



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health, Nutrition & Indigenous Medicine

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Strengthening Mosquito Management in Schools to Prevent Dengue

Background:

Dengue is a fast emerging epidemic-prone disease in many tropical countries of the world. It is a complex disease which has a wide spectrum of clinical manifestation ranging from asymptomatic infection to potential lethal severe dengue. Today, it has become a leading cause of hospitalization and death among children and adults in many parts of the tropical region.

The three main factors responsible for dengue illness are a virus, the mosquito (vector) and the human (host).

The Dengue Virus:

It comprises of four distinct serotypes (DEN-1, DEN-2, DEN-3 and DEN-4) which belong to the genus *Flavivirus*, family *Flaviviridae*.

The Mosquito:

This *Aedes aegypti* and *Aedes Albopictus* mosquitoes are the main vectors that transmit the viruses on to humans through the bites of an infected female *aedes* mosquitoes which mainly acquire the virus while feeding on the blood of an infected person.

The Humans (host):

Once infected, humans become the main carrier and multiplier of the virus serving as a source of the virus for uninfected mosquitoes. The virus circulates in the blood of an infected person for 2-7 days as same as that person develops a fever.

The vulnerability of schoolchildren for Dengue: Sri Lanka is a country where dengue is hyper-endemic and every year around 30,000 to 50,000 confirmed dengue patients are reported to the Ministry of Health. Out of 30% of dengue victims and 20%, dengue-related deaths are from “school-going age”.

School Inspection reports and entomological surveys carried out throughout the country from 2016-2019 have revealed that schools are ranked as leading premises for potential and positive vector breeding.

Year	No of Schools Inspected	% of Potential schools	% of Positive schools
2016	9301	43.41	7.17
2017	7906	35.49	5.31
2018	8181	58.50	11.70
2019	1150	55.30	21.04

The compatibility of active hours of vectors (mainly 6.00 am to 9.00 am) and school hours are well-known factors which contribute to it. This has demanded targeted action towards schools, coupled with specified disease surveillance and rapid response for schools and around the school premises.

The primary objective of school programmes is to inculcate positive behaviour-

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al change towards dengue habitat cleaning by school children thinking that they will practice those as adults. The secondary objective is to keep the school premises free of dengue mosquitoes regularly. Therefore, the education curriculum should be changed to inculcate positive behavioural change.

In this backdrop, the following basic steps need to be included in the school curriculum to promote behaviour change of keeping the school environment free of dengue mosquito breeding;

Primary Education:

Inculcate behavioural change within school children e.g. proper solid waste management, educate about mosquito breeding sites etc.

Secondary Education:

Educate secondary school children regarding disease transmission and mosquito behaviour and common mosquito breeding sites etc.

Tertiary Education:

Assess the knowledge about disease transmission and vector behaviour, life cycle, preventive methods etc.

Other than this, there has been a standard protocol suggested by the Presidential Task Force for the prevention of dengue within schools. Ministry of Education is given the mandate by Presidential Task Force.

- Establishing dengue committees in schools (a teacher should be in-charge with a group of students from each section)
- Divide the school environment into different zones, giving the responsibility of each zone to different classrooms
- Allocation of one hour on a selected day per week to inspect and clean mosquito breeding sites with the participation of teachers, students and parents.
- Provide weekly report to Principal and share the reports with Zonal education Office for necessary corrective actions
- Take permanent solutions to the places where continuous breeding is detected
- Conduct fogging activities before the main exams within exam centers
- Proper solid waste segregation methods within the school.
- Follow 3R concept (Reduce, Reuse, Recycle)
- Maintain toilet/drainage systems regularly
- Maintain a separate file to keep dengue inspection reports
- Ministry of Education should give instructions to

Principals to liaise with Public Health Staff of their Medical Officer of Health Divisions for further assistance.

Role of Public Health Staff in the prevention of dengue within school premises

- Advice regarding preventing major mosquito breeding sites within schools
- Supply larvicides and conduct fogging activities if necessary
- Develop waste management system in schools and educate all school children about waste segregation - Proper disposal of degradable and non-degradable waste
- Provide necessary education by distributing leaflets and posters among schools
- Regular inspection of the construction site if there is a one within the school premises
- Notify the children with fever through “Dengue free Child App” by the teachers
- Apply registered repellents to uncovered skin and under the sleeves and pants. Re-application of repellents need to be done as they are effective only for 4-6 hrs.

Registered Repellents in Sri Lanka

Active Ingredient & Strength	Trade Name
Ethylbutylacetylaminopropionate 80g/l	Mino 8
N,Ndiethyl-m-toluamide 13%	Soffell
N,Ndiethyl-m-toluamide 13%	Soffell spray
Icaridin20%(w/w)	Moso

Lowering morbidity and mortality among school children is the top priority and the Ministry of Education should take leadership in maintaining dengue free schools in the country.

Support rendered by National Dengue Control unit in this regard is highly acknowledged.

Compiled by:

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 14th - 20th Sep 2019 (38th Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD			
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**		
Colombo	396	10205	4	46	0	10	1	19	1	58	10	165	0	8	0	8	0	0	0	3	361	1	40	0	4	48	100	
Gampaha	386	8282	1	32	0	7	0	3	0	25	4	80	0	3	0	3	0	7	0	1	8	342	1	21	1	145	96	
Kalutara	190	4926	1	64	0	6	2	18	0	58	20	450	0	6	0	6	0	4	0	1	9	536	1	93	0	3	63	100
Kandy	258	3255	2	85	0	10	0	3	0	24	7	69	3	79	0	5	0	2	0	2	6	221	3	57	1	41	63	100
Matale	15	452	0	24	0	3	0	1	0	6	0	41	0	6	0	7	0	2	0	1	76	1	5	7	189	58	100	
NuwaraEliya	4	192	0	93	0	2	0	8	0	4	2	41	3	64	1	9	0	0	0	6	112	1	37	0	0	26	100	
Galle	122	4885	0	39	0	7	0	3	0	5	12	334	0	43	0	41	0	0	0	6	350	1	40	0	4	61	99	
Hambantota	39	1303	1	19	0	3	0	1	0	7	6	100	2	102	0	4	0	1	0	6	248	1	33	9	632	71	100	
Matara	117	2568	1	21	0	4	0	2	0	18	16	312	1	34	0	16	0	1	0	5	249	1	16	17	450	60	100	
Jaffna	46	2273	10	210	0	13	1	24	3	94	0	29	4	277	0	4	0	0	0	4	255	0	19	0	0	21	93	
Kilinochchi	6	130	2	21	0	1	0	11	0	0	0	19	0	25	0	1	0	0	0	0	7	0	7	0	14	49	100	
Mannar	0	79	0	3	0	1	0	9	0	1	0	1	0	8	0	0	0	0	0	0	0	0	0	2	0	1	54	100
Vavuniya	1	221	0	22	0	10	1	25	0	13	0	53	0	5	0	0	0	0	0	0	72	0	9	0	2	57	97	
Mullaitivu	0	121	0	11	0	0	0	13	0	3	0	22	0	8	0	0	0	0	0	0	13	0	7	0	4	28	97	
Batticaloa	12	1134	2	138	0	2	0	13	3	40	1	43	0	1	0	0	0	1	0	2	219	0	26	0	0	50	99	
Ampara	7	204	6	64	0	2	0	0	2	16	2	38	0	2	0	11	0	0	0	14	249	0	12	0	4	57	100	
Trincomalee	11	965	1	23	0	0	0	0	2	57	0	16	0	18	0	5	0	1	0	2	205	0	9	1	4	31	99	
Kurunegala	36	1509	0	62	1	17	0	6	0	30	6	131	2	22	0	21	1	3	14	492	2	86	13	614	60	100		
Puttalam	42	726	1	22	0	3	0	1	3	15	0	32	1	12	0	2	0	0	1	1	121	0	41	0	9	61	99	
Anuradhapura	10	507	1	42	1	9	0	4	1	12	1	102	0	33	0	22	0	2	2	5	418	2	78	18	432	42	98	
Polonnaruwa	8	282	1	26	0	3	0	1	1	3	0	62	0	4	0	16	0	2	6	268	0	17	9	230	61	100		
Badulla	38	743	2	70	0	6	0	9	3	81	6	171	6	106	1	14	0	0	8	268	4	158	0	13	62	100		
Monaragala	0	333	0	36	0	4	0	0	0	79	0	189	0	82	0	41	0	0	0	0	212	0	112	0	22	60	82	
Ratnapura	141	2407	1	82	1	29	1	10	1	14	13	744	3	36	1	28	0	4	6	317	2	138	1	132	46	100		
Kegalle	83	1412	3	36	0	18	0	2	0	28	3	175	1	54	0	91	0	0	9	393	0	45	2	42	67	100		
Kalmune	4	606	3	70	0	1	0	1	0	61	2	29	0	3	0	4	0	0	3	197	0	20	0	0	63	100		
SRI LANKA	1972	49720	43	1361	3	171	6	187	20	752	11	3448	26	1041	3	361	1	21	124	6201	21	1128	79	2991	54	98		

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 20th September, 2019 Total number of reporting units 353 Number of reporting units data provided for the current week: 309 C**=Completeness
A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

14th – 20th Sep 2019 (38th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2019	Number of cases during same week in 2018	Total number of cases to date in 2019	Total number of cases to date in 2018	Difference between the number of cases to date in 2019 & 2018
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	00	00	00	00	01	02	02	60	45	33.3 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	02	00	00	00	01	02	00	01	06	08	256	259	- 1.1 %
Measles	01	00	00	00	00	00	00	00	00	01	06	245	97	161.8 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	04	0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	01	17	17	0 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	01	09	25	- 64 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	36	37	- 2.7 %
Tuberculosis	96	31	42	06	12	10	08	15	24	244	138	6281	6228	0.8 %

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.
RDHS 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, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,
Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis
CRS** =Congenital Rubella Syndrome
NA = Not Available

Number of Malaria Cases Reported During the Month of September 2019,

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All are Imported!!!

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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. **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

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