



# WEEKLY EPIDEMIOLOGICAL REPORT

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

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

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## Dengue Part I

This is first part of the series of five articles

Dengue is a mosquito-borne viral disease that is rampant in all regions of the world. The Dengue virus is transmitted from human to human by female mosquitoes mainly of the species *Aedes aegypti* and, to a lesser extent, *Ae. albopictus*. It is a major public health problem, associated with explosive urban and suburban epidemics in tropical and subtropical countries.

It is estimated to affect 390 million people worldwide with infection, out of whom 96 million people would manifest illness<sup>1</sup>. The population at risk has been estimated to be 3.97 billion people at most; residing in 128 countries

Apparent illness due to Dengue virus (DENV) infection has been described as the tip of the iceberg (Figure 1). Around 50-90% of all infected people are asymptomatic and 10% are symptomatic<sup>3</sup>. Of the symptomatic individuals those most severely affected are found at the very tip of the iceberg. Of the 50-100 million dengue infections occurring every year, nearly 5 million get Dengue Haemorrhagic fever (DHF) and 22,000 people die of the complications

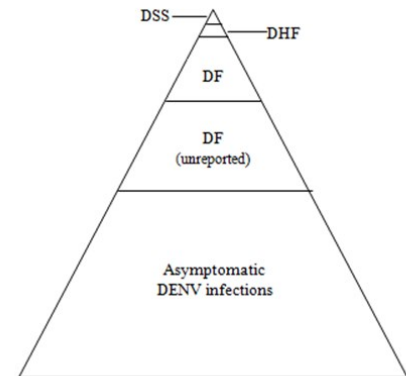


Figure 1. Dengue, the infection and disease pyramid

Reference Kyle, J.L., Harris, E., 2008. Annu. Rev. Microbiol. 62:72-92

### History and global burden of Dengue

Historical descriptions of a Dengue-like syndrome have first been documented in China during the Chin dynasty (265-420A.D.). The illness, termed water poison by the Chinese was thought to be connected to flying aquatic insects<sup>5</sup>. The first major epidemics of possible dengue were reported in Asia, Africa and North America in 1779 and 1780 (Jakarta, Indonesia, Cairo, Egypt, Philadelphia, USA); showing a very

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wide geographic distribution. From 1780 -1940, the pattern of Dengue was one of infrequent but large epidemics with background endemicity; affecting mainly non-immune travellers.

The Second World War (1939-1945), triggered the global Dengue pandemic through ecological disruption<sup>6</sup>. Abundant breeding sites increased the mosquito density and facilitated the enhanced transmission of mosquito-borne illnesses. Co-circulation of multiple DENV serotypes caused hyper-endemicity; which resulted in epidemics of DHF, mediated by non-neutralizing antibody formation.

The first documented DHF epidemic occurred in Manila, Philippines (1953/1954, 1956) and later in Bangkok, Thailand (1958)<sup>6</sup>. By the mid-1970 it was a major cause of hospitalization and death of children in the WHO South-East Asia Region (SEAR). Epidemic DHF is now prevalent in Asia (India, Sri Lanka, Maldives, Pakistan and China), the South and Central Pacific islands (Tahiti, Cook Islands, Niue, Palau, etc.) and the Americas; showing territorial expansion.

Thus, dengue now exists in most parts of the world. Globally Dengue affects several WHO regions: Africa, the Americas, the Eastern Mediterranean, South-East Asia (SEA) and the Western Pacific. The worst affected are the Americas, SEA and the Western Pacific regions. Due to climate change and global warming, Europe is also under threat of a Dengue outbreak with reported local transmissions in France and Croatia (2010).

Asia bears 70% of the global burden of disease<sup>7</sup>, with 1.3 billion at-risk individuals living in ten dengue-endemic countries in SEAR. Dengue is a major public health problem in Bangladesh, India, Maldives, Myanmar, Sri Lanka, Thailand and Timor-Leste; being a major cause of hospitalization and deaths among the paediatric age group. Hyper-endemicity of the dengue virus and co-circulation of all 4 serotypes co-exist in urban and semi-urban areas and is slowly spreading to the rural areas too

## Dengue in Sri Lanka

Sri Lanka has records of diseases similar to dengue originating from the early 20<sup>th</sup> century. The first serologically confirmed case occurred in 1962. Between 1965 and 1968, Sri Lanka experienced an island-wide epidemic of dengue with 51 cases of DHF and 15 deaths<sup>9</sup>. From 1969-1988, dengue was circulated in urban Sri Lanka with occasional DHF cases. The endemicity of DF was confirmed in 1989. The initial DHF cases were centred around Colombo, with subsequent outbreaks of DF and DHF in Kurunegala, Kandy and Batticaloa provinces (1996). Since then Sri Lanka has experienced a significant increase in the incidence and severity of Dengue with patients reported from all districts of the country. In Sri Lanka, dengue exhibits annual cyclical changes timed in agreement with but peaking after, the monsoonal rain pattern<sup>11</sup>. However, due to water storage practices, disease outbreaks are even seen in the drought period. The local dengue incidence level has risen gradually from 10/100,000 population up to 1999, 33/100,000 up to 2003, 48/100,000 from 2004-2008, 170/100,000 from 2009-2013 to 211/100,000 in the 2014-2016 period. The epidemic year, 2017, reported 186,101 dengue patients (867 cases per 100,000 population) and 440 deaths (Case Fatality Rate: 0.24%)<sup>10</sup>. Low Mortality was achieved despite high morbidity, through routine and special preventive activities and extraordinary measures by the Ministry of Health; including enhanced clinical management, vector control activities, inter-sectoral collaboration and communication for community empowerment.

### Compiled by:

Dr Thilanka Bandara (MBBS, MSc. Community Medicine)  
Medical Officer  
Epidemiology Unit

Table 1: Selected notifiable diseases reported by Medical Officers of Health 23rd-29th Oct 2021 (44th Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral Hep-		Human		Chickenpox		Meningitis		Leishmania-		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	190	4393	0	10	0	1	0	5	0	3	10	175	0	1	0	2	0	3	0	22	0	12	0	1	46%	100
Gampaha	104	2293	0	4	0	5	0	1	0	0	5	257	1	6	0	4	0	5	1	26	2	14	0	12	23	74
Kalutara	38	1219	0	11	0	2	0	3	5	5	16	575	0	3	0	1	0	1	0	69	1	23	0	0	34	94%
Kandy	25	664	0	20	0	1	0	3	0	3	37	205	2	37	1	2	0	0	0	37	1	17	0	27	56	100
Matale	3	192	0	13	0	4	0	0	0	0	0	75	0	5	0	2	0	0	0	12	0	7	10	230	51	100
NuwaraEliya	1	43	0	12	0	2	0	4	0	0	1	61	0	38	0	4	0	0	1	26	0	7	0	1	27	100
Galle	14	383	2	10	0	1	0	5	0	7	21	648	0	27	0	2	0	0	1	56	2	33	0	1	38	100
Hambantota	9	321	2	13	0	2	0	2	0	6	4	238	2	74	0	7	0	0	1	49	0	33	18	440	68	100
Matara	5	471	1	5	0	1	0	1	0	0	12	283	0	17	0	3	0	0	2	55	0	11	9	271	43	100
Jaffna	2	126	1	45	0	3	0	15	0	27	0	18	1	442	0	0	0	6	0	30	0	3	0	2	22	88
Kilinochchi	0	25	0	24	0	0	0	2	0	10	0	55	3	82	1	1	0	0	0	10	0	0	0	1	52	100
Mannar	1	28	0	7	0	1	0	4	0	0	0	27	0	2	0	0	0	0	2	6	0	19	0	1	35	100
Vavuniya	1	38	0	4	0	1	0	1	0	1	0	23	0	2	0	1	0	0	0	6	0	1	0	1	36	100
Mullaitivu	1	6	0	3	0	0	0	0	0	1	0	33	0	8	0	0	0	0	0	9	0	6	0	0	21	100
Batticaloa	8	3019	0	34	1	5	0	3	1	36	1	46	0	0	0	1	0	0	0	14	0	24	0	0	46	100
Ampara	1	44	1	10	0	0	0	1	0	7	0	56	0	1	0	3	0	0	0	41	1	15	1	14	57	100
Trincomalee	0	132	0	0	0	0	0	0	0	2	0	4	0	0	0	2	0	0	0	17	0	2	0	0	25	100
Kurunegala	57	1074	0	19	0	4	0	0	0	3	78	414	2	30	0	4	0	2	0	49	2	84	7	347	36	100
Puttalam	3	308	0	2	0	1	0	0	0	0	1	25	0	16	0	1	0	1	0	18	0	33	0	9	38	97%
Anuradhapur	2	197	0	13	0	1	0	1	0	3	0	222	0	25	0	4	0	0	1	32	1	45	11	265	24	91
Polonnaruwa	2	71	0	7	0	1	0	3	0	9	5	120	0	3	0	3	0	0	0	28	0	3	4	411	37	100
Badulla	25	320	0	11	0	0	0	3	0	0	3	290	0	44	0	35	0	0	0	42	1	18	0	20	42	100
Monaragala	2	125	1	14	0	0	0	3	0	6	8	351	1	34	12	83	1	1	0	25	1	61	1	37	50	100
Ratnapura	16	469	1	30	0	7	0	0	0	5	28	696	1	21	0	9	0	1	0	51	2	78	2	107	34	95
Kegalle	11	404	0	4	0	11	0	0	0	2	33	387	1	13	0	1	0	0	0	86	0	30	2	22	39	100
Kalmune	5	284	0	19	0	2	3	4	0	1	1	20	0	1	0	2	0	2	1	16	1	16	0	2	45	100
<b>SRILANKA</b>	<b>526</b>	<b>16649</b>	<b>9</b>	<b>344</b>	<b>1</b>	<b>56</b>	<b>3</b>	<b>64</b>	<b>6</b>	<b>137</b>	<b>264</b>	<b>5304</b>	<b>14</b>	<b>932</b>	<b>14</b>	<b>177</b>	<b>1</b>	<b>22</b>	<b>10</b>	<b>832</b>	<b>15</b>	<b>595</b>	<b>65</b>	<b>2222</b>	<b>40</b>	<b>97</b>

Source: Weekly Returns of Communicable Diseases (esurveillance.epid.gov.lk). T=Timeliness refers to returns received on or before 29<sup>th</sup> Oct, 2021 Total number of reporting units 361 Number of reporting units data provided for the current week: 349 C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

23<sup>rd</sup>– 29<sup>th</sup> Oct 2021 (44<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2021	Number of cases during same week in 2020	Total number of cases to date in 2021	Total number of cases to date in 2020	Difference between the number of cases to date in 2021 & 2020
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	00	54	38	29.6 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	00	00	00	00	00	00	00	00	00	00	63	157	- 59.8 %
Measles	00	00	00	00	00	00	00	00	00	00	00	11	48	- 77.0 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	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	00	03	05	- 40 %
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	00	04	31	- 87 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	00	09	- 100%
Tuberculosis	30	10	00	17	03	16	06	06	30	118	122	4307	5476	- 21.3 %

**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

**Covid-19 Prevention & Control**

**For everyone's health & safety, maintain physical distance, often wash hands, wear a face mask and stay home.**

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@slt.net.lk](mailto:chepid@slt.net.lk). **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

**ON STATE SERVICE**

**Dr. Samitha Ginige**  
 Actg. CHIEF EPIDEMIOLOGIST  
 EPIDEMIOLOGY UNIT  
 231, DE SARAM PLACE  
 COLOMBO 10