WEEKLY EPIDEMIOLOGICAL REPORT
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AEFI Surveillance in 2006 - Where are we?

The goal of immunization is to protect the individual and the public from vaccine preventable diseases. Although modern vaccines are safe, no vaccine is entirely without risk. Some people experience events after immunization ranging from mild side effects to life-threatening, but rare, illnesses. In the majority of cases these events are mere coincidences; in others they are caused by vaccine or by an error in the administration of vaccine or sometimes, there is no causal relationship. Anxiety-related reactions too can arise from fear or pain of the injection rather than the vaccine. In some cases the cause of the AEFI remains unknown.

An adverse event following immunization (AEFI) is defined as a medical incident that takes place after an immunization, causes concern, and is believed to be caused by immunization.

Irrespective of the cause, when adverse events following immunization (AEFI) occur, confusion among people is created to the extent that they may refuse further immunizations for their children which may lead to children becoming much more likely to get a vaccine-preventable disease, become seriously ill, disabled and even die. Surveillance of AEFI i.e. systematic collection of data on events following immunization therefore; helps to preserve public confidence in the immunization programme. AEFI surveillance system ia an integral part of our National immunization programme which investigates all the reported severe AEFI.

During year 2006, there were four deaths associated with a recent history of immunization.

The first child was four months old and died two days after administration of DPT first dose. The child had developed several episodes of fits with mild fever on the same day afternoon. His condition had further deteriorated with repeated fits and apnoeic attacks and died on the second day following vaccination. Though the Post mortem findings revealed the cause of death as meningitis it was not proven microbiologically. By considering the cause of death and short time period between vaccination and appearance of clinical symptoms, it was extremely difficult to come to a conclusion whether this death was related to vaccination or not. Eventually this death was classified as belonging to an unknown category.

Another two and half year old child had died 10 days after JE vaccination. On the fourth day after immunization the child had developed fever and urticarial rash followed by swelling of neck, stridor and focal fits. Despite treatment child's condition deteriorated and eventually death occurred on the 10th day following vaccination. The cause of death was identified as septicemia with intracranial haemorrhage. According to the clinical picture this death had occurred following a JE vaccine reaction.

The other death was of a one month and ten days old child with congenital heart disease [single ventricle] died due to heart failure one day following the immunization with OPV [as a part of field mop up immunization following the suspected AFP case]. Cause of death was given

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hyperplasia. According to the available evidence both above deaths were coincidental with immunization.

Since its commencement in 1996, the surveillance of AEFI in Sri Lanka is gradually improving. However, when the performance in 2006 is compared with the previous year it shows that there is more room to improve.

Overall percentage of AEFI reports received from the 26 RDHS divisions seems to be satisfactory [91%] when compared to previous year [82%]. Nearly 75% of RDHS divisions has achieved over 90% coverage in this regard. Some RDHS divisions located in the North & East reported relatively low coverage compared to the rest, namely Mullaitive [33%], Batticaloa [77%], and Killinochchi [77%]. Prevailing civil disturbances may be responsible for the relatively low performance in these areas. Above data on monthly reporting of AEFI reveals that AEFI reporting system has become well established at all levels. This is great achievement because by using this mechanism, we would be able to improve the quality of AEFI reporting in future.

Completeness of Monthly Reporting and Nil Reporting of AEFI – 2005and 2006

RDHS division	Reports Received %		Nil reports %*	
	2005	2006	2005	2006
Mullaitivu	37.5	33.3	37.5	95.0
Ampara	60.7	88.1	52.4	67.6
Batticaloa	61.7	77.3	54.2	92.2
Badulla	63.3	95.0	52.2	70.8
Kalmunai	64.6	93.1	61.8	88.1
Mannar	70.0	100	65.0	93.8
Jaffna	70.2	97.6	60.7	91.5
Nuwara Eliya	71.4	86.9	28.6	46.6
Trincomalee	73.1	96.3	63.0	91.4
Anuradhapura	74.6	95.6	50.4	65.1
Vavuniya	77.1	93.8	72.9	77.8
Puttalam	79.6	94.4	25.0	38.2
Kalutara	80.8	85.6	18.3	27.4
Kandy	81.1	94.7	46.6	52.8
Colombo	85.1	96.4	26.8	17.9
Monaragala	89.2	95.8	62.5	60.0
Kegalle	89.4	85.6	79.6	43.4
Galle	89.6	94.2	76.0	81.8
Killinochchi	89.6	77.1	85.4	91.9
Matara	91.1	90.6	66.1	55.2
Gampaha	91.7	95.6	27.2	27.3
Hambantota	92.5	90.8	39.2	46.8
Polonnaruwa	94.0	96.4	33.3	48.2
Kurunegala	95.6	95.1	49.0	53.1
Matale	95.8	90.8	66.7	58.8
Ratnapura	97.8	90.0	28.9	50.0
Sri Lanka	**82.0**	**91.3**	**50.1**	**58.5**

** out of number of reports received*

Overall percentage of monthly reporting of nil returns in year 2006 seems to be unacceptably high [58%] compared to previous year [50%]. Majority of RDHS divisions in north & East had reported AEFI nil return percentage around 90%. Prevailing civil disturbances in these areas may be responsible for this relatively poor performance. Other than these RDHS divisions in North & East Galle [81%], Badulla [70%], and Anuradhapura [65%] had reported high percentage of nil returns when compared to both the national figure and respective RDHS figures for the previous year. Colombo [18%], Gampaha [27%] and Kalutara [27%] RDHS divisions had reported relatively low percentages of AEFI nil returns. Increased number of nil returns gave some insight about the underreporting of AEFI. As such all the divisional and district level health authorities [especially those who had reported large percentage of nil returns] need to pay due attention to improve the field level reporting of AEFI.

Adverse events reported in 2005 & 2006

Type of AEFI reported	2005		2006	
	No	%	No	%
Allergic Reaction	869	27.5	969	23.2
Injection site abscess	565	17.9	677	16.2
High Fever	554	17.5	729	17.4
Sever Local Reac-	485	15.3	767	18.3
Seizures	156	4.9	212	5.1
Nodule	106	3.4	122	2.9
Lymphadenitis	77	2.4	11	0.26
Scream	52	1.6	59	1.4
Arthralgia	05	0.16	24	0.57
Death	04	0.13	04	0.09
Shock	02	0.06	06	0.14
Meningitis	02	0.06	03	0.07
GBS	01	0.03	02	0.04
Encephalopathy	01	0.03	02	0.03
Nephrotic Syndrome	01	0.03	-	-
Others	282	8.92	597	14.26
Total	3162	100.0	4185	100.0

When compared with 2005 figures, except for several minor changes, there is no significant difference in the pattern of reported AEFI. For this year too allergic reactions [23%], severe local reactions [18%], high fever [17%] and ill defined category called other [14%] were the leading AEFI. There was a slight increase by number and proportions in the reporting of severe local reactions, seizers, arthralgia and other category.

The highest rate of AEFI –205.7 cases per 100000 doses was reported following DPT vaccination. This was a marked increase from the previous year figure for DPT which was 126.4 per 100000 doses. The second highest rate of AEFI was following JE vaccine. However there was a considerable decrease when compared with 2005, amounting to 192.6 and 92 per 100000 doses in 2005 and 2006 respectively. Reporting of AEFI following measles has increased in 2006 with 30 cases per 100000 doses when compared with 2005 which was only 18 cases per 100000 doses. AEFI following BCG vaccine has decreased significantly in 2006 [10.4 cases cases per 100000 doses] compared to 32.8 cases in 2005. As usual, the lowest rate is after OPV [1.13 cases per 100000 doses] s followed by Hepatitis B vaccine [4.3 cases per 100000 doses]. On an average, there were 61.5 cases of AEFI for each 100000 doses of vaccines administered.

Severe local reactions [28%], abscess formation [27%] high fever [23%], allergic reactions [14%] and seizures [6%] were the commonest AEFI following DPT vaccination. The commonest adverse event following JE immunization was allergic reactions [62%] followed by high fever [21%] and seizures [7.5%]. Lymphadenitis was reported only after BCG vaccination and it has accounted for 32% of all adverse events following this vaccine.

The editor wishes to acknowledge the contribution by Dr Sriyani Dissanayake in preparation of this article.

Table 1: Vaccine-preventable Diseases & AFP

17th – 23rd November 2007 (47th 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	01 CB=1	00	00	01 JF=1	00	00	00	00	02	03	77	115	-33.0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	02	01	00	00	00	01	00	00	04	00	76	38	+100.00%
Tetanus	00	00	00	00	00	00	00	00	00	00	32	42	-23.8%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	44	69	-36.2%
Tuberculosis	60	02	13	87	04	03	04	00	173	300	8872	9154	-3.1%

Table 2: Diseases under Special Surveillance

17th – 23rd November 2007 (47th 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*	104	06	14	14	38	04	00	22	202	272	6012	10308	-41.7%
Encephalitis	00	00	01 MT=1	00	00	00	00	00	01	00	182	111	+63.9%
Human Rabies	00	01 ML=1	01 MT=1	00	00	00	00	00	02	02	56	67	-14.3%

Table 3: Newly Introduced Notifiable Diseases

17th – 23rd November 2007 (47th 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	11	06	04	09	04	04	02	10	50	3085
Meningitis	05 GM=1 CB+1 KL=3	00	02 GL=1 HB=1	01 VA=1	03 PU=3	02 PO=2	00	07 KG=2 RP=5	20	668
Mumps	11	00	00	03	02	02	03	08	29	1979

*__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

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

17th – 23rd November 2007 (47th Week)

Samples	Number tested	Number positive *	Serotypes				
			D_1	D_2	D_3	D_4	Negative
Number for current week	06	00	00	00	00	00	00
Total number to date in 2007	461	51	01	24	16	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

17th - 23rd November 2007 (47th 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	49	1563	03	335	00	11	10	95	04	74	05	134	01	05	00	141	**85**
Gampaha	41	784	01	305	00	25	02	73	00	56	12	262	01	18	09	199	**93**
Kalutara	14	363	08	449	00	05	06	51	00	43	16	168	00	02	02	62	**82**
Kandy	05	379	09	289	00	03	02	62	00	15	19	102	00	74	10	1950	**82**
Matale	01	96	02	227	00	06	02	32	00	13	07	74	00	05	00	133	**67**
Nuwara Eliya	00	37	01	228	00	02	00	112	00	368	00	12	00	33	07	542	**71**
Galle	01	88	02	161	00	12	00	24	00	42	07	103	00	27	00	23	**63**
Hambantota	03	86	01	182	00	06	00	21	00	20	00	45	01	56	00	24	**73**
Matara	10	202	04	283	01	09	02	42	00	24	08	258	03	201	00	33	**94**
Jaffna	08	196	01	163	00	02	04	411	00	13	00	00	05	103	00	23	**25**
Kilinochchi	00	01	00	01	00	00	00	06	00	00	00	00	00	02	00	04	**25**
Mannar	00	07	01	28	00	00	02	91	00	00	00	02	00	00	00	24	**50**
Vavuniya	02	31	04	70	00	04	00	21	02	60	00	03	00	00	03	13	**75**
Mullaitivu	00	00	00	33	00	08	00	21	00	01	00	00	00	00	00	16	**00**
Batticaloa	00	76	00	460	00	10	00	21	00	10	00	00	00	22	09	1127	**64**
Ampara	00	04	00	144	00	00	00	04	00	02	00	03	00	01	00	32	**43**
Trincomalee	04	60	10	271	00	04	01	30	02	25	00	10	01	18	03	113	**67**
Kurunegala	07	675	11	468	00	08	01	63	00	33	05	71	00	37	02	96	**44**
Puttalam	31	212	02	172	00	15	00	83	01	09	01	28	00	07	00	79	**44**
Anuradhapura	01	210	04	150	00	10	00	22	00	17	01	24	01	19	01	42	**26**
Polonnaruwa	03	64	11	133	00	03	01	14	00	64	01	22	00	00	00	48	**100**
Badulla	00	66	13	569	00	05	01	87	00	11	00	46	01	161	07	333	**73**
Monaragala	00	45	01	310	00	02	00	53	03	37	01	44	00	81	00	45	**50**
Ratnapura	09	381	12	569	00	20	05	74	00	24	01	75	02	26	01	102	**69**
Kegalle	13	379	08	281	00	09	00	62	00	08	07	194	04	42	02	240	**64**
Kalmunai	00	07	00	210	00	03	00	08	00	10	00	02	00	02	01	127	**46**
SRI LANKA	**202**	**6012**	**109**	**6491**	**01**	**182**	**39**	**1583**	**12**	**979**	**91**	**1682**	**20**	**942**	**57**	**5571**	**63**

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 1 December. 2007. Total number of reporting units =290. Number of reporting units data provided for the current week: 185

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

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