DENGUE UPDATE
(Ending Week 31, 06th August 2017)

Since December 2015, the Seychelles has been experiencing an outbreak of Dengue with over 3679 reported suspected cases by the end of the 31st week of 2017. Amongst the 3679 suspected cases, 2862 were tested by the laboratory of which 1295 tested positive for dengue, an overall case detection of 45%.

There has been a significant increase in the number of confirmed cases from week 16 in 2016 onwards with a peak (161 cases) in week 24 followed by reduction in the number of cases from week 25 onwards. Since January 2017 onwards, there was the second wave of the epidemic with an increase in the number of cases reported confirming the sustained transmission of the virus in the population (Figure 1).

Figure 1

Epidemic Curve of Suspected Dengue cases by week number, Seychelles, 2015 - week 31, 2017(n=3679).

Since January 2017 a total of 1712 suspected cases has been reported. Amongst 1169 samples tested, 470 where confirmed positive, a case detection of 40%. There was a significant increase in the number of suspected cases reported from week 18 with the maximum number of cases reported in week 19 (107 cases) followed by a reduction from week 21 onwards, however there was a second smaller peak in week 23. Generally, since week 24 of 2017 we have seen a decline in the number of suspected cases reported to date.
Generally, there has been a reduction in the number of positive cases confirmed by the laboratory since week 23 (see Figure 2) which is due to change from exhaustive surveillance to sentinel surveillance, whereby less samples are tested. However, comparing the positivity rates over time, we can confirm a decrease in positivity for the past six week (see Figure 3) which might suggest a decrease in dengue circulation in the general population.

**Figure 2**

Epidemic curve of Dengue cases by laboratory confirmation, from 2015 - week 31, 2017, Seychelles

**Figure 3**

Positivity rate amongst samples tested by week number, from 2015 - week 29, 2017, Seychelles
The cases are distributed all over Mahe, Praslin and La Digue with Anse Royale being the district being most affected with an overall Attack Rate of 67.30/1000 population followed by English River and Pointe Larue with an AR at 63.42 and 62.87/1000 population respectively since the beginning of the epidemic. Grand Anse Praslin, Plaisance and St Louis are the Districts that has been the least touched by the epidemic (Map 1 and Figure 4).

Map 1: Attack rate of suspected dengue cases by District, 2015-week 31, 2017, Seychelles

Figure 4
Since the beginning of 2017 to date, La Digue reported the highest AR at 49.41/1000 population followed by Anse Royale and Mont Fleuri at 31.11 and 27.67/1000 population respectively. Grand Anse Praslin reported the least AR at 6.70/1000 population (see Map 2).

Map 2: Attack rate of suspected dengue cases by District for 2017, Seychelles
A closer look at the past three weeks (week 29 to 31, 2017), Mont Fleuri reported the highest attack rate by district at 3.41/1000 population followed by English River and Anse Aux Pins at 2.52 and 2.50/1000 population respectively. Overall, during the past three weeks, all districts except Beau Vallon, Plaisance and Pointe Larue reported cases of dengue. (See Map 3).

Map 3: Attack rate of suspected dengue cases by District from week 29 to 31, 2017, Seychelles
For week 31 alone, 22 suspected cases were reported distributed all over Mahe sparing the inner islands.

**Map 3: suspected dengue cases by District from week 31, 2017, Seychelles**

Regionally, the Western region has been the most affected with an overall AR of 50.46/1000 population followed by Southern and Central Region with an AR of 44.81 and 41.99/1000 population respectively since the beginning of the epidemic. The Inner Islands has been the least affected by the epidemic (Figure 5) since the beginning to date. During the past few weeks there has been a significant decrease in dengue reported in all regions (Figure 6-10) which signifies decrease in overall dengue circulation.

**Figure 5**

*Attack Rate of suspected Dengue cases by Region, from 2015 - week 31, 2017, Seychelles*
Figure 6

Attack Rate of suspected Dengue cases by week number for the Central Region, from 2015 - week 31, 2017, Seychelles

Figure 7

Attack Rate of suspected Dengue cases by week number for the East Region, from 2015 - week 31, 2017, Seychelles

Figure 8

Attack Rate of suspected Dengue cases by week number for the Inner Islands, from 2015 - week 31, 2017, Seychelles
Figure 9

**Attack Rate of suspected Dengue cases by week number for the North Region, from 2015 - week 31, 2017, Seychelles**

Figure 10

**Attack Rate of suspected Dengue cases by week number for the South Region, from 2015 - week 31, 2017, Seychelles**
All ages and both sex has been affected by the epidemic, age ranging from 7 Months to 101 years old, with 76% (2791) of the cases being less than 40 years. Being above 40 years seems to have a protective effect may be due to previous epidemic of dengue in 1977 and 1978 whereby nearly 80% of the population was affected. (Figure 11).

**Figure 11**

Number of suspected Dengue cases by Age, from 2015 - week 28, 2017, Seychelles (n=3608)

Note that 71 suspected cases had the value of age missing.

**Figure 12**

Attack rate of suspected Dengue cases by Age groups, 2015 - week 31, 2017, Seychelles

The age group of 15-19 years is the most affected with an AR of 106.29/1000 population followed by the 20-24 and 25-29 years with an AR of 95.27 and 63.16/1000 population respectively. The age group 0-4 years and 60-64 years has been the least affected during the epidemic with an AR of 13.94 and 14.05 respectively (Figure 12).
Males has been more predominantly affected by the epidemic representing 60% (2212 cases) and females 40% (1467). In all the age groups males has been predominant except in 60-64 years old where female was slightly more predominant (Figure 13).

Since the start of the epidemic more than 376 suspected dengue cases has been admitted to the Paediatric ward, Male Medical and Female Medical ward at the Seychelles hospital representing 10% of the total number of suspected dengue cases. Male medical ward reported the highest percentage of admission at 6% (227 cases), followed by Female medical ward and Paediatric ward at 0.4 % (15 cases) and 3.6 % (132 cases) respectively of all the dengue cases (Figure 14).
Phylogenetic analysis conducted by the Center for Emerging and Zoonotic Diseases, National Institute for Communicable Diseases in South Africa on 10 dengue specimens revealed that all of these 10 cases were from dengue 2 infection. Out of the 10 samples, 9 were formed a clade mostly with sequences from India, Sri Lanka, and one was an outlier which falls in a different clade with sequences from Singapore, Malaysia, Philippines and China.
Conclusion

Even though dengue is on the decrease countrywide, positive cases are still being confirmed on a weekly basis. Clearly, there is still an active ongoing dengue epidemic despite measures already in place. We need to relook at our interventions because this epidemic has protracted over nearly two years period. New research such as vector competence to transmit dengue, virulence of the circulating genetic variants, possible insecticide resistance are just a few areas needing further evaluation in order for us to better understand this current epidemic and to be better prepared for future ones.

Dengue Fever Reminder

Dengue virus is an arbovirus transmitted by aedes mosquitoes (both Ae. aegypti and Ae. albopictus) causing dengue fever. Dengue fever is caused by four serologically distinct, but closely related viruses: dengue virus (DENV) 1, 2, 3, and 4 of the Flaviviridae family.

Dengue fever is a severe, influenza-like illness that affects infants, young children and adults, but seldom causes death. Dengue haemorrhagic fever (DHF) is a potentially deadly complication.

There is no specific treatment for dengue, but appropriate medical care frequently saves the lives of patients with dengue haemorrhagic fever.

Infected humans are the main carriers and multipliers of the virus, serving a source of the virus for uninfected Aedes aegypti and albopictus mosquitoes which maintain the urban dengue transmission cycle. The virus circulates in the blood of infected human for 2-7 days, at approximately the same time that they have a fever. There is no evidence of person-to-person transmission.

At present, the only method of controlling or preventing dengue virus transmission is to combat the vector mosquitoes using environmental management and chemical methods.

Any person with acute febrile illness of 2-7 days duration with 2 or more of the following: headache, retro-orbital pain, muscle pain (myalgia), joint pain (arthralgia), rash, bleeding tendencies is suspected of having Dengue Fever should be seen by a medical practitioner.

Data Source: Disease Surveillance and Response Unit (DSRU), Epidemiology and Statistics Section 2017