



## Dengue Fact Sheet and Situation Report

### 1. What is Dengue:

- Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes. The primary vectors that transmit the disease are *Aedes aegypti* mosquitoes and, to a lesser extent, *Aedes albopictus*.
- The virus responsible for causing dengue, is called Dengue virus (DENV). There are four DENV serotypes 1,2,3 and 4 and it is possible to be infected four times.

### 2. How the disease is transmitted

- The virus is transmitted to humans through the bites of infected female mosquitoes.
- After feeding on a DENV-infected person, the virus replicates in the mosquito midgut, before it disseminates to secondary tissues, including the salivary glands. The time it takes from ingesting the virus to actual transmission to a new host is termed the extrinsic incubation period (EIP). The EIP takes about 8-12 days when the ambient temperature is between 25-28°C. Variations in the extrinsic incubation period are not only influenced by ambient temperature; a number of factors such as the magnitude of daily temperature fluctuations, virus genotype and initial viral concentration can also alter the time it takes for a mosquito to transmit virus. Once infectious, the mosquito is capable of transmitting virus for the rest of its life.

### 3. Dengue In Sri Lanka

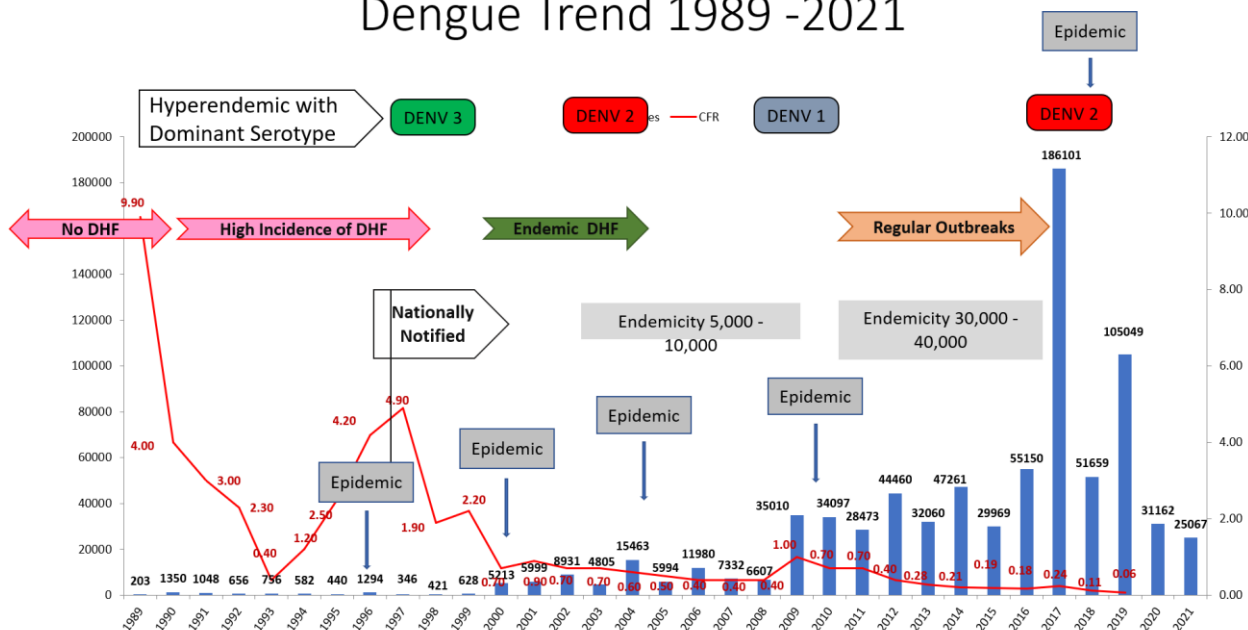
Sri Lanka has reported dengue cases since the 1960s; seasonal epidemics predominantly affect areas that have annual rainfall >2,500 mm. However, until 1988, the more severe form of dengue virus infection, dengue hemorrhagic fever, was reported only sporadically. During 1991–2008, dengue epidemics occurred once every few years on the background of endemic transmission. A disproportionate epidemic occurred in 2009 comprising 35 008 suspected cases (incidence 170 cases per 100 000 population) and 346 deaths (case-fatality rate 1%). During 2010–2016, dengue became a major public health problem; cases increased steadily (from 28 473 in 2011 to 55 150 in 2016) throughout the country but disproportionately affected the most populated Western province. In 2017, a total of 186 101 suspected cases and 440 dengue-related deaths were reported to the Epidemiology Unit of the Ministry of Health. This number is the highest number of suspected cases reported in a single calendar year in Sri Lanka since dengue was designated a notifiable disease in 1996.

However, in 2019, the mid-year peak in reported cases was shifted to the latter half of the year with most of the cases being reported during November and December. This trend continued into early 2020 with a total of 11 607 cases reported in January 2020 which was higher than the reported cases (10 927) for the same period during 2017. Considering the high case load reported in January, it was expected that the number of dengue cases during May–September



2020 would also be high. On the contrary, the reported number of dengue cases during April-June (second quarter) 2020 dropped below the past five-year national average. Due to the complex nature of the dengue transmission dynamics, the reasons for this observed historical island-wide reduction should be interpreted with the careful analysis of the temporality of underlying drivers.

### Dengue Trend 1989 -2021



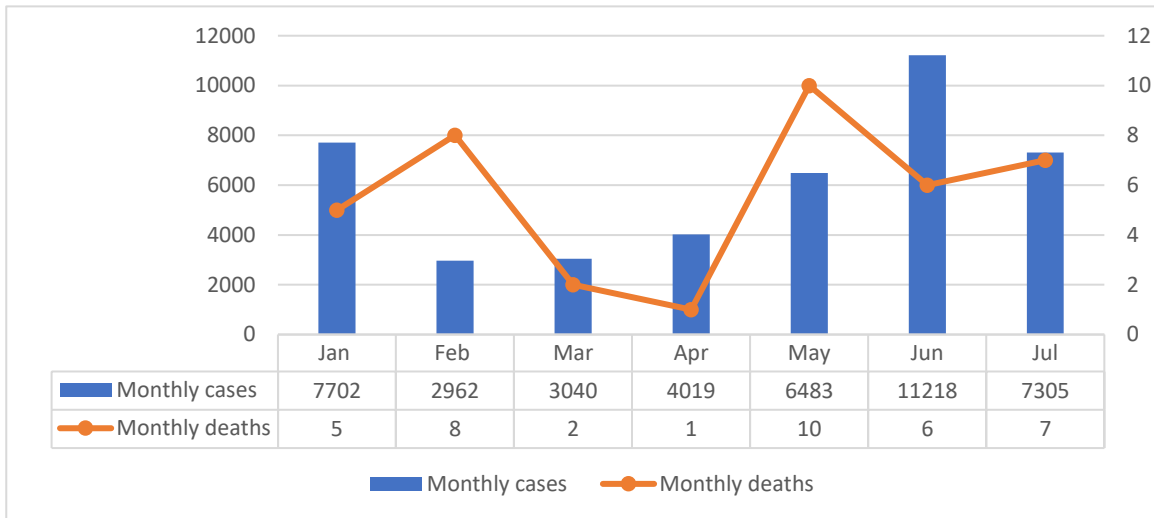
The government of Sri Lanka responded proactively to the global COVID-19 pandemic by imposing strict mobility restrictions throughout the country from March 2020. This strategy expanded from closing all schools from 12 March, declaring public holidays and imposing quarantine curfew throughout the entire island since 20 March. People were encouraged to stay at home and a working from home policy was introduced. Inter-district movements were limited only to the essential services. Complete international travel restriction was implemented from 20 March. After achieving an acceptable control of COVID-19 transmission in the country, on 11 May, the government decided to restore normalcy in life while maintaining a quarantine curfew. The curfew was completely lifted from 28 June 2020. Even during the curfew period, all health care institutions remained open and accessible to those who were in need.

The population-wide mobility restriction imposed as a response to the COVID-19 epidemic created an opportunity to evaluate the dengue epidemic before and after mobility restriction and estimate the counterfactual effect on human mobility on dengue transmission.



#### 4. Current Epidemiological situation in Sri Lanka

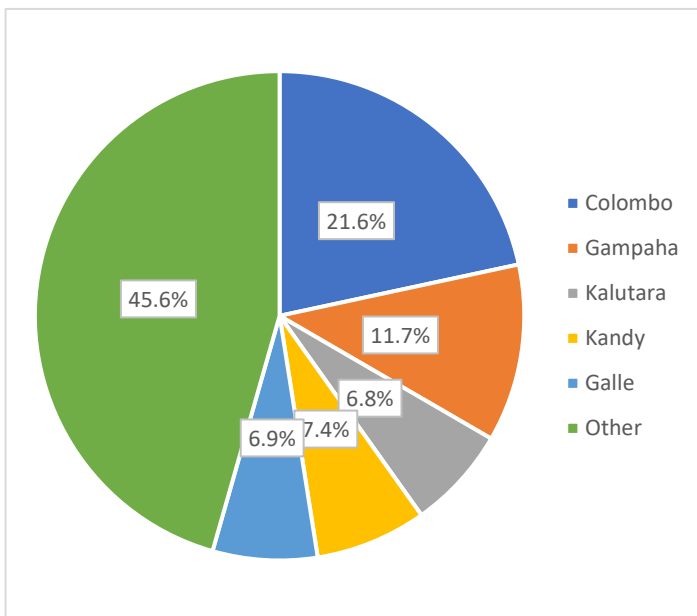
##### I. Monthly cases and deaths from Dengue in 2022



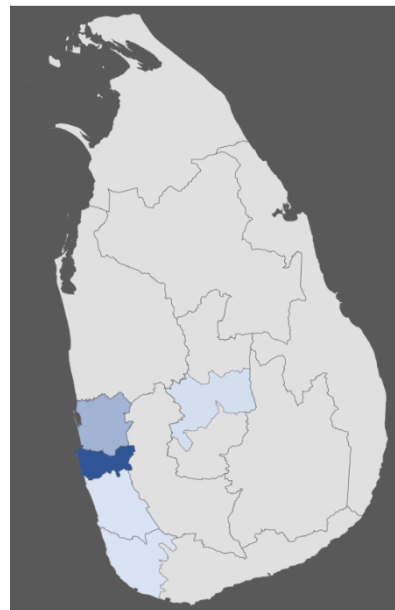
Source: National Dengue Control Unit, Ministry of Health

- A total of 42 729 cases have been reported this year as of 19 July.
- A total of 39 deaths have been reported this year with 51% being females. The case fatality rate is 0.08%.

##### II. Geographical distribution of reported cases in 2022



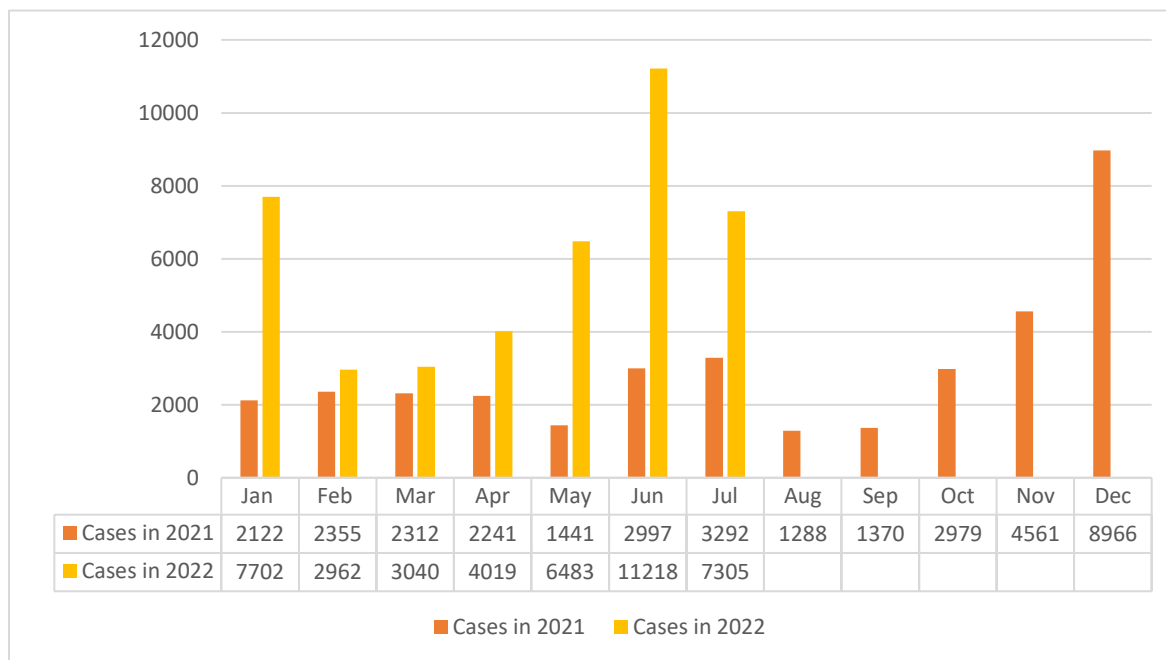
Source: Epidemiology Unit, Ministry of Health



- More than 54% of the reported cases are from five districts of the country with Colombo reporting the highest proportion of cases (21.6%).



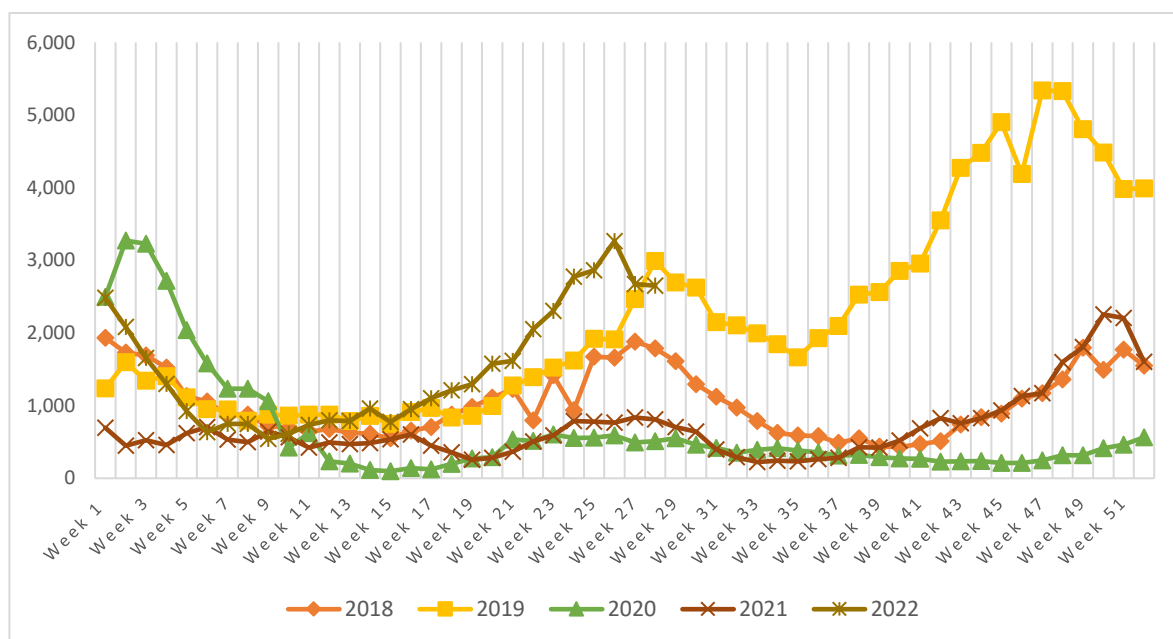
### III. Comparison of reported Dengue cases: 2021 vs 2022



- The number of Dengue cases reported each month in 2022 is higher than in 2021
- The total number cases in 2021 at the end of week 28 was only 15 476.

Source: National Dengue Control Unit, Ministry of Health

### IV. Weekly trend analysis: 2018 - 2022



- 2022 has recorded the highest mid-year peak noted during the past five years

Source: National Dengue Control Unit, Ministry of Health



### V. Special Mosquito Control Week 2022

Premise	No. of premises visited	No. of potential premises	%	No. of premises with larvae	%
Houses	132,958	36,658	27.57	7,886	5.93
Schools	1,252	808	64.54	204	16.29
Other edu. institutes	401	112	27.93	37	9.23
Government Insitutes	909	326	35.86	112	12.32
Private Institutes	4,315	1,123	26.03	209	4.84
Factories	232	81	34.91	27	11.64
Construction Sites	1,530	665	43.46	147	9.61
Religious Places	2,057	938	45.60	255	12.40
Public Places	774	284	36.69	53	6.85
All the other places	1,123	320	28.50	40	3.56
<b>Total</b>	<b>145,551</b>	<b>41,315</b>	<b>28.39</b>	<b>8,970</b>	<b>6.16</b>

- Premise inspections have revealed that more than 10% of the schools, government institutions, religious places and factories inspected were found to have breeding sites with larvae.

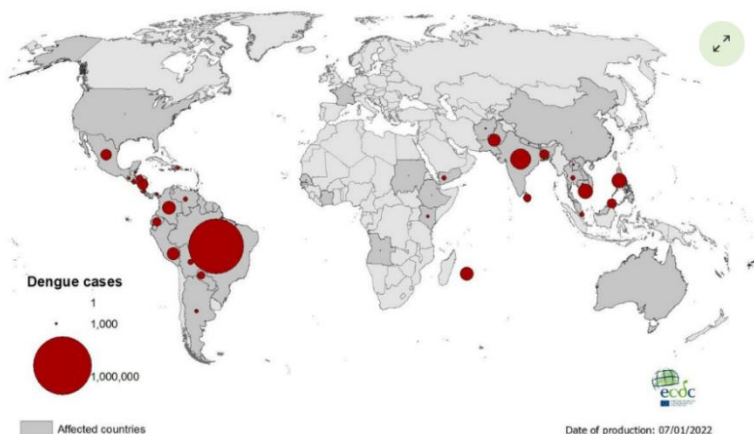
### VI. WHO support

- WHO has been vigilantly monitoring the dengue situation in the country and considering the surge in dengue cases in many high-risk districts, WHO partnered with Ministry of Health to support the outbreak response activities through urgent clinical management training, premises inspection, and procurement of insecticides for vector control purposes, which would facilitate dengue control to avoid significant outbreaks with the South-East monsoonal rains. The benefits of the above support are received by 14.6 million persons in 10 high risk districts.
- WHO Sri Lanka has also been actively engaged in providing technical assistance for assessment of hospital preparedness for dengue, hands-on capacity building exercises for clinical management of dengue and entomological reviews of dengue vector. WHO is also supporting research and evidence generation to better understand the disease and strengthen prevention and control in future.

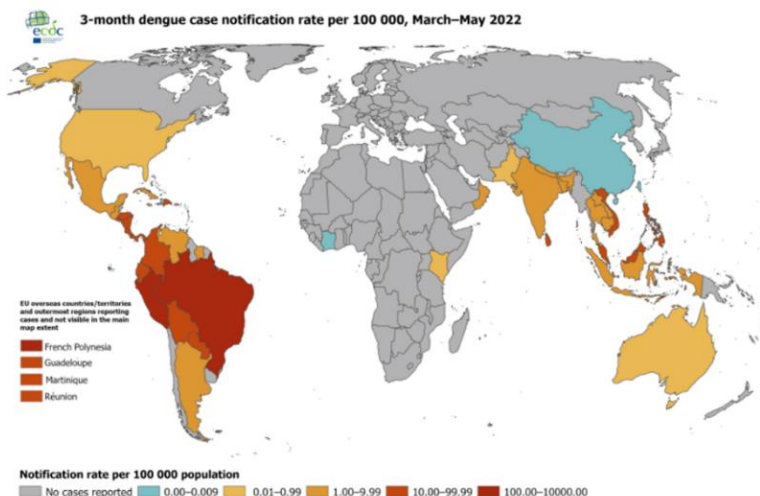


### 5. Global situation

- The below figures indicate the incidence of dengue globally in 2021 and 2022



Geographical distribution of dengue cases reported worldwide, 2021 (Source: European Centre for Disease Prevention and Control)



Three-month dengue case notification rate per 100 000, March – May 2022 (Source: European Centre for Disease Prevention and Control)

### References

- Severe Dengue Epidemic, Sri Lanka, 2017  
*Hasitha A. Tissera, corresponding author Bernard D.W. Jayamanne, Rajendra Raut, Sakunthala M.D. Janaki, Yesim Tozan, Preshila C. Samaraweera, Prasad Liyanage, Azhar Ghouse, Chaturaka Rodrigo, Aravinda M. de Silva, and Sumadhyha D. Fernando*
- The impact of COVID-19 lockdown on dengue transmission in Sri Lanka; A natural experiment for understanding the influence of human mobility  
*Prasad Liyanage, Joacim Rocklöv, Hasitha Aravinda Tissera*