%	99%	20/04/2019	
Iraq	RRL Egypt	341	3		37	254	45	2								1					11%	100%	100%	100%	18/04/2019	
Jordan	NPL Jordan / RRL EGYPT	55			8	45	2														16%	100%			21/04/2019	
Kuwait	RRL Kuwait / RIVM	21			1	13	2	5													13%	100%		100%	18/04/2019	
Lebanon	NPL Jordan / RRL EGYPT	24	1		2	21										1					11%	100%	100%	0%	21/04/2019	
Libya	RRL Tunisia / RIVM	24			1	22		1													2%	100%		100%	12/04/2019	
Morocco	NPL Morocco / RRL Tunisia	52			1	38	5	8													3%	100%		100%	12/04/2019	
Oman	NPL Oman / CDC	3				3															14%	100%		100%	15/04/2019	
Pakistan	RRL Pakistan	3723	162	23	361	2820	351	6	6	113						116			2	1	1	9%	100%	100%	98%	20/04/2019
Palestine & UNRWA		14			3	9		2													25%	45%		100%	14/04/2019	
Qatar	NPL Oman / CDC	1				1															0%	100%		100%	15/04/2019	
Saudi Arabia	NPL Saudi Arabia / CDC	71	1			52		18								1					0%	92%	100%	100%	15/04/2019	
Somalia	NPL Kenya / CDC	101	4		9	71	7	10		1						3				1	11%	18%		100%	20/04/2019	
Sudan	NPL Sudan / RRL Egypt	148	1		28	101	18									1					16%	76%	100%	50%	18/04/2019	
Syria	NPL Syria / RRL Egypt	126	9		2	94	4	17		5						5					2%	100%	100%	50%	18/04/2019	
Tunisia	RRL Tunisia	16			1	14	1														11%	100%		100%	18/04/2019	
U.A.E	NPL Oman / CDC	10			1	9															10%	100%		40%	15/04/2019	
Yemen	NPL Kenya / CDC																								20/04/2019	
Total EMR 2019		6441	294	28	591	4831	596	110	11	186						208			3	2	5	9%	98%	100%	98%	
Total EMR 2018		20744	902	90	3513	16217		18	29	590	3		6	6 #		628	7 #		22	1	3	14%	92%	99%	97%	
* Specimens from all sources including non-AFP cases, excluding environmental samples									# Somalia in 2018 so far has a total of 12 cVDPV cases (5 cVDPV2, 6 cVDPV3																	
** This indicator reflects surveillance and laboratory activities									& 1 coinfection cVDPV2/cVDPV3)																	

Table 6: Environmental isolate by year and type

Country	Status	2015	2016	2017	2018	2019
AFG	NEGATIVE	129	183	274	253	45
	PENDING					2
	WILD	20	2	42	83	21
AFG Total		149	185	316	336	68
EGY	NEGATIVE	495	528	522	539	137
	PENDING					1
	VDPV2	3	1			
EGY Total		498	529	522	540	164
IRN	NEGATIVE			6	54	14
IRN Total				6	54	14
JOR	NEGATIVE		2	32	19	5
	PENDING					17
JOR Total			2	32	36	12
LEB	NEGATIVE		4	27	11	4
	PENDING					34
LEB Total			4	27	45	12
PAK	NEGATIVE	347	462	523	534	100
	PENDING					22
	WILD	79	59	105	139	91
	WILD & VDPV2	5	3	1		
	VDPV2	8	5	4		
PAK Total		439	529	633	673	213
SOM	NEGATIVE			34	181	11
	PENDING					8
	VDPV2				2	20
	VDPV3					12
SOM Total				36	213	20
SYR	NEGATIVE			4	102	35
	PENDING					13
SYR Total				4	102	48
Grand Total		1086	1249	1576	1999	551

Table 7: Environmental Wild/VDPV isolate by site

Country	COUNTRY	Status	PROVINCE	DISTRICT	Count	First date	Last date			
2018	AFG	WILD	HILMAND	LASHKARGAH	12	8-Jan	26-Dec			
			HIRAT	HERAT	1	25-Jun	25-Jun			
			KABUL	KABUL	3	26-Feb	26-Jun			
			KANDAHAR	KANDAHAR	42	8-Jan	26-Dec			
			KHOST	MATUN	1	25-Sep	25-Sep			
			KUNAR	ASADABAD	2	24-Apr	25-Sep			
			NANGARHAR	BEHSUD	3	28-Jan	25-Oct			
				JALALABAD	19	27-Jan	26-Dec			
	AFG Total				83	8-Jan	26-Dec			
	PAK	WILD	BALOCHISTAN	LORALAI	LORALAI	2	17-Mar	17-Aug		
				PISHIN	PISHIN	1	2-Dec	2-Dec		
				QUETTA	QUETTA	13	13-Feb	20-Dec		
				KABDULAH	KABDULAH	8	1-Jan	15-Dec		
				ISLAMABAD	CDA	7	10-Jan	10-Nov		
				PUNJAB	LAHORE	LAHORE	12	11-Jun	18-Dec	
					RAWALPINDI	RAWALPINDI	15	10-Jan	14-Dec	
					DGKHAN	DGKHAN	2	12-Feb	12-Sep	
					SINDH	HYDERABAD	HYDERABAD	1	9-Feb	9-Feb
						JACOBABAD	JACOBABAD	3	12-Feb	12-Sep
						KAMBAR	KAMBAR	3	7-Apr	9-Jul
						KHIBALDIA	KHIBALDIA	2	1-Aug	4-Sep
KHIGADAP				KHIGADAP		15	15-Feb	11-Dec		
KHIKORANGI				KHIKORANGI		1	14-Dec	14-Dec		
FATA				KHILANDHI	KHILANDHI	3	10-Jan	30-Jul		
				KHISITE	KHISITE	2	1-Jan	3-Sep		
				SUKKUR	SUKKUR	2	8-Feb	9-Nov		
				KHILIAQAT	KHILIAQAT	2	7-Mar	7-Nov		
				KHISADDAR	KHISADDAR	1	10-Sep	10-Sep		
				KHIMALIR	KHIMALIR	1	13-Sep	13-Sep		
				BAJOUR	BAJOUR	5	19-May	25-Oct		
				WAZIR-S	WAZIR-S	2	26-Nov	27-Dec		
				KHYBER PAKHTOONKHWA	BANNU	BANNU	4	31-Mar	27-Dec	
	KOHAT	KOHAT	5		5-Jan	27-Sep				
MARDAN	MARDAN	2	15-Oct		15-Nov					
NEWSHERA	NEWSHERA	2	18-Sep	18-Oct						
PESHAWAR	PESHAWAR	23	10-Jan	26-Dec						
PAK Total				139	1-Jan	27-Dec				
SOM	VDPV2	BANADIR	HAMAR WEYN	HAMAR WEYN	11	4-Jan	20-Sep			
			HODAN	HODAN	2	22-Feb	4-Oct			
			WABERI	WABERI	7	1-Mar	11-Oct			
			VDPV3	HAMAR WEYN	6	11-Feb	5-Apr			
			HODAN	HODAN	1	1-Feb	1-Feb			
WABERI	WABERI	5	8-Mar	23-Aug						
SOM Total				32	4-Jan	11-Oct				
2018 Total				254	1-Jan	27-Dec				
2019	AFG	WILD	HILMAND	LASHKARGAH	2	23-Feb	20-Mar			
			NAHR-E-SARAJ	NAHR-E-SARAJ	3	6-Jan	26-Jan			
			KANDAHAR	KANDAHAR	11	6-Jan	23-Mar			
			NANGARHAR	JALALABAD	5	26-Jan	23-Mar			
	AFG Total				21	6-Jan	23-Mar			
	PAK	WILD	BALOCHISTAN	KHUZDAR	KHUZDAR	1	20-Mar	20-Mar		
				PISHIN	PISHIN	1	2-Feb	2-Feb		
				QUETTA	QUETTA	10	1-Jan	1-Apr		
				KABDULAH	KABDULAH	7	1-Jan	1-Apr		
				PUNJAB	FAISALABAD	FAISALABAD	2	3-Jan	6-Feb	
					LAHORE	LAHORE	14	5-Jan	5-Apr	
					MULTAN	MULTAN	1	18-Feb	18-Feb	
					RAWALPINDI	RAWALPINDI	4	10-Jan	14-Mar	
					HYDERABAD	HYDERABAD	4	24-Jan	8-Apr	
				SINDH	JACOBABAD	JACOBABAD	2	24-Jan	12-Feb	
					KAMBAR	KAMBAR	1	7-Mar	7-Mar	
					KHIBALDIA	KHIBALDIA	3	2-Jan	1-Apr	
					KHIGADAP	KHIGADAP	7	8-Jan	9-Apr	
					KHIKORANGI	KHIKORANGI	2	18-Feb	15-Mar	
					KHILANDHI	KHILANDHI	2	19-Feb	18-Mar	
					KHISITE	KHISITE	4	3-Jan	2-Apr	
SUKKUR					SUKKUR	4	23-Jan	5-Apr		
KHILIAQAT					KHILIAQAT	2	7-Feb	6-Mar		
KHISADDAR					KHISADDAR	4	7-Jan	5-Apr		
FATA					WAZIR-S	WAZIR-S	3	22-Jan	21-Mar	
					KURRAM	KURRAM	1	15-Jan	15-Jan	
					KHYBER PAKHTOONKHWA	BANNU	BANNU	3	28-Jan	28-Mar
DIKHAN				DIKHAN		1	8-Jan	8-Jan		
KOHAT	KOHAT	1	27-Feb	27-Feb						
MARDAN	MARDAN	1	16-Mar	16-Mar						
PESHAWAR	PESHAWAR	6	11-Jan	18-Mar						
PAK Total				91		1-Jan	9-Apr			
SOM	VDPV2	BANADIR	HODAN	1	3-Feb	3-Feb				
SOM Total				1	3-Feb	3-Feb				
2019 Total				113	1-Jan	9-Apr				

Figure 1: Non Polio AFP Rate and Wild Virus in EMR 01/01/2019 - 21/04/2019

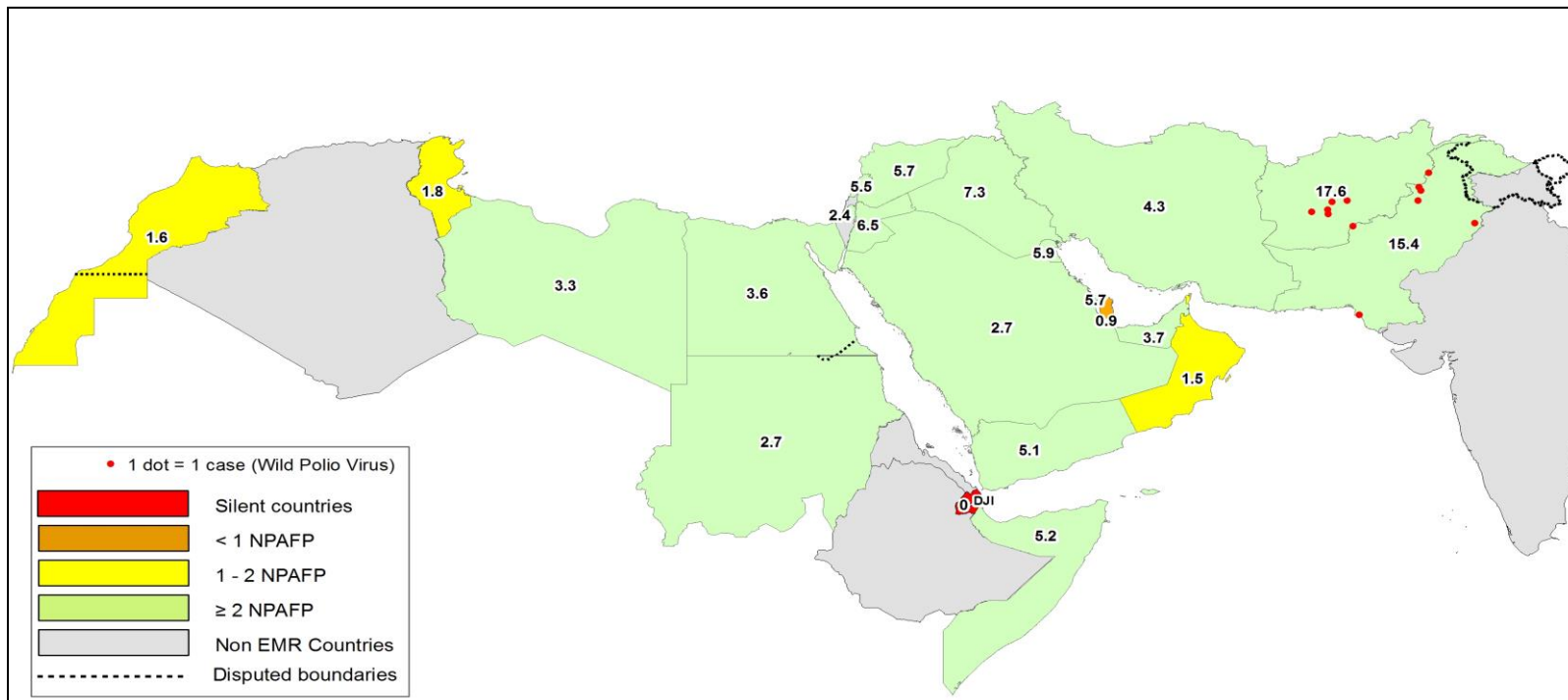


Figure 2: Percent of AFP cases with Adequate Samples & Compatible Cases in EMR 01/01/2019 - 21/04/2019

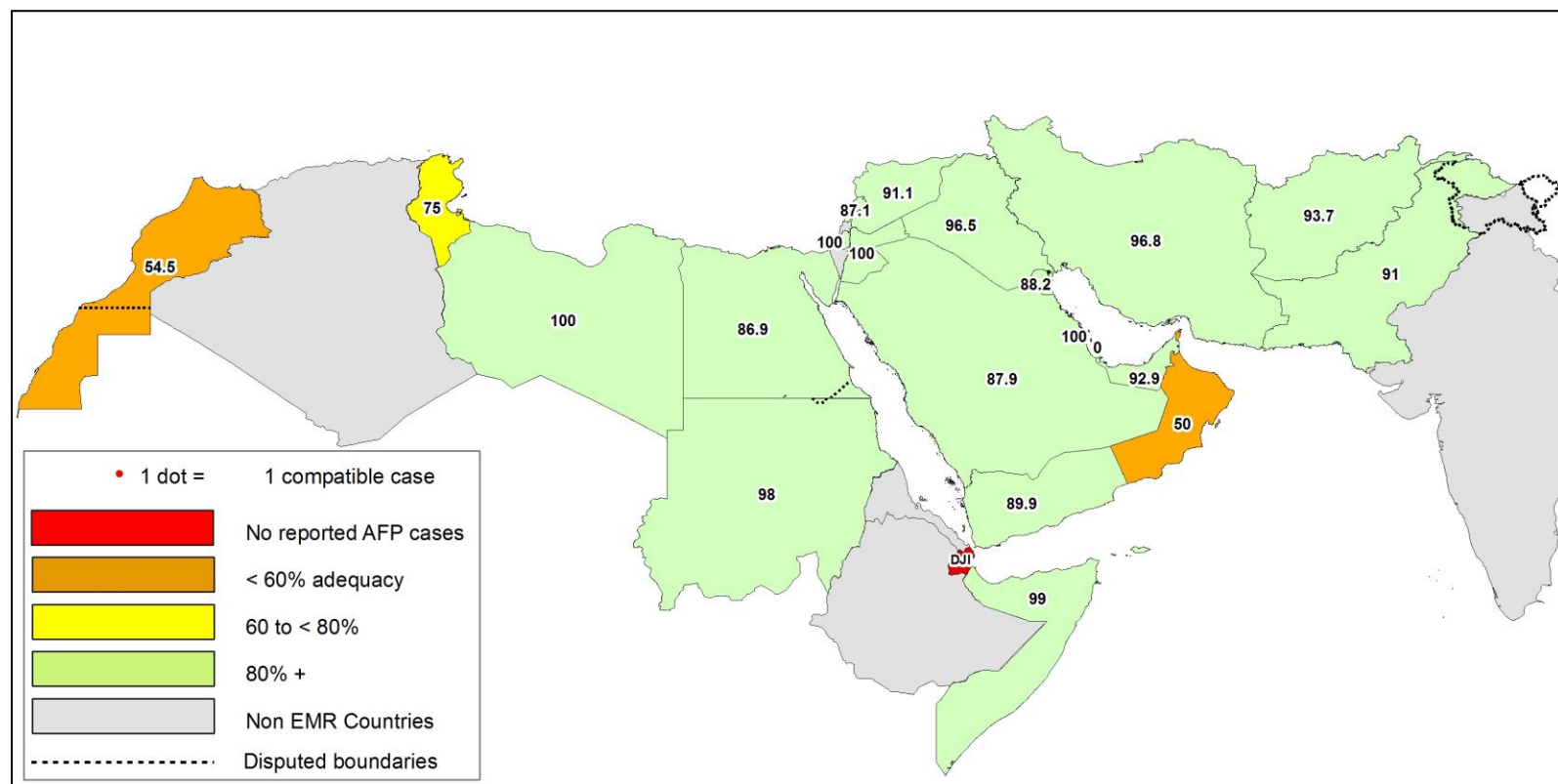


Table 8: Wild polio cases by country and date of onset of paralysis in EMR, 2018 - 2019

Year	COUNTRY	Count	First Case	Last Case
2019	AFG	6	4-Jan-19	23-Mar-19
	PAK	6	15-Jan-19	25-Feb-19
2019 Total		12	4-Jan-19	23-Mar-19
2018	AFG	21	1-Jan-18	6-Nov-18
	PAK	12	8-Mar-18	31-Dec-18
2018 Total		33	1-Jan-18	31-Dec-18

Last reported wild Polio P3 from Pakistan with date of onset 18/04/2012

Figure 3: Non Polio AFP rate by Province in Afghanistan & by District in Pakistan 01/01/2019 - 21/04/2019

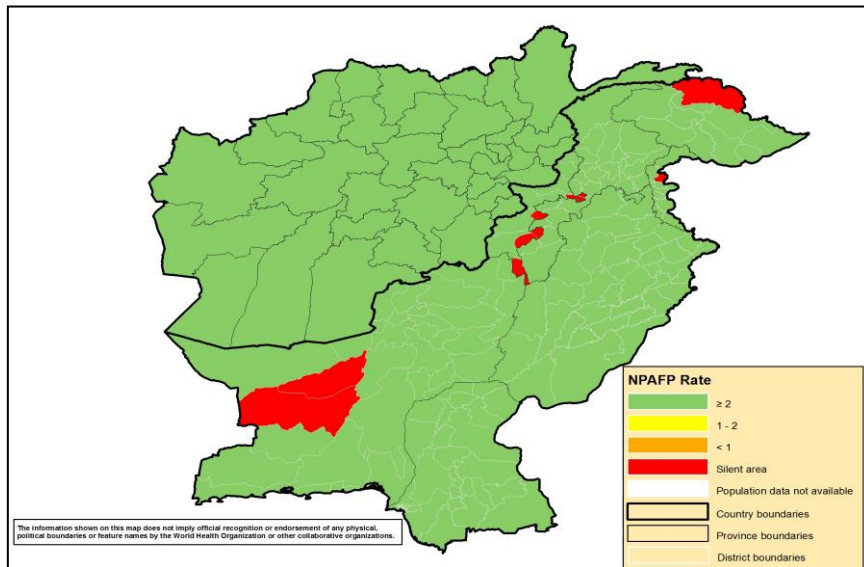


Figure 4: Percent of AFP cases with Adequate Samples in Afghanistan by Province & Pakistan by District 01/01/2019 - 21/04/2019

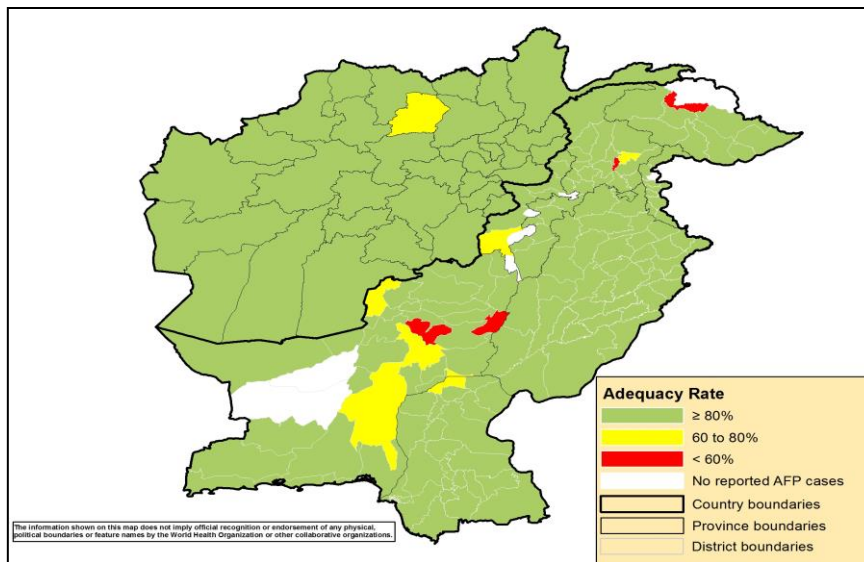
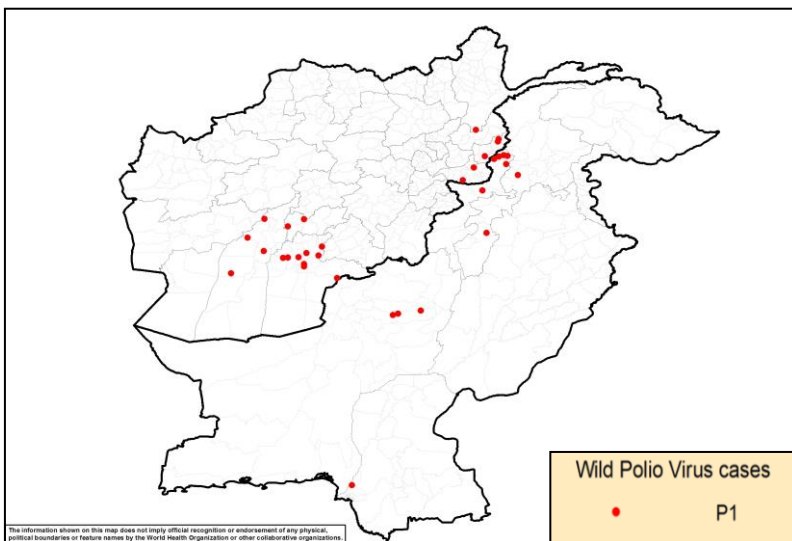
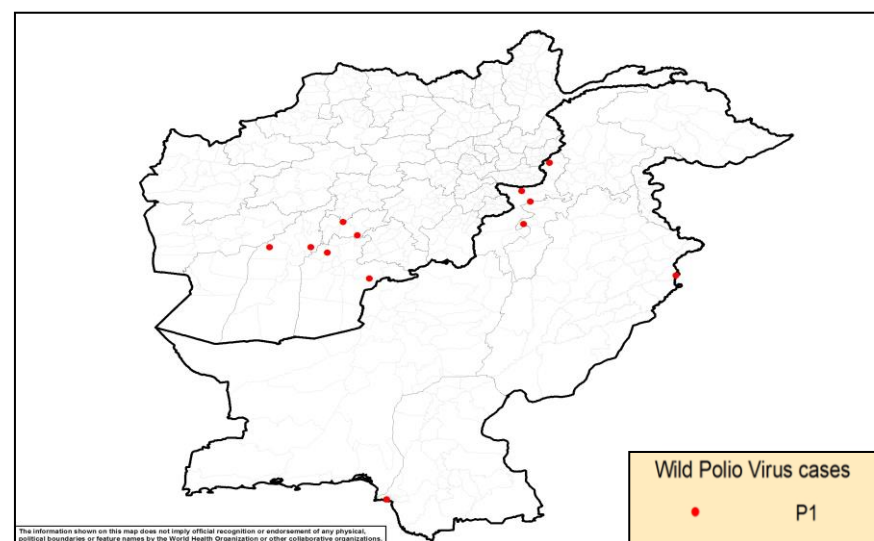


Figure 5: Wild Virus Cases by Type & District in Afghanistan & Pakistan

5(a) 01/01/2018 - 31/12/2018



5(b) 01/01/2019 - 21/04/2019



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Table 9: Wild Polio cases by district and date of onset of paralysis, Afghanistan 2018-2019						
ONSETYR	PROVINCE	DISTRICT	Count	First case	Last case	
2019	HILMAND	WASHER	1	23-Mar-19	23-Mar-19	
		SANGIN	1	6-Mar-19	6-Mar-19	
	URUZGAN	CHORA	1	20-Mar-19	20-Mar-19	
		SHAHID-E-HASSAS	1	25-Feb-19	25-Feb-19	
	KANDAHAR	GHORAK	1	12-Jan-19	12-Jan-19	
SPINBOLDAK		1	4-Jan-19	4-Jan-19		
2019 Total			6	4-Jan-19	23-Mar-19	
2018	HILMAND	NAWZAD	3	1-Sep-18	6-Nov-18	
		NAD-E-ALI	1	1-Jun-18	1-Jun-18	
	URUZGAN	SHAHID-E-HASSAS	2	8-Jul-18	9-Oct-18	
		NURISTAN	PORUNS	1	26-Sep-18	26-Sep-18
	KANDAHAR	MAYWAND	1	24-Sep-18	24-Sep-18	
		KANDAHAR	2	11-Aug-18	27-Aug-18	
		ARGHANDAB (K)	1	17-Jul-18	17-Jul-18	
		SHAHWALIKOT	3	5-Jan-18	27-Apr-18	
		KHAKREZ	1	25-Feb-18	25-Feb-18	
		SPINBOLDAK	1	6-Jan-18	6-Jan-18	
	NANGARHAR	PACHIERAGAM	1	17-Jul-18	17-Jul-18	
		KAMA	1	1-Jan-18	1-Jan-18	
	KUNAR	CHAWKAY	1	22-Jun-18	22-Jun-18	
		GHAZIABAD	2	14-Feb-18	3-Mar-18	
2018 Total			21	1-Jan-18	6-Nov-18	

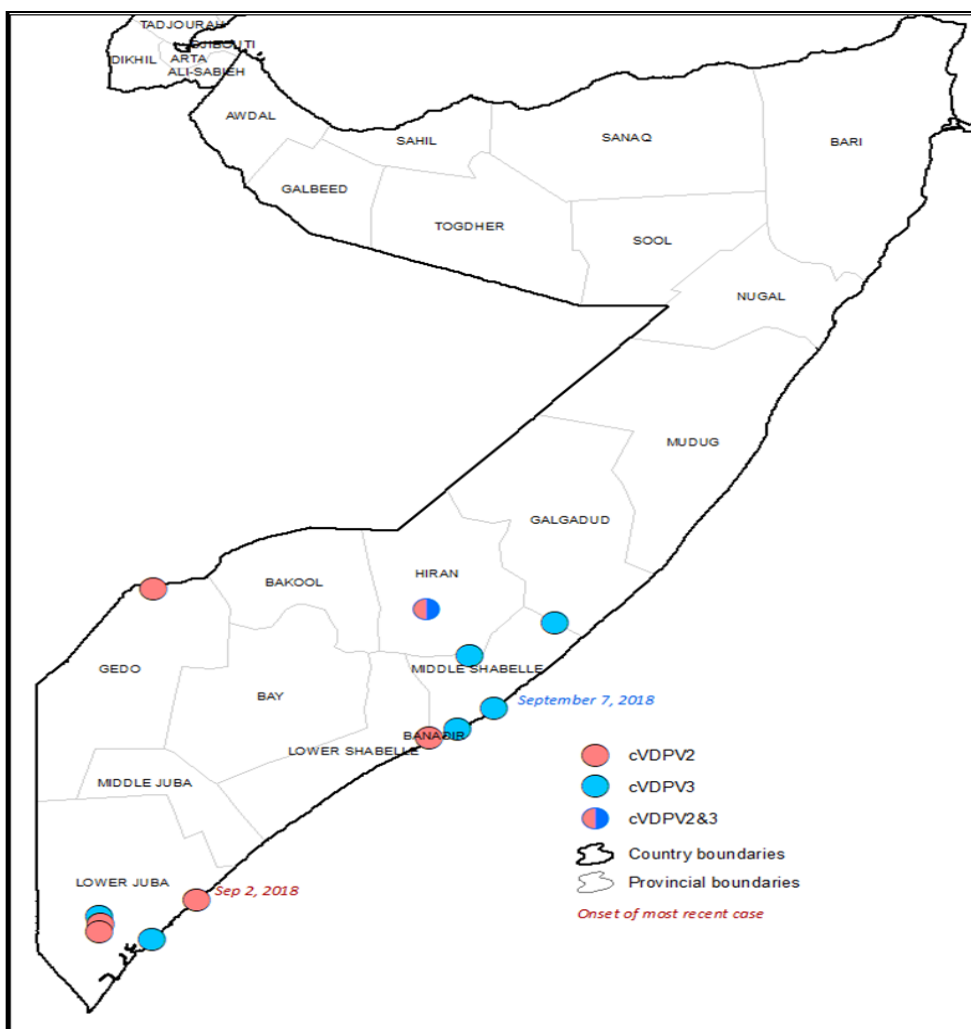
Table 10: Wild Polio cases by district and date of onset of paralysis, Pakistan 2018-2019						
ONSETYR	PROVINCE	DISTRICT	Count	First case	Last case	
2019	SINDH	KHILAYARI	1	25-Feb-19	25-Feb-19	
		FATA	KHYBER	1	14-Feb-19	14-Feb-19
	BAJOUR	1		18-Jan-19	18-Jan-19	
	PUNJAB	LAHORE	1	20-Jan-19	20-Jan-19	
	KHYBER PAKHTOON	HANGU	1	20-Jan-19	20-Jan-19	
BANNU		1	15-Jan-19	15-Jan-19		
2019 Total			6	15-Jan-19	25-Feb-19	
2018	FATA	BAJOUR	5	1-Sep-18	31-Dec-18	
		KHYBER	1	25-Sep-18	25-Sep-18	
	KHYBER PAKHTOON	LAKKIMRWT	1	16-Dec-18	16-Dec-18	
		CHARSADA	1	1-Aug-18	1-Aug-18	
	SINDH	KHIGADAP	1	22-Sep-18	22-Sep-18	
BALUCHISTAN	DUKKI	3	8-Mar-18	18-May-18		
2018 Total			12	8-Mar-18	31-Dec-18	

Table 11: Circulating VDPV cases and date of onset of paralysis in EMR countries by districts 2018-2019

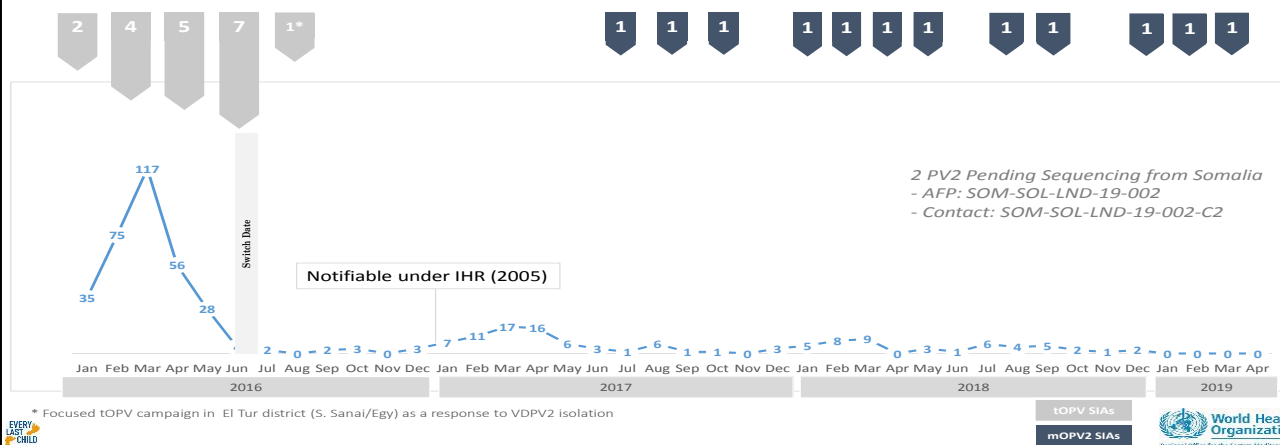
Year	COUNTRY	PROVINCE	DISTRICT	cVDPV2			cVDPV3		
				Count	First Case	Last Case	Count	First Case	Last Case
2018	SOM	LOWER JUBA	Jamaame West	1	02-Sep-18	02-Sep-18			
			KISMAYO	2	29-Jul-18	30-Jul-18	2	24-Jul-18	27-Jul-18
		MIDDLE SHABELLE	RUNINGOD				1	07-Sep-18	07-Sep-18
			MAHADAY WARSHEIKH				1	29-Jun-18	29-Jun-18
		BANADIR	DANYILE	1	10-Jul-18	10-Jul-18			
		HIRAN	BULO BURTI	1	11-May-18	11-May-18	1	11-May-18	11-May-18
GEDO	DOLO	1	26-May-18	26-May-18					
SOM Total				6	11-May-18	2-Sep-18	7	11-May-18	7-Sep-18
2018 Total				6	11-May-18	2-Sep-18	7	11-May-18	7-Sep-18

Somalia in 2018 so far has a total of 12 cVDPV cases (5 cVDPV2, 6 cVDPV3 & 1 coinfection cVDPV2/cVDPV3)

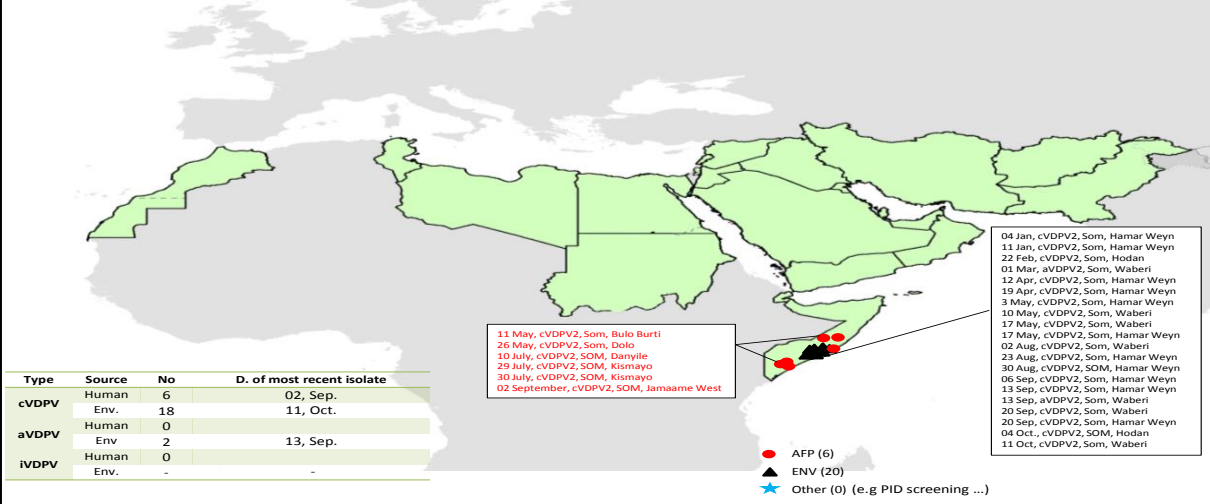
Figure 6: Somalia cVDPV cases by type and district 01/01/2018 - 21/04/2019



Sabin Like Type-2 Poliovirus Isolates (H & E) EMR, 2016-19



VDPV2 isolates, EMR countries, 2018



VDPV2 isolates, EMR countries, 2019

