

## HIGHLIGHTS

### Strategic Advisory Group of Experts (SAGE) confirms April 2016 Switch

After carefully reviewing the epidemiology of type 2 vaccine derived poliovirus (VDPV) and assessing the preparedness for the trivalent oral polio vaccine to bivalent oral polio vaccine (tOPV-bOPV) switch, the SAGE reaffirmed April 2016 as the date for the globally synchronized withdrawal of type 2 OPV. The SAGE concluded that preparedness criteria for the switch are largely met and that the public health risks associated with the continued use of the type 2 component contained in tOPV far outweigh the risk of new type 2 VDPV emergence after type 2 OPV is stopped, including in countries where IPV introduction will be delayed.

The SAGE emphasized that the switch should proceed despite the recent reduction in supply that will delay IPV introduction until after the switch in up to 28 risk tier 3 and 4 (low risk) countries. They considered the following as compelling rationale:

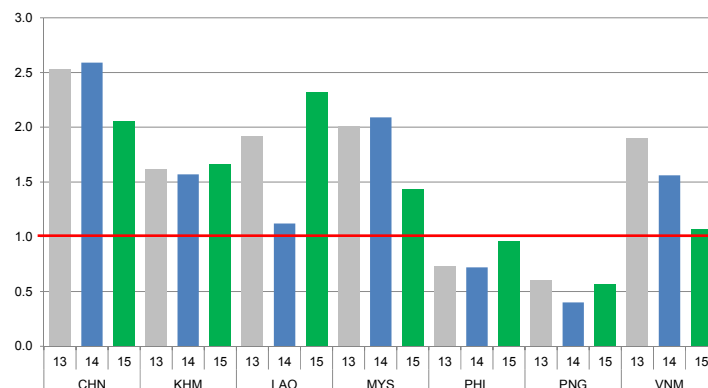
1. IPV has a limited role in preventing type 2 VDPV emergence. Its primary value is in minimising the occurrence of paralytic disease in any type 2 VDPV outbreak after the switch;
2. The risk of type 2 VDPV emergence is being reduced by extensive tOPV supplementary immunisation activities in the months before the switch in 43 countries;
3. In addition to tOPV campaigns, the highest risk (tier 1 and 2) countries will introduce IPV before the switch;
4. The countries affected by the delay are in lower risk tiers 3 and 4. Population immunity against type 2 is high in these countries (due to consistently high routine immunization coverage) so the risk of type 2 VDPV emergence and spread is minimal;
5. It is anticipated that all countries will receive IPV supplies within approximately three months of the switch;
6. Finally, global stock of monovalent type 2 OPV and IPV is available for outbreak response in the event of a type 2 VDPV being detected in any country after the tOPV-bOPV switch.

SAGE emphasized that even in the event of further changes in IPV supply, the switch date will not be changed. It requested its Polio Working Group to provide urgent guidance on optimal management of IPV supply and mitigation of other risks in the event that the IPV supply is further reduced.

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Chart 1. Non-polio AFP rate (per 100 000 persons < 15 years of age), 2013–2015\*



\* AFP rate annualized as of week 43

Chart 2. Adequate specimen collection rate, 2013–2015

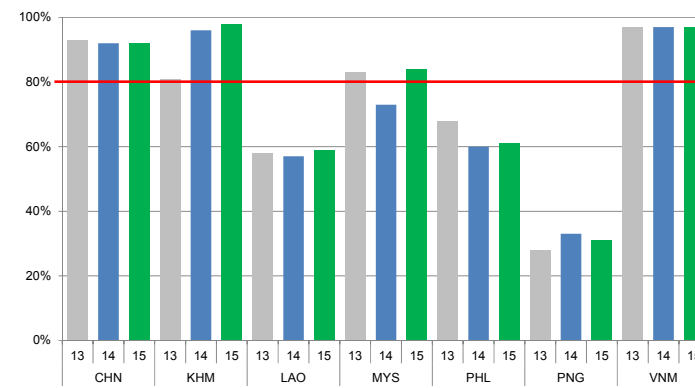


Chart 3. Percentage of reported AFP cases by number of polio vaccination doses, 2015

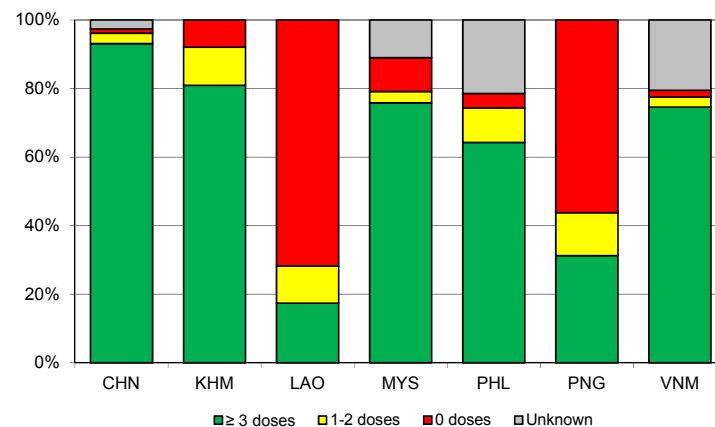
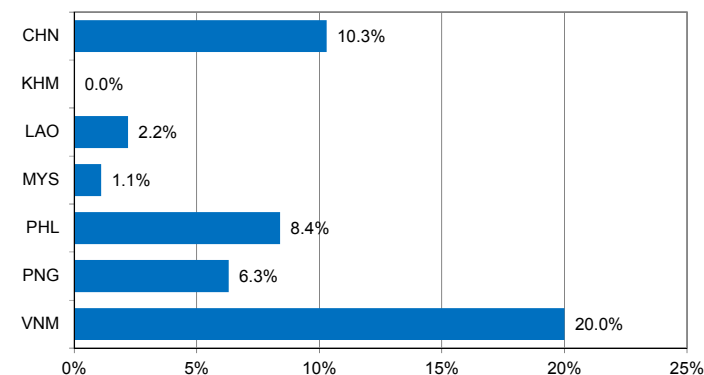


Chart 4. Percentage of reported AFP cases with pending classification > 90 days after onset, 2015



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 2015 and key surveillance indicators

Country/area	2014		2015							Indicators			Latest report date	Days since last report <sup>5</sup>
	Total reported cases	Annual expected cases <15 years of age	Total reported cases	Classification				Pending		Non-polio AFP rate <sup>2</sup>	% with adequate specimens <sup>3</sup>	% investigated ≤ 2 days of notification <sup>4</sup>		
				Confirmed wild poliovirus	Vaccine-derived poliovirus (VDPV)	Polio-compatible	Discarded (Non-polio)	Total	> 90 days <sup>1</sup> # (%)					
														≤ 30
Australia	60	44	39	0	0	0	35	4	1 (2.6%)	1.07	26%	100%	23-Oct-15	3
Brunei Darussalam	4	1	2	0	0	0	2	0	0 (0.0%)	2.42	100%	100%	19-Aug-15	68
Cambodia	72	46	63	0	0	0	50	13	0 (0.0%)	1.66	98%	100%	06-Oct-15	20
China	5758	2234	3779	0	0	0	2668	1111	388 (10.3%)	2.05	92%	100%	22-Oct-15	4
China, Hong Kong SAR	19	8	8	0	0	0	8	0	0 (0.0%)	1.21	88%	100%	07-Oct-15	19
China, Macao SAR	1	1	1	0	0	0	1	0	0 (0.0%)	1.21	100%	100%	14-Oct-15	12
Japan	-	163	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	28	24	46	0	1	0	26	19	1 (2.2%)	2.32	59%	93%	26-Oct-15	0
Malaysia	161	77	91	0	0	0	76	15	1 (1.1%)	1.43	84%	70%	28-Sep-15	28
Mongolia	9	9	7	0	0	0	6	1	0 (0.0%)	0.94	100%	100%	06-Oct-15	20
New Zealand	8	9	6	0	0	0	5	1	0 (0.0%)	0.81	33%	100%	29-Sep-15	27
Papua New Guinea	12	34	16	0	0	0	13	3	1 (6.3%)	0.57	31%	81%	09-Oct-15	17
Philippines	272	387	308	0	0	0	255	53	26 (8.4%)	0.96	61%	97%	09-Oct-15	17
Republic of Korea	88	70	60	0	0	0	58	2	0 (0.0%)	1.04	85%	93%	16-Oct-15	10
Singapore	8	6	6	0	0	0	6	0	0 (0.0%)	1.21	100%	83%	09-Oct-15	17
Viet Nam	361	231	205	0	0	0	93	102	41 (20.0%)	1.07	97%	98%	25-Aug-15	62
Pacific island countries and areas	15	10	7	0	0	0	1	6	0 (0.0%)	0.85	71%	100%	20-Oct-15	6
<b>Total</b>	<b>6876</b>	<b>3354</b>	<b>4644</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3303</b>	<b>1330</b>	<b>459 (9.9%)</b>	<b>1.67</b>	<b>89%</b>	<b>99%</b>		

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 AFP cases with onset in 2015 and key laboratory indicators

Country/area	Polio laboratory	Total no. of AFP cases with specimens	Virus isolation results							% results reported ≥ 80%	% specimens positive for NPEV	Latest report date	Intratyphic differentiation/ Sequencing laboratory <sup>1</sup>	No. of isolates received	Intratyphic differentiation (ITD)/sequencing results													
			L20B positive	L20B positive + NPEV	NPEV only	Negative	Pending ≤ 14 days	Pending > 14 days	Type 1						Type 2			Type 3			NPEV <sup>2</sup>	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	1	28	3	0	91%	2%	23-Oct-15	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Brunei Darussalam	VIDRL	2	0	0	0	2	0	0	100%	0%	23-Oct-15	VIDRL	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	NIID	63	1	0	7	55	0	0	95%	10%	23-Oct-15	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China (total)		3730	51	1	365	3237	0	76	96%	8%	22-Oct-15		126	0	38	1	0	42	6	0	37	0	2	0	0	0	0	97%
China, Anhui	Prov. Lab	206	2	0	15	183	0	6	96%	7%		Prov. Lab/CCDC	4	0	1	0	0	1	0	0	2	0	0	0	0	0	0	100%
China, Beijing	Prov. Lab	24	2	0	0	22	0	0	100%	0%		Prov. Lab/CCDC	4	0	1	0	0	2	0	0	1	0	0	0	0	0	0	100%
China, Fujian	Prov. Lab	102	2	0	22	75	0	3	98%	21%		Prov. Lab/CCDC	5	0	0	0	0	3	0	0	2	0	0	0	0	0	0	100%
China, Gansu	Prov. Lab	65	0	0	9	56	0	0	97%	10%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Guangdong	Prov. Lab	237	7	0	10	215	0	5	96%	4%		Prov. Lab/CCDC	27	0	4	0	0	12	4	0	7	0	0	0	0	0	0	100%
China, Guangxi	Prov. Lab	208	2	0	28	163	0	15	99%	12%		Prov. Lab/CCDC	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	100%
China, Hebei	Prov. Lab	215	4	1	42	166	0	2	100%	16%		Prov. Lab/CCDC	8	0	6	0	0	2	0	0	0	0	0	0	0	0	0	100%
China, Heilongjiang	Prov. Lab	97	0	0	2	95	0	0	100%	2%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Henan	Prov. Lab	378	6	0	38	331	0	3	93%	8%		Prov. Lab/CCDC	12	0	10	0	0	0	0	0	2	0	0	0	0	0	0	100%
China, Hunan	Prov. Lab	212	1	0	21	178	0	12	98%	9%		Prov. Lab/CCDC	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%
China, Jiangsu	Prov. Lab	152	3	0	4	145	0	0	98%	3%		Prov. Lab/CCDC	4	0	2	0	0	0	0	0	2	0	0	0	0	0	0	100%
China, Jiangxi	Prov. Lab	129	5	0	4	120	0	0	100%	2%		Prov. Lab/CCDC	6	0	2	0	0	4	0	0	0	0	0	0	0	0	0	100%
China, Jilin	Prov. Lab	36	0	0	3	31	0	2	97%	6%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Shaanxi	Prov. Lab	77	1	0	4	69	0	3	95%	5%		Prov. Lab/CCDC	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	100%
China, Shandong	Prov. Lab	275	0	0	29	242	0	4	98%	8%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Shanghai	Prov. Lab	32	0	0	1	31	0	0	100%	3%		Prov. Lab/CCDC	4	0	2	0	0	2	0	0	0	0	0	0	0	0	0	100%
China, Shanxi	Prov. Lab	106	0	0	9	96	0	1	90%	7%		Prov. Lab/CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Sichuan	Prov. Lab	249	1	0	22	217	0	9	93%	9%		Prov. Lab/CCDC	5	0	0	0	0	2	0	0	3	0	0	0	0	0	0	100%
China, Tianjin	Prov. Lab	33	1	0	0	32	0	0	100%	0%		Prov. Lab/CCDC	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	100%
China, Xinjiang	Prov. Lab	95	3	0	16	75	0	1	99%	16%		Prov. Lab/CCDC	6	0	2	0	0	4	0	0	0	0	0	0	0	0	0	100%
China, Yunnan	Prov. Lab	144	4	0	18	121	0	1	93%	12%		Prov. Lab/CCDC	5	0	2	0	0	2	0	0	1	0	0	0	0	0	0	60%
China, Zhejiang	Prov. Lab	132	4	0	17	111	0	0	94%	10%		Prov. Lab/CCDC	8	0	2	1	0	2	0	0	1	0	2	0	0	0	0	100%
China, Chongqing	Prov. Lab	60	1	0	6	49	0	4	98%	8%		CCDC	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	67%
China, Guizhou	Prov. Lab	157	0	0	20	136	0	1	98%	12%		CCDC	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	100%
China, Hainan	Prov. Lab	25	0	0	2	23	0	0	88%	6%		CCDC	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%
China, Hubei	Prov. Lab	120	0	0	15	105	0	0	95%	13%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Liaoning	Prov. Lab	64	0	0	5	57	0	2	97%	6%		CCDC	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	100%
China, Neimongol	Prov. Lab	63	2	0	1	60	0	0	98%	2%		CCDC	5	0	0	0	0	2	0	0	3	0	0	0	0	0	0	100%
China, Ningxia	Prov. Lab	18	0	0	1	17	0	0	97%	3%		CCDC	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	100%
China, Qinghai	Prov. Lab	17	0	0	1	14	0	2	100%	7%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Tibet	Prov. Lab	2	0	0	0	2	0	0	100%	0%		CCDC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Hong Kong SAR	PHLC	8	0	0	0	8	-	-	92%	0%	25-Sep-15	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China, Macao SAR	PHLC	0	-	-	-	-	-	-	-	-	25-Sep-15	PHLC	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Japan	NIID	-	-	-	-	-	-	-	-	-	-	NIID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	NIID	28	1	0	4	23	0	0	100%	13%	26-Oct-15	NIID	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	100%
Malaysia	JMR	102	0	0	6	96	0	0	98%	5%	08-Oct-15	JMR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mongolia	PHI	7	0	0	2	5	0	0	93%	29%	09-Oct-15	NIID	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Zealand	IESR	4	0	0	0	4	0	0	100%	0%	02-Oct-15	IESR	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Papua New Guinea	VIDRL	19	1	0	4	10	4	0	92%	24%	23-Oct-15	VIDRL	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	100%
Philippines	RITM	439	5	0	62	362	10	0	88%	12%	15-Oct-15	RITM	10	0	1	0	0	3	0	0	6	0	0	0	0	0	0	100%
Republic of Korea	NIH	60	0	0	6	53	1	0	93%	8%	16-Oct-15	NIH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Singapore	SGH	7	0	0	1	6	0	0	100%	7%	24-Oct-15	SGH	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viet Nam (North)	NIHE	166	1	0	15	139	11	0	99%	9%	22-Oct-15	NIHE	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	100%
Viet Nam (South)	PI	122	0	0	15	100	7	0	97%	13%	09-Oct-15	PI	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific island countries and areas	VIDRL	7	1	0	0	3	3	0	71%	0%	23-Oct-15	VIDRL	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	100%
<b>Total</b>		<b>4796</b>	<b>61</b>	<b>1</b>	<b>488</b>	<b>4131</b>	<b>39</b>	<b>76</b>	<b>96%</b>	<b>9%</b>			<b>142</b>	<b>0</b>	<b>42</b>	<b>2</b>	<b>0</b>	<b>45</b>	<b>6</b>	<b>0</b>	<b>45</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>98%</b>	

1. CCDC (Chinese Center for Disease Control and Prevention, China); IESR (Institute of Environmental Science and Research, New Zealand); JMR (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 2014–2015 <sup>1</sup>

Country/area	Intratype differentiation lab <sup>2</sup>	2014													2015														
		Total number of samples processed	Total number of samples with polio isolates	Type 1			Type 2			Type 3			NPEV	Pending ITD	Discordant pending sequencing	Total number of samples processed	Total number of samples with polio isolates	Type 1			Type 2			Type 3			NPEV	Pending ITD	Discordant pending sequencing
				Wild	Sabin	VDPV	Wild	Sabin	VDPV	Wild	Sabin	VDPV						Wild	Sabin	VDPV	Wild	Sabin	VDPV	Wild	Sabin	VDPV			
Australia	VIDRL	3	0	-	-	-	-	-	-	-	-	-	3	0	0	29	2	0	0	0	0	1	0	0	1	0	26	0	0
China (total)		167	167	0	79	0	0	129	2	0	115	0	0	0	0	538	131	0	50	0	0	40	0	0	41	0	319	0	0
China, Fujian	Prov. Lab/CCDC	14	14	0	1	0	0	4	0	0	0	0	0	0	0	9	1	0	0	0	0	1	0	0	0	0	2	0	0
China, Gansu	Prov. Lab/CCDC	0	0	-	-	-	-	-	-	-	-	-	-	-	-	27	0	0	0	0	0	0	0	0	0	0	8	0	0
China, Guangdong	Prov. Lab/CCDC	48	48	0	21	0	0	22	0	0	15	0	0	0	0	23	13	0	6	0	0	5	0	0	2	0	10	0	0
China, Guangxi	Prov. Lab/CCDC	0	0	-	-	-	-	-	-	-	-	-	-	-	-	61	1	0	0	0	0	1	0	0	0	0	30	0	0
China, Heilongjiang	Prov. Lab/CCDC	18	18	0	11	0	0	37	1	0	47	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	5	0	0
China, Shandong	Prov. Lab/CCDC	48	48	0	13	0	0	16	0	0	23	0	0	0	0	148	71	0	29	0	0	10	0	0	32	0	79	0	0
China, Shanghai	Prov. Lab/CCDC	12	12	0	6	0	0	12	0	0	10	0	0	0	0	75	6	0	0	0	0	5	0	0	1	0	69	0	0
China, Xinjiang	Prov. Lab/CCDC	27	27	0	27	0	0	38	1	0	20	0	0	0	0	183	39	0	15	0	0	18	0	0	6	0	116	0	0
China, Yunnan	Prov. Lab/CCDC	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	IMR	21	7	0	1	0	0	1	0	0	5	0	7	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>191</b>	<b>174</b>	<b>0</b>	<b>80</b>	<b>0</b>	<b>0</b>	<b>130</b>	<b>2</b>	<b>0</b>	<b>120</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>567</b>	<b>133</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>0</b>	<b>345</b>	<b>0</b>	<b>0</b>

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 poliovirus specimens identified from laboratory testing, 2000-2015

Country/area	2000–2009 <sup>2</sup>	2010	2011	2012	2013	2014	2015
Cambodia	2006 (1 case) Total (2 cases)						
China	2009 (1 case) Total (27 cases)	aVDPV2 (5 cases) aVDPV3 (2 cases)	aVDPV1 (1 case) aVDPV2 (3 cases) cVDPV2 (2 cases) iVDPV2 (2 cases) iVDPV3 (1 case)	aVDPV1 (1 case) aVDPV2 (2 cases) cVDPV2 (3 cases) iVDPV2 + iVDPV3 (1 case)	aVDPV2 (1 case) iVDPV2 + iVDPV3 (1 case)	aVDPV1 (1 case) aVDPV2 (2 cases) iVDPV3 (1 case)	aVDPV1 (1 case) aVDPV2 (1 case) iVDPV2 (1 case)
China, Hong Kong SAR	2005 (3 cases)						
Japan	2005 (1 case) Total (2 cases)						
Lao People's Democratic Republic	2004 (3 cases)						cVDPV1 (1 case)
Mongolia	2003 (1 case)						
Philippines	2001 (3 cases)					aVDPV2 (1 case)	
Viet Nam				aVDPV2 (2 cases)			

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. Refers to year of last VDPV case, and aggregate total of VDPV cases for 2000-2009