WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

231, de Saram Place, Colombo 01000, Sri Lanka
Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk
Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk
Web: http://www.epid.gov.lk

Vol. 40 No.21 **18th – 24th May 2013**

WEEKLY EPIDEMIOLOGICAL REPORT SRI LANKA - 2013

Vector-Borne Viral Infections

Numerous diseases are transmitted by insect vectors. Most are restricted to the tropical countries and are only seen in more temperate regions as imported diseases due to the requirements of the vectors concerned.

In addition to Protozoal infections [e.g. African trypanosomiasis (sleeping sickness), Trypanosoma brucei, American trypanosomiasis (Chagas disease), Trypanosoma cruzi, Leishmaniasis, Malaria], a great many viruses also are transmitted by arthropod bites. Most of these infections are caused by mosquitoes or ticks and for that reason fall under the generic name of "arboviruses" (arthropod-borne viruses) Most of these viruses belong to the Alphaviridae family.

They are,

- Eastern, Western and Venezuelan equine encephalitis viruses (EEEV, WEEV and VEEV, respectively),
- O'nyong nyong
- Chikungunya virus

Some of these viruses belong to Flaviviridae family. They are,

- Yellow fever virus (YFV)
- Dengue fever viruses (DV)
- Japanese encephalitis virus (JEV)
- West Nile virus (WNV)
- Tick-borne encephalitis virus (TBEV)
- Murray Valley encephalitis
- Omsk haemorrhagic fever
- Kyasanur Forest disease and the
- Saint-Louis encephalitis (SLE) viruses

Several members of the Bunyamviridae family also are transmitted by mosquitoes, such as

- Rift Valley fever virus (RVFV)
- California encephalitis virus
- Crimean-Congo hemorrhagic fever (CCHF) virus are transmitted by ticks. Several of these viruses are the agents of viral haemorrhagic fever (Please referTable1).

Table 1– Viral Haemorrhagic Fevers *(Source– WHO)*

Disease	Annual Incidence	Vector	Animal Reservoir
Congo-Crimean HF (CCHF)	1000's	Ticks (*Hyalomma*)	Hares, Crows, Cows, Ostriches
Dengue/DHF/DSS	250 000-500 000	Mosquitoes (*Ae aegypti, Ae albopictus*)	None
Kyasanur Forest Disease (KFD)	100's	Ticks (*Haemaphysalis*)	Monkeys, Rodents, Birds
Omsk Haemorrhagic Fever	100's	Ticks (*Dermacentor*)	Field Mouse
Rift Valley Fever	10 000's	Mosqitoes (*Culex pipiens, Ae africanus, Anopheles,* etc)	Sheep, Cattle, Camels
Yellow Fever (YF)	200 000 before vaccine introduction	Mosqitoes (*Ae aegypti* and others, *Haemagogus)*	Monkeys

Contents	*Page*

1. *Leading Article – Vector-Borne Viral Infections*	1
2. *Surveillance of vaccine preventable diseases & AFP (11th – 17th May 2013)*	3
3. *Summary of newly introduced notifiable diseases (11th – 17th May 2013)*	3
4. *Summary of selected notifiable diseases reported (11th – 17th May 2013)*	4

Not surprisingly, arboviruses can cause vast epidemics with impressive numbers of cases of illness or deaths. Dengue, the most prevalent mosquito-borne viral disease, is estimated to cause 100 million infections each year, 250 000-500 000 of which are the cause of severe illness. Major epidemics of JE were reported from India and Nepal during the past few years. Rift Valley fever is endemic in Western and Eastern-Africa where epidemic outbreaks in thousands of humans parallel epizootic outbreaks in sheep and cattle. More than 265 000 people were infected during the recent Chikungunya outbreak in Réunion, as well as 1 400 000 people in 2006 in India. Japanese encephalitis accounts for up to 50 000 cases of encephalitis every year with case fatality rates of about 25%.

Other viruses that cause haemorrhagic fevers, such as the Hantavirus (Haemorrhagic fever with renal syndrome), Arenaviruses (Lassa virus, Junin virus) or filoviruses (Ebola, Marburg) are not vector-borne.

Significant epidemics of yellow fever have been found to occur almost every year in western Africa, with an estimated record 44 000 cases and 25 000 deaths in Nigeria in 1987-88. A 2001 YF outbreak in Abidjan, Côte d'Ivoire, required immunizing 2.6 million persons in 12 days. WHO estimates that there may be up to 200 000 cases of YF a year in western Africa, with 30 000 deaths, prompted GAVI and WHO to launch a major initiative to vaccinate more than 48 million people in 12 West African countries over the next 5 years, using the live attenuated 17D YF vaccine, which is mandatory for travellers to endemic areas of Africa and South America.

The epidemiology of arbovirus infection in man is influenced by the probability of contacts between the vector, the human population and for many viruses, the amplifying vertebrate host, whether birds (most arboviruses that cause encephalitis), monkeys (YFV, KFV), horses (EEEV, WEEV, VEEV, WNV), sheep (RVF), pigs (JEV) or rodents, which serve as reservoir for the virus. Several arboviral infections are actually expanding geographically, as exemplified by the emergence of WNV in the Americas or JEV in Australasia, the spread of dengue, the re-emergence of YFV in South America and the recent outbreak of Chikungunya in northern Italy. Both yellow fever and dengue are transmitted between humans by Aedes aegypti, which are anthropophilic mosquitoes that breed in urban dwellings. Why is dengue virus much more widespread than yellow fever virus, which has never appeared in Asia, is not known. It may have to do with the fact that dengue occurs mainly in urban areas whereas outbreaks of yellow fever arise in remote areas. Moreover, dengue virus can be transmitted transovarially and sexually through mosquito populations.

Japanese encephalitis is widespread over South and South East Asia and Australasia, from Pakistan to the shores of Australia. The virus infects Culex spp mosquitoes that feed on birds, humans, pigs, horses and breed in rice paddy fields. New irrigation projects that support agricultural development therefore increase the risk of disease outbreaks. As to West Nile virus, it attracted attention as a major pathogen after an unexpected outbreak of fever and encephalitis occurred in New York City in August 1999. Within a few weeks of its emergence on the American continent there were 62 confirmed cases and seven deaths among elderly people. The virus, which most likely had been introduced from Israel or Egypt dispersed and spread throughout North America within the next five years.

In addition to protozoans and viruses, arthropods can also transmit bacteria, such as Borrelia spirochaetes responsible for Lyme disease and for louse-borne and tick-borne relapsing fevers, Yersinia pestis, the agent of plague or Bartonellas and Rickettsias that are responsible for a variety of spotted fevers, including the Rocky Mountain spotted fever, typhus and Q fever.

Dengue, Japanese encephalitis (JE) and Malaria are the three most important mosquito-borne diseases in terms of morbidity and mortality. A vaccine is already available for Japanese Encephalitis (JE) and hopefully, vaccines will be available for the other two within the next five years; and with leishmaniasis, for which there unfortunately is no hope of a vaccine soon.

Source-Vector-Borne Viral Infections, available from *http://www.who.int/vaccine_research/diseases/vector/en/*

Compiled by Dr. Madhava Gunasekera of the Epidemiology Unit

Table 3 : Water Quality Surveillance
Number of microbiological water samples - April / 2013

District	MOH areas	No: Expected *	No: Received
Colombo	12	72	69
Gampaha	15	90	34
Kalutara	12	72	26
Kalutara NI	2	12	14
Kandy	23	138	15
Matale	12	72	16
Nuwara Eliya	13	78	18
Galle	19	114	NR
Matara	17	102	17
Hambantota	12	72	26
Jaffna	11	66	33
Kilinochchi	4	24	19
Manner	5	30	20
Vavuniya	4	24	38
Mullatvu	4	24	0
Batticaloa	14	84	26
Ampara	7	42	0
Trincomalee	11	66	NR
Kurunegala	23	138	110
Puttalam	9	84	88
Anuradhapura	19	114	32
Polonnaruwa	7	42	6
Badulla	15	90	NR
Moneragala	11	66	74
Rathnapura	18	108	8
Kegalle	11	66	66
Kalmunai	13	78	0

* No of samples expected (6 / MOH area / Month)
NR = Return not received

Table 1: Vaccine-preventable Diseases & AFP

11th – 17th May 2013 (20th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2013	Number of cases during same week in 2012	Total number of cases to date in 2013	Total number of cases to date in 2012	Difference between the number of cases to date in 2013 & 2012
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	01	01	00	00	00	00	00	00	02	01	29	33	- 12.1 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	24	16	10	00	00	01	01	00	01	53	00	402	20	+ 1910.0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	07	04	+ 75.0 %
Whooping Cough	02	00	00	00	00	00	00	00	01	03	00	34	32	- 06.3 %
Tuberculosis	33	54	56	32	28	27	00	14	43	257	206	3137	3402	- 07.8 %

Table 2: Newly Introduced Notifiable Disease

11th – 17th May 2013 (20th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2013	Number of cases during same week in 2012	Total number of cases to date in 2013	Total number of cases to date in 2012	Difference between the number of cases to date in 2013 & 2012
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	11	08	09	09	02	05	02	03	05	54	04	1842	1953	- 5.7 %
Meningitis	04 KL=1 GM=2 CL=1	00	03 MT=2 GL=1	02 VU=1 JF=1	00	03 KR=3	02 AP=2	00	00	14	00	467	235	+ 98.7 %
Mumps	01	00	04	04	00	03	01	03	05	21	05	657	1889	- 65.2 %
Leishmaniasis	01 KL=1	00	08 MT=2 HB=6	00	01 TR=1	00	05 AP=5	03 BD=3	00	18	00	433	236	+ 83.5 %

Influenza Surveillance in Sentinel Hospitals - ILI & SARI

Month	Human						Animal		
	No Received	Infl A untyped	Infl B	A(H1N1)pdm09	A(H3N2)	RSV	Pooled samples	Serum Samples	Positives
April	360	7	21	26	8	2	306	240	0

Source: Medical Research Institute & Veterinary Research Institute

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: 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.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Dengue Prevention and Control Health Messages

Check the roof gutters regularly for water collection where dengue mosquitoes could breed.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

11th– 17th May 2013 (20th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	55	3334	5	67	0	10	1	49	0	14	2	115	0	5	2	34	0	0	**54**
Gampaha	35	1440	1	52	0	7	0	15	1	13	6	141	0	8	1	93	0	0	**47**
Kalutara	37	686	4	58	1	11	0	35	0	9	10	190	0	1	0	7	0	0	**77**
Kandy	28	709	6	48	0	6	0	9	0	7	2	35	5	60	1	52	0	0	**74**
Matale	1	194	0	35	0	1	1	6	0	0	1	25	0	2	0	20	0	0	**77**
NuwaraEliya	5	103	5	75	0	2	0	4	0	2	1	12	0	35	0	11	0	0	**62**
Galle	11	308	0	35	0	8	0	2	0	4	0	108	0	22	0	6	0	1	**53**
Hambantota	5	147	0	22	0	2	0	7	0	9	2	119	1	36	1	63	0	0	**67**
Matara	9	236	2	26	0	8	1	10	0	27	5	100	0	35	2	98	1	2	**100**
Jaffna	9	420	2	85	0	4	8	216	0	7	1	5	0	308	0	9	0	0	**75**
Kilinochchi	0	25	0	12	0	0	0	5	1	2	0	9	0	14	0	0	0	0	**25**
Mannar	4	51	0	21	0	1	1	48	0	11	0	9	1	15	0	0	0	0	**80**
Vavuniya	0	38	0	22	0	10	0	5	0	8	0	36	0	2	0	0	0	1	**100**
Mullaitivu	2	65	0	6	0	1	0	6	0	3	4	15	0	5	0	0	0	2	**80**
Batticaloa	2	314	2	80	0	3	0	0	2	7	1	22	0	2	0	8	0	0	**43**
Ampara	0	59	0	40	0	0	0	4	0	0	0	7	0	0	0	1	0	0	**14**
Trincomalee	4	134	3	32	0	1	0	2	0	1	0	46	0	4	0	3	0	1	**67**
Kurunegala	18	1727	0	82	1	23	0	23	0	3	4	152	1	16	0	28	0	1	**73**
Puttalam	9	534	1	25	0	4	1	9	0	34	1	13	0	9	0	1	0	0	**46**
Anuradhapu	5	304	0	32	0	12	0	2	0	2	3	231	0	15	0	12	0	0	**47**
Polonnaruw	1	177	0	37	0	0	0	9	0	0	0	100	0	2	0	18	0	1	**57**
Badulla	3	196	2	58	0	1	0	7	0	1	0	16	0	29	1	23	0	0	**71**
Monaragala	4	113	5	43	0	3	1	8	0	18	6	165	1	24	2	38	0	1	**73**
Ratnapura	16	837	3	177	0	77	0	21	0	12	1	190	0	15	2	118	0	1	**50**
Kegalle	19	489	1	26	0	10	1	7	0	3	0	60	3	46	3	110	0	0	**91**
Kalmune	2	431	3	52	0	1	0	3	2	23	0	4	0	2	0	4	0	0	**38**
SRI LANKA	**284**	**13071**	**45**	**1248**	**02**	**206**	**15**	**512**	**06**	**220**	**50**	**1925**	**12**	**712**	**15**	**757**	**01**	**11**	**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 17th May, 2013 Total number of reporting units 336. Number of reporting units data provided for the current week: 246
A = Cases reported during the current week. **B** = Cumulative cases for the year.

PRINTING OF THIS PUBLICATION IS FUNDED BY THE WORLD HEALTH ORGANIZATION (WHO).

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.**

ON STATE SERVICE

Dr. P. PALIHAWADANA
CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10