



WEEKLY EPIDEMIOLOGICAL REPORT

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Our response to recent polio outbreak in India

While our country still remains polio free since 1993, several neighbouring countries have reported recently a few sporadic cases of poliomyelitis. One of the worst affected is our closest neighbour India, which is the most travelled to by thousands of Buddhist devotees from our country on usually long drawn pilgrimages. One of the pilgrim sites Buddhagaya in Bihar state had recently reported a few polio cases and there is a risk though very remote of importing the disease through pilgrims to these areas.

India is one of the four countries where transmission of wild poliovirus (WPV) has never been interrupted; the other countries are Afghanistan, Nigeria and Pakistan. An outbreak of poliomyelitis caused by type-1 WPV (WPV1) occurred in 2006, primarily in the northern endemic states of Bihar and Uttar Pradesh. This outbreak generated the greatest annual number of cases of poliomyelitis in India since 2002. In response, the Government of India and its partners implemented intensified supplementary immunization activities (SIAs) following recommendations made by the India Expert Advisory Group for Polio Eradication. These measures focused predominantly on using type-1 monovalent oral poliovirus vaccine (mOPV1), which has higher efficacy against WPV1 compared with trivalent OPV (tOPV) which our EPI programme used. As a result, the number of WPV1 cases has decreased countrywide by >80% during January–September 2007 compared with the corresponding period in 2006. More importantly, western Uttar Pradesh, an area of the country where the presence of multiple risk factors has made interruption of WPV transmission chal-

lenging, has reported only 5 WPV1 cases this year. However, an outbreak caused by type-3 WPV (WPV3) has been reported this year occurred (as of 30 September 2007), with 241 cases to date, reported primarily from the northern endemic states.

Acute flaccid paralysis surveillance

A highly sensitive surveillance system for reporting cases of acute flaccid paralysis (AFP) is fundamental for monitoring progress made towards eradicating polio. Surveillance quality is monitored using operational targets set by the WHO. The national non-polio AFP rate for India (the number of non-polio AFP cases/100 000 population aged <15 years) was similar between the period January–December 2006 (rate, 7.35) and January–September 2007 (rate, 7.83). In Bihar and Uttar Pradesh, rates of nonpolio AFP were much higher than the national average in 2006 (Bihar, 19.00; Uttar Pradesh, 15.80) and 2007 (Bihar, 20.97; Uttar Pradesh, 15.32).

WPV incidence : In 2006, India reported a total of 676 polio cases from 114 districts. As of 20 October 2007, a total of 326 cases from 68 districts had been reported with onset occurring from 1 January 2007 to 28 September 2007, compared with 416 cases from 73 districts for the same period in 2006. The majority of cases in both 2006 (459 cases, 69%) and 2007 (204 cases, 62%) occurred in children aged <2 years.

WPV1 cases : In 2006, a total of 648/676 (96%) polio cases by WPV1. Of these, 581 (85%) occurred in the states of Uttar Pradesh (520 cases) and Bihar (61 cases). The 10-fold increase in WPV1 circulation in 2006 (648 cases in 2006 vs 62 cases in 2005) was the result of an outbreak that originated in

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western Uttar Pradesh and spread to the rest of the state as well as to 15 additional states. Up until week 42 of 2007, 66 cases of polio caused by WPV1 had been reported from 40 districts compared with 405 cases reported from 73 districts in 2006. From January to September 2007, Uttar Pradesh reported 21 cases of WPV1 compared with 347 for the same period in 2006.

Although the high season for poliovirus transmission is June–September, in 2007, only 5 of the 21 cases (24% reported for Uttar Pradesh) occurred during this period. Within western Uttar Pradesh, only 5 WPV1 cases have been reported in 2007, compared with 299 cases for the same period in 2006. However, WPV1 continues to circulate in Bihar, where 33/66 cases due to WPV1 (50%) have been reported this year compared with 28 cases for the same time period in 2006. Of 433 blocks within Bihar, 68 (62%) have not reported any WPV1 cases since 2001; 93 (21%) have reported only a single case; and 72 (16%) high-risk blocks are prone to recurrence of WPV1.

WPV3 cases ; In 2006, 28 polio cases caused by WPV3 were reported, all from districts in the western Uttar Pradesh. In 2007, the number of WPV3 cases increased to 261; 231 of these (83%) occurred in the western Uttar Pradesh. During the high-transmission season (June–September), WPV3 spread to areas outside of western Uttar Pradesh, with 7 cases occurring in the neighboring areas of Delhi (1 case, Haryana (1 case), Rajasthan (1 case) and Uttarakhand (4 cases); 3 cases in central Uttar Pradesh; and 23 cases in Bihar. Prior to this importation, no cases of WPV3 had been reported in Bihar since January 2004.

Immunization activities : In 2006, routine vaccination coverage of infants with 3 doses of OPV averaged 68% in India. In the states of Bihar and Uttar Pradesh, coverage was lower (Bihar, 48%; Uttar Pradesh, 44%). The Government of India continues to implement strategies to improve routine immunization services in these areas.

India continues to make progress towards eradicating polio, despite an outbreak of WPV1 in 2006 and the ongoing WPV3 outbreak in 2007. Based on recommendations from the global Advisory Committee on Polio Eradication and the India Expert Advisory Group for Polio Eradication, India has placed priority on eliminating WPV1 since WPV1 has a greater propensity to cause paralytic disease, was responsible for >90% of polio cases in the country during the past 5 years and has been the ultimate source for re-infection in 6 countries previously considered to be polio-free (Angola, Bangladesh, the Democratic Republic of the Congo, Myanmar, Namibia and Nepal). Consequently, the intensified use of mOPV1 during frequent large-scale SIAs, coupled with improvements made in the quality and consistency of immunization coverage, has played a critical role in curtailing the WPV1 outbreak. In areas that previously had the highest incidence of WPV1 polio cases, this strategy has led to unprecedented low numbers of reported cases. The limited

number of WPV1 cases in western Uttar Pradesh and the continued decline in the incidence of WPV1 throughout the season of highest transmission indicate that a unique opportunity exists for interrupting WPV1 transmission in Uttar Pradesh. Transmission of WPV1 in Bihar continues despite intensified eradication efforts; however, after the series of SIAs delivering mOPV1 during 2006 and 2007, transmission of WPV1 in Bihar is now localized mainly in 4 districts in the north-central part of the state. Eradication activities in the high-risk areas of Bihar are challenged by serious operational difficulties, including extensive flooding during the rainy season.

Both Bihar and Uttar Pradesh remain at risk for the ongoing transmission owing to multiple factors, including high population density, large birth cohorts, poor sanitation and high population mobility. The current WPV3 outbreak is not unexpected given that routine immunization in both Bihar and Uttar Pradesh remains poor and eradication efforts have focused on eliminating WPV1 (with preferential use of mOPV1 during most SIAs in areas of WPV transmission). Because of its greater transmissibility, WPV1 poses a bigger threat to a wider geographical area compared with WPV3. In 2007, most WPV3 cases occurred in the few districts of western Uttar Pradesh that had never conducted an mOPV3 round until July 2007.

The progress made towards eliminating WPV1 in western Uttar Pradesh provides evidence that poliomyelitis can be eradicated in India. Sustaining this progress in the state, rapidly reducing the number of WPV1 cases in Bihar and controlling the outbreak of WPV3 are critical. The judicious, intermittent and timely use of type-specific mOPV, guided by the evolving epidemiology, will be critical to stopping the transmission of both WPV1 and WPV3 in India in the near future.

Considering the gravity of the situation, Ministry of Health, Sri Lanka has recommend :

- All pilgrims going to India on pilgrimage to be immunized with one dose of OPV [2 drops] ideally two weeks prior to their departure .
- Both children & adults need to be immunized regardless of their immunization status
- Pilgrims can get immunization at all the MOH offices , air port health office and port health office at MRI
- Institutions which carry out immunization were expected to maintain a registry which include name, age, sex, address, date of immunization with OPV, date of departure and arrival.
- These pilgrims will be followed up after arrival for any possible Acute Flaccid Paralysis [AFP]

The editor wishes to acknowledge Dr Paba Palihawadwne – Deputy Epidemiologist for the assistant provided in the preparation of this article.

Table 1: Vaccine-preventable Diseases & AFP

27th Oct. - 2nd Nov. 2007 (44th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	00	00	00	00	00	04	69	109	-36.7%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	01	00	00	00	01	00	00	02	00	69	37	+86.5%
Tetanus	00	00	00	00	00	00	00	00	00	02	31	43	-27.9%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	39	69	-43.5%
Tuberculosis	185	14	00	15	22	00	25	00	261	120	8402	8297	-0.4%

Table 2: Diseases under Special Surveillance

27th Oct. - 2nd Nov. 2007 (44th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
DF/DHF*	90	13	15	09	28	02	03	09	169	275	5291	9321	-43.2%
Encephalitis	00	00	00	00	00	00	00	00	00	03	171	108	+58.3%
Human Rabies	00	00	00	00	00	00	00	00	00	03	53	56	-5.4%

Table 3: Newly Introduced Notifiable Diseases

27th Oct. - 2nd Nov. 2007 (44th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Total number of cases to date in 2007
	W	C	S	NE	NW	NC	U	Sab		
Chickenpox	07	03	09	15	02	00	06	07	49	2885
Meningitis	05 GM=4 KL=1	03 ML=2 NE=1	02 MT=2	03 JF=1 VA=1 TR=1	01 PU=1	00	01 MO=1	02 KG=2	17	589
Mumps	11	02	04	02	08	00	01	03	31	1863

*DF / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

NA= Not Available.

Sources:

Weekly Return of Communicable Diseases:

Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance:

Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases: Tuberculosis.

Details by districts are given in Table 5.

Provinces: W=Western, C=Central, S=Southern, NE=North & East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.

DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 4: Laboratory Surveillance of Dengue Fever 27th Oct. - 2nd Nov. 2007 (44th Week)

Samples	Number tested	Number positive *	Serotypes				
			D ₁	D ₂	D ₃	D ₄	Negative
Number for current week	07	02	00	01	01	00	00
Total number to date in 2007	442	49	01	23	15	00	09

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo.

* Not all positives are subjected to serotyping.

Table 5: Selected notifiable diseases reported by Medical Officers of Health

27th Oct. - 2nd Nov. 2007 (44th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Colombo	48	1396	02	326	00	10	03	75	01	69	00	124	01	04	02	128	92
Gampaha	27	649	04	295	00	24	01	70	00	46	07	195	01	16	04	184	86
Kalutara	15	323	10	410	00	05	00	42	00	43	05	132	00	01	02	57	100
Kandy	10	355	01	256	00	03	00	58	03	13	02	77	00	72	11	1919	77
Matale	02	90	02	194	00	06	00	25	00	13	00	54	00	05	00	130	67
Nuwara Eliya	01	37	00	219	00	02	03	111	00	368	02	12	00	33	05	521	86
Galle	01	83	03	154	00	11	02	21	00	42	03	86	01	27	01	20	69
Hambantota	07	76	07	172	00	06	00	21	00	19	01	42	02	51	02	23	82
Matara	07	172	06	272	00	08	01	40	00	24	09	230	03	194	02	32	100
Jaffna	08	138	02	161	00	02	01	396	00	12	00	00	03	94	00	23	38
Kilinochchi	00	01	00	01	00	00	00	06	00	00	00	00	00	02	00	04	25
Mannar	00	07	00	25	00	00	04	86	00	00	00	02	00	00	01	22	50
Vavuniya	00	29	03	64	00	04	00	20	01	56	00	03	00	00	01	10	50
Mullaitivu	00	00	00	29	00	08	00	20	00	01	00	00	00	00	00	14	00
Batticaloa	01	76	01	457	00	10	01	21	00	10	00	00	00	22	09	1104	73
Ampara	00	03	17	125	00	00	00	04	00	02	00	03	00	01	00	29	71
Trincomalee	00	54	00	243	00	04	01	27	00	23	00	10	00	15	00	109	56
Kurunegala	27	616	15	441	00	07	00	59	01	33	04	55	00	37	02	87	94
Puttalam	01	140	05	140	00	14	00	77	00	04	00	25	01	07	00	77	67
Anuradhapura	02	182	01	125	00	08	00	22	00	17	00	23	00	18	00	40	63
Polonnaruwa	00	59	02	109	00	03	00	13	03	64	00	21	00	00	01	47	100
Badulla	01	61	13	529	00	05	02	83	00	10	00	46	00	156	06	316	73
Monaragala	02	41	04	298	00	02	01	49	03	31	00	43	00	78	04	44	80
Ratnapura	09	358	05	526	00	18	01	64	00	19	02	66	00	24	00	97	81
Kegalle	00	339	01	251	00	08	01	58	00	08	11	149	00	36	02	214	64
Kalmunai	0	06	01	190	00	03	00	08	01	10	00	01	00	02	02	122	77
SRI LANKA	169	5291	105	6012	00	171	22	1476	13	937	46	1399	12	895	57	5373	76

Source: Weekly Returns of Communicable Diseases (WRCD).

*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

**Timely refers to returns received on or before 10 November, 2007. Total number of reporting units = 290. Number of reporting units data provided for the current week:

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