

HIGHLIGHTS

Fourth assessment of cVDPV1 outbreak response in the Lao People's Democratic Republic

During 27 February to 3 March 2017, a joint team comprised of staff from WHO, UNICEF and US CDC conducted the fourth assessment of response activities to the outbreak of cVDPV1 (OBRA) in the Lao People's Democratic Republic. The main objectives were to assess progress towards implementation of the recommendations of the third OBRA conducted in August 2016, as well as to develop and provide recommendations to the Ministry of Health for further strengthening of AFP surveillance and increasing population protection against polio.

The main conclusion of the assessment was that improvements of AFP surveillance quality during 2016 made it unlikely that ongoing cVDPV transmission was missed, allowing to conclude that cVDPV1 transmission has ceased.

Following the findings of the assessment, the team developed and discussed with the Ministry of Health the following recommendations:

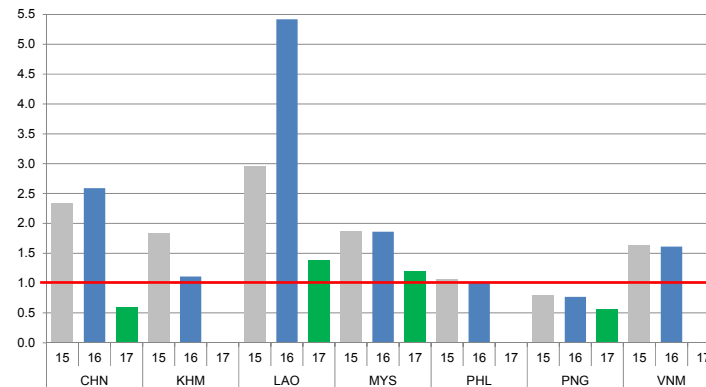
- Further strengthen AFP surveillance performance with particular attention to the large hospitals in Vientiane capital
- Urgently strengthen routine immunization to prevent possible outbreaks related to renewed emergence of cVDPV
- Take advantage of the successes, lessons learned and messages and materials developed for the outbreak response to increase acceptance and demand for routine immunization

The assessment team suggested to the Ministry of Health as well as technical in-country partners (including NCC), to conduct quarterly desk reviews of surveillance quality at province level, supported by findings of supervisory visits. The results of these reviews should be used for deciding on discontinuation of enhanced surveillance measures.

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Chart 1. Non-polio AFP rate (per 100 000 persons < 15 years of age), 2015–2017*



* AFP rate annualized as of week 9

Chart 2. Adequate specimen collection rate, 2015–2017

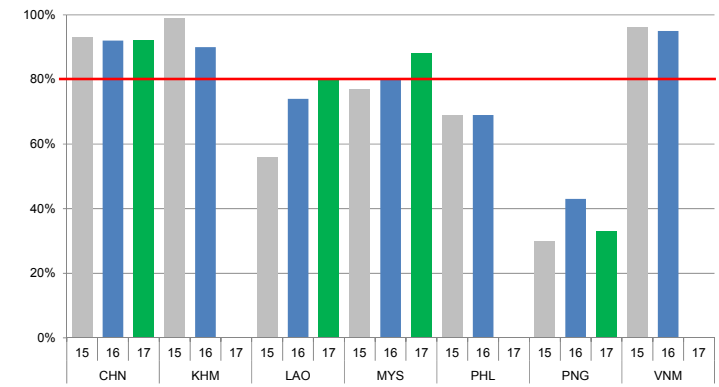


Chart 3. Percentage of reported AFP cases by number of polio vaccination doses, 2016

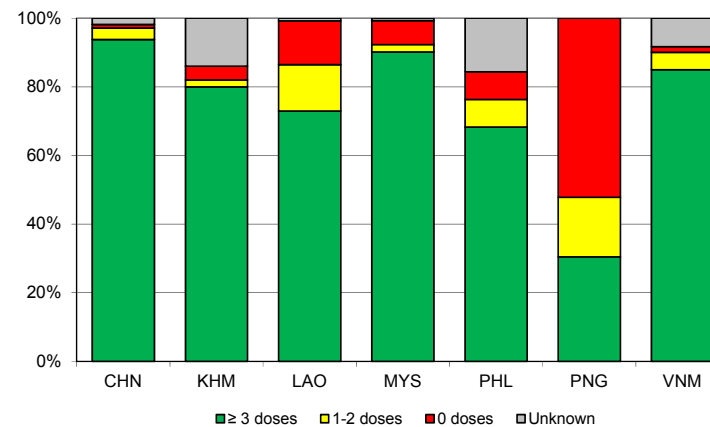
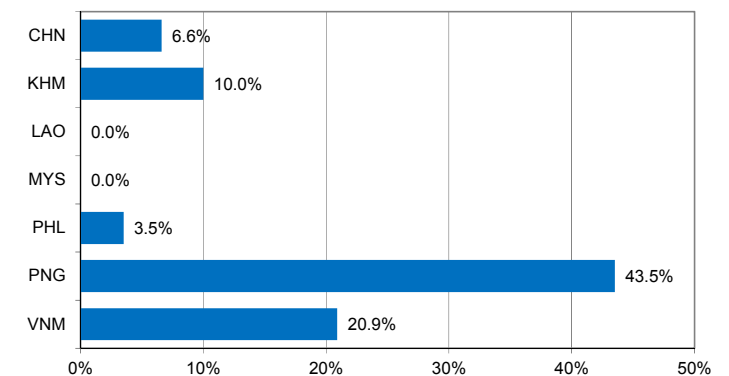


Chart 4. Percentage of reported AFP cases with pending classification > 90 days after onset, 2016



Note: Priority countries were selected for the charts. Official WHO acronyms have been used for abbreviation: CHN (China), KHM (Cambodia), LAO (Lao People's Democratic Republic), MYS (Malaysia), PHL (Philippines), PNG (Papua New Guinea), and VNM (Viet Nam).

Table 1A. Classification of AFP cases with onset in 2016 and key surveillance indicators

Country/area	2015	2016												
	Total reported cases	Annual expected cases <15 years of age	Total reported cases	Classification						Indicators			Latest report date ⁴	Days since last report ⁵
				Confirmed wild poliovirus	Vaccine-derived poliovirus (VDPV)	Polio-compatible	Discarded (Non-polio)	Pending		Non-polio AFP rate	% with adequate specimens ²	% investigated ≤ 2 days of notification ³		
								Total	> 90 days ¹ # (%)					≥ 1
Australia	53	45	63	0	0	1	61	1	1 (1.6%)	1.40	46%	95%	03-Mar-17	4
Brunei Darussalam	3	1	1	0	0	0	1	0	0 (0.0%)	1.00	100%	100%	11-Jan-17	-
Cambodia	84	45	50	0	0	0	44	6	5 (10.0%)	1.11	90%	92%	10-Jan-17	56
China	5217	2234	5790	0	0	0	4956	834	380 (6.6%)	2.59	92%	100%	22-Feb-17	13
China, Hong Kong SAR	10	8	10	0	0	0	10	0	0 (0.0%)	1.25	90%	100%	09-Jan-17	-
China, Macao SAR	1	1	1	0	0	0	1	0	0 (0.0%)	1.00	100%	100%	12-Jan-17	-
Japan	-	163	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	71	24	133	0	3 ⁶	0	127	3	0 (0.0%)	5.42	74%	92%	13-Feb-17	22
Malaysia	144	77	143	0	0	0	143	0	0 (0.0%)	1.86	80%	80%	06-Mar-17	-
Mongolia	9	9	7	0	0	0	6	1	0 (0.0%)	0.78	71%	100%	06-Feb-17	29
New Zealand	7	9	12	0	0	0	10	2	1 (8.3%)	1.33	58%	83%	03-Feb-17	32
Papua New Guinea	27	30	23	0	0	0	13	10	10 (43.5%)	0.77	43%	91%	07-Feb-17	28
Philippines	413	394	397	0	0	0	368	29	14 (3.5%)	1.01	69%	95%	16-Jan-17	50
Republic of Korea	83	69	69	0	0	0	69	0	0 (0.0%)	1.00	94%	100%	27-Feb-17	-
Singapore	8	6	7	0	0	0	7	0	0 (0.0%)	1.17	100%	100%	06-Jan-17	-
Viet Nam	380	232	373	0	0	0	245	128	78 (20.9%)	1.61	95%	92%	25-Jan-17	41
Pacific island countries and areas	15	10	19	0	0	0	15	4	3 (15.8%)	1.90	68%	100%	21-Feb-17	14
Total	6525	3357	7098	0	3	1	6076	1018	492 (6.9%)	2.11	90%	98%		-

- Number (%) of reported cases pending classification more than 90 days from date of onset of paralysis to date of last report
- Percentage of reported cases with two stool specimens collected 24 hours apart and within 14 days of onset of paralysis
- Percentage of reported cases investigated within two days of notification
- Report date is fixed as soon as all cases for the year have been classified
- Countries are expected to submit data at least once per month to WPRO
- Includes two cases that are 15 years old or older

Green	Reached or surpassed target
Yellow	Nearly reached target: 0.5–0.99 for non-polio AFP rate; 60–79% for other indicators
Red	Substantially below target

Table 1B. Classification of AFP cases with onset in 2017 and key surveillance indicators

Country/area	2016	2017												
	Total reported cases	Annual expected cases <15 years of age	Total reported cases	Classification						Indicators			Latest report date	Days since last report ⁵
				Confirmed wild poliovirus	Vaccine-derived poliovirus (VDPV)	Polio-compatible	Discarded (Non-polio)	Pending		Non-polio AFP rate ²	% with adequate specimens ³	% investigated ≤ 2 days of notification ⁴		
								Total	> 90 days ¹ # (%)					
≥ 1	≥ 80%	≥ 80%	≤ 30											
Australia	63	45	3	0	0	0	0	3	0 (0.0%)	0.39	33%	100%	03-Mar-17	4
Brunei Darussalam	1	1	0	-	-	-	-	-	-	-	-	-	11-Jan-17	55
Cambodia	50	54	0	-	-	-	-	-	-	-	-	-	10-Jan-17	56
China	5790	2256	234	0	0	0	0	234	0 (0.0%)	0.60	92%	100%	22-Feb-17	13
China, Hong Kong SAR	10	8	0	-	-	-	-	-	-	-	-	-	06-Mar-17	1
China, Macao SAR	1	1	0	-	-	-	-	-	-	-	-	-	16-Feb-17	19
Japan	-	161	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	133	21	5	0	0	0	0	5	0 (0.0%)	1.38	80%	100%	13-Feb-17	22
Malaysia	143	77	16	0	0	0	2	14	0 (0.0%)	1.20	88%	50%	24-Feb-17	11
Mongolia	7	9	0	-	-	-	-	-	-	-	-	-	06-Feb-17	29
New Zealand	12	9	0	-	-	-	-	-	-	-	-	-	03-Feb-17	32
Papua New Guinea	23	31	3	0	0	0	0	3	0 (0.0%)	0.56	33%	100%	07-Feb-17	28
Philippines	397	394	0	-	-	-	-	-	-	-	-	-	16-Jan-17	50
Republic of Korea	69	68	7	0	0	0	7	0	0 (0.0%)	0.59	57%	100%	27-Feb-17	8
Singapore	7	6	1	0	0	0	1	0	0 (0.0%)	0.96	100%	100%	08-Feb-17	27
Viet Nam	373	234	0	-	-	-	-	-	-	-	-	-	25-Jan-17	41
Pacific island countries and areas	19	11	2	0	0	0	1	1	0 (0.0%)	1.05	0%	100%	21-Feb-17	14
Total	7098	3386	271	0	0	0	11	260	0 (0.0%)	0.46	89%	97%		-

- Number (%) of reported cases pending classification more than 90 days from date of onset of paralysis to date of last report
- Annualized non-polio AFP rate per 100 000 population under 15 years of age
- Percentage of reported cases with two stool specimens collected 24 hours apart and within 14 days of onset of paralysis
- Percentage of reported cases investigated within two days of notification
- Countries are expected to submit data at least once per month to WPRO

Green	Reached or surpassed target
Yellow	Nearly reached target: 0.5–0.99 for non-polio AFP rate; 60–79% for other indicators
Red	Substantially below target

Table 2A. Laboratory investigation of stool samples from AFP cases with onset in 2016 and key laboratory indicators

Country/area	Polio laboratory	Total no. of AFP cases with specimens	Results of virus isolation for AFP cases									Intratyptic differentiation/ Sequencing laboratory ¹	No. of isolates received	Results of intratyptic differentiation (ITD)/sequencing for virus isolates														
			L20B positive	L20B positive + NPEV	NPEV only	Negative	Pending ≤ 14 days	Pending > 14 days	% results reported ≤ 14 days	% specimens positive for NPEV	Latest report date			Type 1			Type 2			Type 3			NPEV ²	Pending ITD	Discordant pending sequencing	% ITD results reported ≤ 7 days of receipt		
														Wild	Sabin	VDPV	Wild	Sabin	VDPV	Wild	Sabin	VDPV						
Australia	VIDRL	47	0	0	3	44	0	0	94%	5%	27-Jan-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brunei Darussalam	VIDRL	1	0	0	0	1	0	0	100%	0%	27-Jan-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	NIID	51	2	0	11	38	0	0	88%	20%	30-Jan-17	NIID	3	0	0	0	0	2	0	0	1	0	0	0	0	0	0	100%
China (total)		5700	66	1	419	5180	0	34	96%	6%	22-Feb-17		163	0	43	0	0	16	0	0	97	1	6	0	0	0	0	99%
China, Anhui	Prov. Lab	327	3	0	12	310	0	2	100%	3%		Prov. Lab/CCDC	5	0	1	0	0	0	0	0	4	0	0	0	0	0	0	100%
China, Beijing	Prov. Lab	44	0	0	1	43	0	0	100%	2%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Chongqing	Prov. Lab	184	5	0	8	171	0	0	99%	4%		Prov. Lab/CCDC	3	0	0	0	0	0	0	3	0	0	0	0	0	0	100%	
China, Fujian	Prov. Lab	111	2	0	3	105	0	1	97%	3%		Prov. Lab/CCDC	11	0	5	0	0	0	0	6	0	0	0	0	0	0	100%	
China, Gansu	Prov. Lab	406	8	1	23	374	0	0	88%	4%		Prov. Lab/CCDC	10	0	0	0	3	0	0	7	0	0	0	0	0	0	89%	
China, Guangdong	Prov. Lab	320	3	0	44	271	0	2	100%	11%		Prov. Lab/CCDC	19	0	7	0	0	1	0	0	11	0	0	0	0	0	100%	
China, Guangxi	Prov. Lab	360	5	0	47	308	0	0	98%	10%		Prov. Lab/CCDC	6	0	2	0	0	0	0	4	0	0	0	0	0	0	100%	
China, Guizhou	Prov. Lab	119	1	0	3	115	0	0	99%	3%		Prov. Lab/CCDC	8	0	2	0	0	2	0	4	0	0	0	0	0	0	100%	
China, Hebei	Prov. Lab	465	7	0	52	406	0	0	87%	9%		Prov. Lab/CCDC	10	0	5	0	0	0	0	5	0	0	0	0	0	0	100%	
China, Heilongjiang	Prov. Lab	249	1	0	23	224	0	1	100%	8%		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	0	0	100%	
China, Henan	Prov. Lab	239	0	0	4	235	0	0	99%	2%		Prov. Lab/CCDC	18	0	7	0	0	0	0	5	0	6	0	0	0	0	100%	
China, Hubei	Prov. Lab	225	1	0	12	210	0	2	99%	5%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hunan	Prov. Lab	89	0	0	7	82	0	0	100%	6%		Prov. Lab/CCDC	2	0	0	0	0	0	0	2	0	0	0	0	0	0	100%	
China, Jiangsu	Prov. Lab	120	1	0	3	114	0	2	84%	2%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Jiangxi	Prov. Lab	401	7	0	31	362	0	1	95%	6%		Prov. Lab/CCDC	2	0	1	0	0	0	0	1	0	0	0	0	0	0	100%	
China, Jilin	Prov. Lab	41	1	0	0	40	0	0	100%	0%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Neimongol	Prov. Lab	168	5	0	6	155	0	2	97%	3%		Prov. Lab/CCDC	10	0	3	0	0	0	0	6	1	0	0	0	0	0	100%	
China, Ningxia	Prov. Lab	395	3	0	43	347	0	2	95%	9%		Prov. Lab/CCDC	2	0	0	0	0	0	0	2	0	0	0	0	0	0	100%	
China, Shaanxi	Prov. Lab	42	1	0	1	40	0	0	100%	2%		Prov. Lab/CCDC	2	0	0	0	0	0	0	2	0	0	0	0	0	0	100%	
China, Shandong	Prov. Lab	115	1	0	4	109	0	1	98%	4%		Prov. Lab/CCDC	12	0	1	0	0	2	0	9	0	0	0	0	0	0	100%	
China, Shanghai	Prov. Lab	257	0	0	18	238	0	1	95%	6%		Prov. Lab/CCDC	4	0	0	0	0	2	0	2	0	0	0	0	0	0	100%	
China, Shanxi	Prov. Lab	189	2	0	17	170	0	0	99%	7%		Prov. Lab/CCDC	13	0	4	0	0	0	0	9	0	0	0	0	0	0	100%	
China, Sichuan	Prov. Lab	96	1	0	8	86	0	1	97%	6%		Prov. Lab/CCDC	6	0	0	0	0	2	0	4	0	0	0	0	0	0	100%	
China, Tianjin	Prov. Lab	237	1	0	15	215	0	6	97%	6%		Prov. Lab/CCDC	2	0	2	0	0	0	0	0	0	0	0	0	0	0	100%	
China, Xinjiang	Prov. Lab	44	0	0	3	38	0	3	90%	6%		Prov. Lab/CCDC	4	0	0	0	0	2	0	2	0	0	0	0	0	0	100%	
China, Yunnan	Prov. Lab	202	0	0	22	176	0	4	97%	10%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Zhejiang	Prov. Lab	90	1	0	4	84	0	1	96%	3%		Prov. Lab/CCDC	5	0	0	0	0	2	0	3	0	0	0	0	0	0	100%	
China, Hainan	Prov. Lab	109	5	0	3	99	0	2	90%	2%		CCDC	1	0	1	0	0	0	0	0	0	0	0	0	0	0	100%	
China, Liaoning	Prov. Lab	21	0	0	0	21	0	0	95%	0%		CCDC	4	0	1	0	0	0	0	3	0	0	0	0	0	0	100%	
China, Qinghai	Prov. Lab	30	0	0	2	28	0	0	92%	5%		CCDC	1	0	1	0	0	0	0	0	0	0	0	0	0	0	100%	
China, Tibet	Prov. Lab	5	1	0	0	4	0	0	100%	0%		CCDC	2	0	0	0	0	0	0	2	0	0	0	0	0	0	100%	
China, Hong Kong SAR	PHLC	10	0	0	0	10	0	0	96%	0%	14-Feb-17	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Macao SAR	PHLC	0	-	-	-	-	-	-	-	-	14-Feb-17	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Japan	NIID	-	-	-	-	-	-	-	-	-	-	NIID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lao People's Democratic Republic	NIID	201	19	0	20	163	0	0	97%	8%	30-Jan-17	NIID	40	0	18	4	0	3	0	0	15	0	0	0	0	0	100%	
Malaysia	IMR	139	0	0	7	132	0	0	100%	5%	12-Jan-17	IMR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mongolia	PHI	7	0	0	1	6	0	0	93%	7%	28-Jan-17	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Zealand	IESR	10	0	0	0	10	0	0	100%	0%	16-Jan-17	IESR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Papua New Guinea	VIDRL	24	1	0	3	20	0	0	100%	12%	27-Jan-17	VIDRL	2	0	0	0	0	0	0	2	0	0	0	0	0	0	100%	
Philippines	RITM	460	5	0	42	412	1	0	97%	7%	21-Feb-17	RITM	14	0	4	0	0	3	0	0	7	0	0	0	0	0	100%	
Republic of Korea	NIH	67	0	0	7	60	0	0	95%	9%	18-Jan-17	NIH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Singapore	SGH	7	0	0	0	7	0	0	100%	0%	02-Feb-17	SGH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Viet Nam (North)	NIHE	208	6	0	26	176	0	0	99%	11%	06-Jan-17	NIHE	6	0	1	0	0	0	0	0	6	0	0	0	0	0	100%	
Viet Nam (South)	PI	167	5	0	16	146	0	0	96%	9%	24-Jan-17	PI	14	0	2	0	0	2	0	0	10	0	0	0	0	0	100%	
Pacific island countries and areas	VIDRL	16	0	0	5	11	0	0	97%	26%	03-Feb-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total		7115	104	1	560	6416	1	34	95%	6%			242	0	68	4	0	26	0	0	138	1	6	0	0	0	100%	

1. CCDC (Chinese Center for Disease Control and Prevention, China); IESR (Institute of Environmental Science and Research, New Zealand); IMR (Institute of Medical Research, Malaysia); NIH (National Institute of Health, Republic of Korea); NIHE (National Institute of Hygiene and Epidemiology, Ha Noi, Viet Nam); NIID (National Institute of Infectious Diseases, Japan); PHI (Public Health Institute, Mongolia); PHLC (Public Health Laboratory Center, China, Hong Kong SAR); PI (Pasteur Institute, Ho Chi Minh, Viet Nam); RITM (Research Institute for Tropical Medicine, Philippines); SGH (Singapore General Hospital); VIDRL (Victorian Infectious Diseases Reference Laboratory, Australia)

2. NPEV growing in L20B cells

Table 2B. Laboratory investigation of stool samples from AFP cases with onset in 2017 and key laboratory indicators

Country/area	Polio laboratory	Total no. of AFP cases with specimens	Results of virus isolation for AFP cases										Intratyptic differentiation/ Sequencing laboratory ¹	No. of isolates received	Results of intratyptic differentiation (ITD)/sequencing for virus isolates																		
			L20B positive	L20B positive + NPEV	NPEV only	Negative	Pending ≤ 14 days	Pending > 14 days	% results reported ≤ 14 days	% specimens positive for NPEV	Latest report date	Type 1			Type 2			Type 3			NPEV ²	Pending ITD	Discordant pending sequencing	% ITD results reported ≤ 7 days of receipt									
												Wild			Sabin	VDPV	Wild	Sabin	VDPV	Wild					Sabin	VDPV							
Australia	VIDRL	0	-	-	-	-	-	-	-	-	-	24-Feb-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Brunei Darussalam	VIDRL	0	-	-	-	-	-	-	-	-	-	24-Feb-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cambodia	NIID	1	0	0	0	1	0	0	100%	0%	-	30-Jan-17	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China (total)		224	2	0	5	174	0	43	81%	2%	-	22-Feb-17		7	0	1	0	0	0	0	5	0	0	1	0	0	100%	-	-	-	-		
China, Anhui	Prov. Lab	11	0	0	0	9	0	2	89%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Beijing	Prov. Lab	2	0	0	0	2	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Chongqing	Prov. Lab	5	0	0	0	4	0	1	75%	0%	-		Prov. Lab/CCDC	2	0	0	0	0	0	0	2	0	0	0	0	100%	-	-	-	-	-	-	
China, Fujian	Prov. Lab	5	0	0	0	5	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Gansu	Prov. Lab	23	0	0	1	21	0	1	100%	5%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Guangdong	Prov. Lab	7	0	0	2	5	0	0	100%	29%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Guangxi	Prov. Lab	19	1	0	0	18	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Guizhou	Prov. Lab	4	0	0	0	3	0	1	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hebei	Prov. Lab	16	0	0	0	15	0	1	27%	0%	-		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	100%	-	-	-	-	-	-	
China, Heilongjiang	Prov. Lab	5	0	0	0	5	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Henan	Prov. Lab	8	0	0	0	4	0	4	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hubei	Prov. Lab	5	1	0	0	4	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hunan	Prov. Lab	0	-	-	-	-	-	-	-	-	-	-	Prov. Lab/CCDC	2	0	1	0	0	0	0	1	0	0	0	0	100%	-	-	-	-	-	-	
China, Jiangsu	Prov. Lab	6	0	0	0	4	0	2	25%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Jiangxi	Prov. Lab	16	0	0	0	16	0	0	25%	0%	-		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	100%	-	-	-	-	-	-	-
China, Jilin	Prov. Lab	2	0	0	0	2	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Neimongol	Prov. Lab	9	0	0	0	9	0	0	78%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Ningxia	Prov. Lab	10	0	0	0	1	0	9	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Shaanxi	Prov. Lab	3	0	0	0	3	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Shandong	Prov. Lab	5	0	0	0	5	0	0	100%	0%	-		Prov. Lab/CCDC	1	0	0	0	0	0	0	0	0	0	1	0	-	-	-	-	-	-	-	
China, Shanghai	Prov. Lab	16	0	0	0	8	0	8	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Shanxi	Prov. Lab	7	0	0	0	7	0	0	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Sichuan	Prov. Lab	6	0	0	1	4	0	1	60%	20%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Tianjin	Prov. Lab	11	0	0	0	3	0	8	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Xinjiang	Prov. Lab	0	-	-	-	-	-	-	-	-	-	-	Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Yunnan	Prov. Lab	11	0	0	0	9	0	2	67%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Zhejiang	Prov. Lab	4	0	0	0	3	0	1	100%	0%	-		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hainan	Prov. Lab	6	0	0	1	3	0	2	100%	13%	-		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Liaoning	Prov. Lab	2	0	0	0	2	0	0	100%	0%	-		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Qinghai	Prov. Lab	0	-	-	-	-	-	-	-	-	-	-	CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Tibet	Prov. Lab	0	-	-	-	-	-	-	-	-	-	-	CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hong Kong SAR	PHLC	0	-	-	-	-	-	-	-	-	-	24-Feb-17	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Macao SAR	PHLC	0	-	-	-	-	-	-	-	-	-	24-Feb-17	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Japan	NIID	-	-	-	-	-	-	-	-	-	-	-	NIID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lao People's Democratic Republic	NIID	17	0	0	2	15	0	0	100%	12%	-	06-Mar-17	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Malaysia	IMR	23	0	0	1	22	0	0	100%	5%	-	13-Feb-17	IMR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mongolia	PHI	1	0	0	0	1	0	0	100%	0%	-	28-Jan-17	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Zealand	IESR	2	0	0	0	0	2	0	-	-	-	06-Mar-17	IESR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Papua New Guinea	VIDRL	2	0	0	2	0	0	0	100%	67%	-	24-Feb-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Philippines	RITM	52	0	0	3	42	7	0	98%	5%	-	28-Feb-17	RITM	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Republic of Korea	NIH	5	0	0	0	4	1	0	100%	0%	-	27-Feb-17	NIH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Singapore	SGH	1	0	0	0	1	0	0	100%	0%	-	06-Mar-17	SGH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Viet Nam (North)	NIHE	13	0	0	0	5	8	0	100%	0%	-	01-Mar-17	NIHE	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Viet Nam (South)	PI	8	0	0	0	5	3	0	100%	0%	-	28-Feb-17	PI	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pacific island countries and areas	VIDRL	2	0	0	1	1	0	0	100%	50%	-	24-Feb-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total		351	2	0	14	271	21	43	82%	3%				7	0	1	0	0	0	0	0	5	0	0	1	0	0	100%					

1. CCDC (Chinese Center for Disease Control and Prevention, China); IESR (Institute of Environmental Science and Research, New Zealand); IMR (Institute of Medical Research, Malaysia); NIH (National Institute of Health, Republic of Korea); NIHE (National Institute of Hygiene and Epidemiology, Ha Noi, Viet Nam); NIID (National Institute of Infectious Diseases, Japan); PHI (Public Health Institute, Mongolia); PHLC (Public Health Laboratory Center, China, Hong Kong SAR); PI (Pasteur Institute, Ho Chi Minh, Viet Nam); RITM (Research Institute for Tropical Medicine, Philippines); SGH (Singapore General Hospital); VIDRL (Victorian Infectious Diseases Reference Laboratory, Australia)

2. NPEV growing in L20B cells

Table 3. Laboratory confirmation of polio isolates from environmental samples in 2015–2016 ¹

Country/area	Intratyptic differentiation lab ²	2015													2016																		
		Total number of samples processed	Total number of samples with polio isolates	Polio isolates									NPEV	Pending ITD	Discordant pending sequencing	Total number of samples processed	Total number of samples with polio isolates	Polio isolates									NPEV	Pending ITD	Discordant pending sequencing				
				Type 1			Type 2			Type 3								Type 1			Type 2			Type 3									
				Wild	Sabin	VDPV	Wild	Sabin	VDPV	Wild	Sabin	VDPV						Wild	Sabin	VDPV	Wild	Sabin	VDPV	Wild	Sabin	VDPV							
Australia	VIDRL	29	2	0	0	0	0	1	0	0	1	0	26	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China (total)		400	161	0	217	0	0	303	1	0	301	0	97	0	0	302	152	0	154	0	0	174	0	0	444	0	180	4	4				
China, Fujian	Prov. Lab/CCDC	56	8	0	0	0	0	15	0	0	1	0	17	0	0	48	9	0	2	0	0	1	0	0	9	0	33	0	0				
China, Gansu	Prov. Lab/CCDC	24	20	0	13	0	0	12	0	0	30	0	2	0	0	13	9	0	5	0	0	5	0	0	11	0	3	4	4				
China, Guangdong	Prov. Lab/CCDC	43	26	0	11	0	0	24	1	0	7	0	16	0	0	44	31	0	15	0	0	4	0	0	51	0	36	0	0				
China, Guangxi	Prov. Lab/CCDC	49	18	0	10	0	0	12	0	0	52	0	18	0	0	36	13	0	1	0	0	4	0	0	52	0	23	0	0				
China, Heilongjiang	Prov. Lab/CCDC	24	9	0	2	0	0	16	0	0	2	0	5	0	0	45	21	0	0	0	0	5	0	0	46	0	32	0	0				
China, Shandong	Prov. Lab/CCDC	47	33	0	46	0	0	29	0	0	49	0	14	0	0	37	24	0	25	0	0	15	0	0	33	0	33	0	0				
China, Shanghai	Prov. Lab/CCDC	24	11	0	2	0	0	12	0	0	7	0	8	0	0	24	18	0	17	0	0	4	0	0	34	0	18	0	0				
China, Xinjiang	Prov. Lab/CCDC	36	36	0	133	0	0	183	0	0	153	0	0	0	0	27	27	0	89	0	0	136	0	0	208	0	0	0	0	0			
China, Yunnan	Prov. Lab/CCDC	97	0	0	0	0	0	0	0	0	0	0	17	0	0	28	0	0	0	0	0	0	0	0	0	2	0	0	0				
Malaysia	IMR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	10	0	-	-	-	-	-	-	-	-	6	0	0					
Total		429	163	0	217	0	0	304	1	0	302	0	123	0	0	312	152	0	154	0	0	174	0	0	444	0	186	4	4				

1. Based on year of collection of sample, if available. Otherwise, based on year of receipt at reference laboratory.
2. CCDC (Chinese Center for Disease Control and Prevention, China); IMR (Institute of Medical Research, Malaysia); VIDRL (Victorian Infectious Diseases Reference Laboratory, Australia)

Table 4. Vaccine-derived poliovirus¹ identified from laboratory testing², 2000–2016

Country/area	2000–2009 ³	2010	2011	2012	2013	2014	2015	2016
Cambodia	2006 - 1 Total - 2							
China	2009 - 1 Total - 27	aVDPV2 (3 AFP + 1 contact + 1 non-AFP) aVDPV3 (1 AFP + 1 non-AFP)	aVDPV1 (1 AFP) aVDPV2 (2 AFP + 1 contact) cVDPV2 (2 AFP) iVDPV2 (1 AFP + 1 non-AFP) iVDPV3 (1 AFP)	aVDPV1 (1 AFP) aVDPV2 (2 AFP) cVDPV2 (2 AFP + 1 contact) iVDPV2 + iVDPV3 (1 AFP)	aVDPV2 (1 non-AFP) iVDPV2 + iVDPV3 (1 AFP)	aVDPV1 (1 non-AFP) aVDPV2 (2 AFP) iVDPV3 (1 AFP)	aVDPV1 (1 AFP) aVDPV2 (1 AFP) iVDPV2 (1 AFP)	aVDPV3 (1 AFP) ⁴
China, Hong Kong SAR	2005 - 3							
Japan	2005 - 1 Total - 2							
Lao People's Democratic Republic	2004 - 3						cVDPV1 (8 AFP + 21 contacts)	cVDPV1 (3 AFP + 4 contacts)
Mongolia	2003 - 1							
Philippines	2001 - 3					aVDPV2 (1 AFP)		
Viet Nam				aVDPV2 (2 AFP)				

1. Prefix letter refers to the VDPV category: "cVDPV" = circulating VDPV, "iVDPV" = immunodeficiency-associated VDPV, "aVDPV" = ambiguous VDPV, "?VDPV" = pending. Suffix number refers to the poliovirus serotype (types 1, 2 or 3).
2. Source of specimens could be AFP cases, contacts, or non-AFP cases
3. Refers to year of last VDPV case, and aggregate total of VDPV cases for 2000-2009
4. Based on laboratory reporting only; not yet classified by AFP surveillance