

HIGHLIGHTS

20th Meeting of the Polio Research Committee

The 20th Meeting of the Polio Research Committee (PRC) convened from 31 October to 1 November 2017 in Tokyo, Japan.

The Global Polio Eradication Initiative established PRC in 2008 to review ongoing polio eradication-related research, identify remaining gaps in polio-related knowledge, propose needed polio research studies, and engage all stakeholders interested in research on polio eradication.

At the 20th meeting of the PRC the main discussion points included:

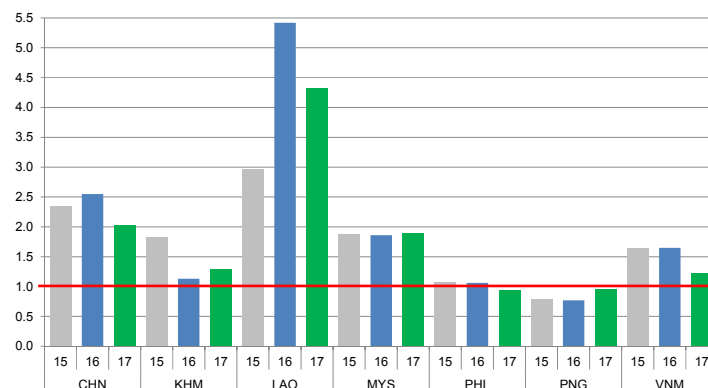
1. Status of seroprevalence surveys in polio endemic countries.
2. Progress in research and development of innovative products (e.g. polio monoclonal antibodies, development of virus-like particles, polio pseudovirus).
3. Status of implementation of polio eradication and endgame strategy in the WHO regions.

The update from the WHO Regional Office for the Western Pacific included overview of polio programme performance, specific efforts in sustaining polio-free status in the Region and progress in preparation for global certification of poliomyelitis eradication.

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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 44

Chart 2. Adequate specimen collection rate, 2015–2017

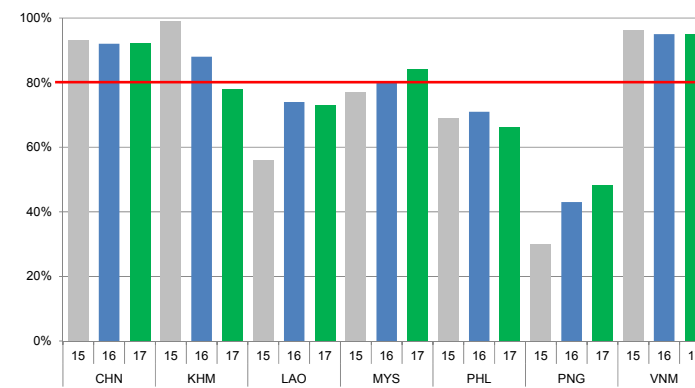


Chart 3. Percentage of reported AFP cases by number of polio vaccination doses, 2017

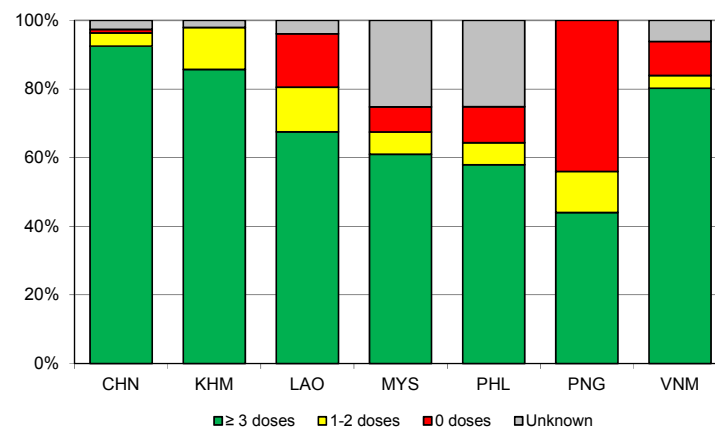
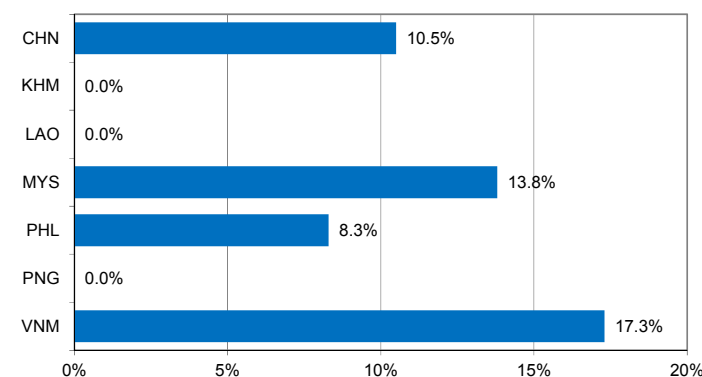


Chart 4. Percentage of reported AFP cases with pending classification > 90 days after onset, 2017



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 1. 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
Australia	62	45	41	0	0	1	28	12	4 (9.8%)	1.08	37%	95%	03-Nov-17	3
Brunei Darussalam	1	1	1	0	0	0	1	0	0 (0.0%)	1.18	0%	100%	02-Nov-17	4
Cambodia	51	45	49	0	0	0	29	20	0 (0.0%)	1.29	78%	98%	31-Oct-17	6
China	5691	2256	3864	0	1	0	2712	1151	405 (10.5%)	2.02	92%	100%	01-Nov-17	5
China, Hong Kong SAR	10	8	14	0	0	0	11	3	2 (14.3%)	2.07	79%	100%	02-Nov-17	4
China, Macao SAR	1	1	2	0	0	0	2	0	0 (0.0%)	2.36	50%	100%	18-Oct-17	19
Japan	-	161	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	133	21	77	0	0	0	72	5	0 (0.0%)	4.33	73%	77%	24-Oct-17	13
Malaysia	143	77	123	0	0	0	85	38	17 (13.8%)	1.89	84%	69%	03-Nov-17	3
Mongolia	7	9	5	0	0	0	5	0	0 (0.0%)	0.66	80%	100%	03-Nov-17	3
New Zealand	12	9	7	0	0	0	5	2	1 (14.3%)	0.92	29%	100%	13-Sep-17	54
Papua New Guinea	23	31	25	0	0	0	20	5	0 (0.0%)	0.95	48%	100%	06-Nov-17	0
Philippines	417	394	314	0	0	0	268	46	26 (8.3%)	0.94	66%	97%	18-Oct-17	19
Republic of Korea	70	68	45	0	0	0	39	6	0 (0.0%)	0.78	91%	100%	12-Oct-17	25
Singapore	7	6	5	0	0	0	5	0	0 (0.0%)	0.98	100%	100%	09-Oct-17	28
Viet Nam	382	234	243	0	0	0	145	98	42 (17.3%)	1.23	95%	91%	13-Oct-17	24
Pacific island countries and areas	20	11	12	0	0	0	11	1	0 (0.0%)	1.29	67%	100%	03-Nov-17	3
Total	7030	3377	4827	0	1	1	3438	1387	497 (10.3%)	1.69	89%	98%		

1. Number (%) of reported cases pending classification more than 90 days from date of onset of paralysis to date of last report
2. Annualized non-polio AFP rate per 100 000 population under 15 years of age
3. Percentage of reported cases with two stool specimens collected 24 hours apart and within 14 days of onset of paralysis
4. Percentage of reported cases investigated within two days of notification
5. 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 no n-polio AFP rate; 60–79% for other indicators
Red	Substantially below target

Table 2. 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										Intratype differentiation/ Sequencing laboratory ¹	No. of isolates received	Results of intratype differentiation (ITD)/sequencing for virus isolates																	
			L20B positive	L20B positive + NPEV	NPEV only	Negative	Pending ≤ 14 days	Pending > 14 days	% results reported ≤ 14 days ≥ 80%	% 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 ≥ 80%								
												Wild			Sabin	VDPV	Wild	Sabin	VDPV	Wild					Sabin	VDPV						
Australia	VIDRL	32	0	0	4	27	0	1	96%	15%	03-Nov-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Brunei Darussalam	VIDRL	0	-	-	-	-	-	-	-	-	03-Nov-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cambodia	NIID	37	0	0	4	33	0	0	97%	10%	27-Oct-17	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China (total)		3798	38	0	280	3404	0	76	95%	6%	01-Nov-17		91	0	35	0	0	0	0	47	1	8	0	0	0	0	0	0	0	0	99%	
China, Anhui	Prov. Lab	234	3	0	8	221	0	2	100%	3%		Prov. Lab/CCDC	8	0	6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%		
China, Beijing	Prov. Lab	26	1	0	0	24	0	1	96%	0%		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	100%		
China, Chongqing	Prov. Lab	54	0	0	2	50	0	2	94%	4%		Prov. Lab/CCDC	4	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	100%		
China, Fujian	Prov. Lab	130	1	0	4	125	0	0	88%	2%		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	100%		
China, Gansu	Prov. Lab	72	0	0	4	67	0	1	96%	5%		Prov. Lab/CCDC	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	100%			
China, Guangdong	Prov. Lab	279	2	0	30	247	0	0	95%	9%		Prov. Lab/CCDC	8	0	6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%		
China, Guangxi	Prov. Lab	187	3	0	27	156	0	1	98%	13%		Prov. Lab/CCDC	6	0	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	100%		
China, Guizhou	Prov. Lab	154	0	0	14	137	0	3	98%	8%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hebei	Prov. Lab	215	4	0	18	193	0	0	99%	6%		Prov. Lab/CCDC	7	0	4	0	0	0	0	3	0	0	0	0	0	0	0	0	0	100%		
China, Heilongjiang	Prov. Lab	83	0	0	4	79	0	0	100%	5%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Henan	Prov. Lab	350	6	0	50	292	0	2	88%	12%		Prov. Lab/CCDC	17	0	2	0	0	0	0	10	1	4	0	0	0	0	0	0	0	100%		
China, Hubei	Prov. Lab	134	0	0	17	114	0	3	96%	12%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hunan	Prov. Lab	181	1	0	18	160	0	2	99%	9%		Prov. Lab/CCDC	4	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	100%		
China, Jiangsu	Prov. Lab	165	4	0	3	157	0	1	100%	2%		Prov. Lab/CCDC	8	0	2	0	0	0	0	6	0	0	0	0	0	0	0	0	0	100%		
China, Jiangxi	Prov. Lab	105	1	0	13	89	0	2	94%	11%		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	100%		
China, Jilin	Prov. Lab	46	0	0	5	41	0	0	100%	9%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Neimongol	Prov. Lab	63	2	0	1	60	0	0	98%	1%		Prov. Lab/CCDC	5	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%		
China, Ningxia	Prov. Lab	16	0	0	3	13	0	0	94%	16%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Shaanxi	Prov. Lab	74	1	0	2	56	0	15	88%	3%		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0%		
China, Shandong	Prov. Lab	270	4	0	7	258	0	1	94%	2%		Prov. Lab/CCDC	6	0	1	0	0	0	0	5	0	0	0	0	0	0	0	0	0	100%		
China, Shanghai	Prov. Lab	32	0	0	0	32	0	0	100%	0%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Shanxi	Prov. Lab	139	0	0	5	132	0	2	93%	3%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Sichuan	Prov. Lab	224	0	0	13	200	0	11	95%	5%		Prov. Lab/CCDC	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100%		
China, Tianjin	Prov. Lab	28	0	0	0	28	0	0	98%	0%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Xinjiang	Prov. Lab	117	3	0	9	103	0	2	93%	7%		Prov. Lab/CCDC	7	0	4	0	0	0	0	3	0	0	0	0	0	0	0	0	0	100%		
China, Yunnan	Prov. Lab	189	1	0	11	168	0	9	92%	5%		Prov. Lab/CCDC	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	100%		
China, Zhejiang	Prov. Lab	126	1	0	7	118	0	0	99%	5%		Prov. Lab/CCDC	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%		
China, Hainan	Prov. Lab	13	0	0	2	11	0	0	76%	12%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Liaoning	Prov. Lab	68	0	0	2	51	0	15	100%	2%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Qinghai	Prov. Lab	19	0	0	1	17	0	1	100%	6%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Tibet	Prov. Lab	5	0	0	0	5	0	0	40%	0%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Hong Kong SAR	PHLC	14	0	0	0	14	0	0	98%	0%	03-Nov-17	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
China, Macao SAR	PHLC	2	0	0	0	2	0	0	100%	0%	03-Nov-17	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Japan	NIID	-	-	-	-	-	-	-	-	-		NIID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lao People's Democratic Republic	NIID	104	1	1	9	93	0	0	95%	9%	21-Oct-17	NIID	4	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	100%		
Malaysia	IMR	138	0	0	9	129	0	0	99%	6%	13-Oct-17	IMR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mongolia	PHI	5	0	0	0	5	0	0	100%	0%	06-Nov-17	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Zealand	IESR	6	0	0	0	5	1	0	100%	0%	30-Oct-17	IESR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Papua New Guinea	VIDRL	23	0	0	7	16	0	0	100%	23%	03-Nov-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Philippines	RITM	408	6	0	23	366	13	0	99%	4%	30-Oct-17	RITM	14	0	4	0	0	0	0	10	0	0	0	0	0	0	0	0	0	100%		
Republic of Korea	NIH	45	0	0	4	41	0	0	98%	6%	12-Oct-17	NIH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Singapore	SGH	5	0	0	0	5	0	0	100%	0%	03-Nov-17	SGH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Viet Nam (North)	NIHE	148	1	0	24	115	6	2	100%	15%	27-Oct-17	NIHE	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%		
Viet Nam (South)	PI	147	0	0	27	115	5	0	100%	19%	31-Oct-17	PI	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pacific island countries and areas	VIDRL	12	0	0	4	7	1	0	100%	33%	03-Nov-17	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total		4924	46	1	395	4377	26	79	95%	7%			111	0	39	0	0	0	0	61	1	10	0	0	0	0	0	0	99%			

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, Hanoi, 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

Table 3. Laboratory confirmation of polio isolates from environmental samples in 2016–2017¹

Country/area	Intratyptic differentiation lab ²	2016													2017															
		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	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	0	0	0	0	0	0	0	0	0	0	2	0
China (total)		345	171	0	179	0	0	174	0	0	507	0	229	0	0	203	110	0	162	0	0	0	0	0	424	0	553	1	0	
China, Fujian	Prov. Lab/CCDC	60	12	0	3	0	0	1	0	0	11	0	42	0	0	31	7	0	1	0	0	0	0	0	12	0	172	0	0	
China, Gansu	Prov. Lab/CCDC	13	8	0	5	0	0	5	0	0	13	0	2	0	0	7	5	0	4	0	0	0	0	0	16	0	2	0	0	
China, Guangdong	Prov. Lab/CCDC	48	35	0	19	0	0	4	0	0	62	0	39	0	0	32	26	0	16	0	0	0	0	0	58	0	65	0	0	
China, Guangxi	Prov. Lab/CCDC	36	13	0	1	0	0	4	0	0	52	0	23	0	0	23	12	0	10	0	0	0	0	0	22	0	52	1	0	
China, Heilongjiang	Prov. Lab/CCDC	45	21	0	0	0	0	5	0	0	46	0	32	0	0	28	9	0	5	0	0	0	0	0	21	0	49	0	0	
China, Shandong	Prov. Lab/CCDC	45	28	0	25	0	0	15	0	0	42	0	40	0	0	20	14	0	15	0	0	0	0	0	60	0	67	0	0	
China, Shanghai	Prov. Lab/CCDC	24	18	0	17	0	0	4	0	0	34	0	18	0	0	14	12	0	13	0	0	0	0	0	28	0	26	0	0	
China, Xinjiang	Prov. Lab/CCDC	36	36	0	109	0	0	136	0	0	247	0	25	0	0	27	25	0	98	0	0	0	0	0	207	0	85	0	0	
China, Yunnan	Prov. Lab/CCDC	38	0	-	-	-	-	-	-	-	-	-	8	0	0	21	0	-	-	-	-	-	-	-	-	-	35	0	0	
Malaysia	IMR	10	0	-	-	-	-	-	-	-	-	-	6	0	0	14	0	-	-	-	-	-	-	-	-	-	10	0	0	
Philippines	RITM	0	-	-	-	-	-	-	-	-	-	-	-	-	-	30	8	0	1	0	0	0	0	0	7	0	16	0	0	
Total		355	171	0	179	0	0	174	0	0	507	0	235	0	0	249	118	0	163	0	0	0	0	0	0	431	0	579	3	0

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, 2000–2017

Country/area	2000–2009 ³	2010	2011	2012	2013	2014	2015	2016	2017
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)	aVDPV3 (1 AFP)
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