

Source: The Straits Times, Page A3  
Date: 7 September 2020

News analysis

# Dengue super clusters, and why they are a danger

The more people infected, the higher the chance of spread to others around them



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Dengue cases, while still at an all-time high, have been tapering downwards since early last month – and may drop below 1,000 cases a week for the first time in 13 weeks. But the dengue peak season will not be over for at least another month, so people in hot spots need to be vigilant in order to break the chain of transmission and bring down numbers. To recap what has proven to be the worst dengue epidemic in Singapore's history:

- The more than 28,000 cases so far have already surpassed all previous annual figures.
- Not only did the number of infections this year exceed 1,000 cases a week – crossing the mark for the first time in the week of June 7 to 13 – but it also stayed above that for another 11 weeks, peaking at 1,793 in July. The largest number of weekly infections previously was 891 cases in 2014.
- It has thrown up five dengue super clusters with 300 or more people infected. The National Environment Agency (NEA) said this has happened only once before between 2013 and last year. That cluster in Choa Chu Kang, with a total of 534 people infected, lasted two months – from June 25 to Aug 25, in 2014.
- Of the 21 people – aged 25 to 92 – who have died of dengue this year, 18 worked or resided in active dengue clusters.

It is worth examining the role

clusters play in the spread of dengue.

A cluster is formed when the onset of two or more cases occur within 14 days (the maximum incubation period) and within 150m (the maximum distance the Aedes mosquito usually flies) of each other, indicating active transmission within that area.

This is why there are sometimes adjoining clusters instead of one big cluster, even though they may share a common road. The timing of the infections shows they are actually different clusters.

The biggest cluster today – in the Aljunied-Geylang, Sims Avenue area – with 375 people infected, started in February. It had 12 new cases in the past fortnight. The NEA said of the mosquito breeding found in that cluster, 54 per cent were found in homes, with two premises having multiple larvae breeding spots.

Aljunied-Hougang Town Council which oversees this area, said it “takes the dengue threat seriously and recognises that this is a matter of national concern”.

It has been working with NEA as well as its own pest control and conservancy contractors to step up inspection and fogging exercises in the area, its spokesman said.

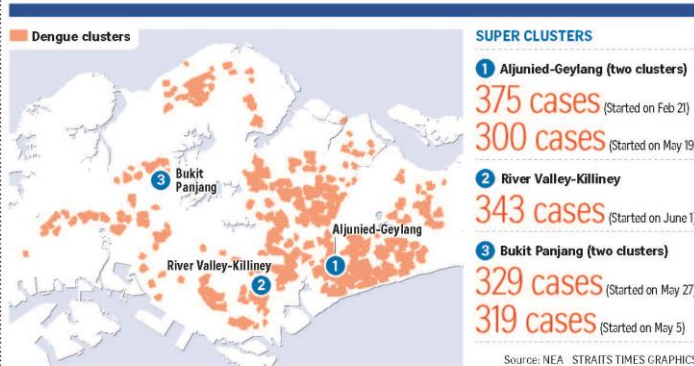
“Besides working closely with NEA on various fogging exercises in the common areas, the town council also carries out misting and residual spray of insecticides to the common corridors, staircase landings and ground floor areas.”

The other four super big clusters with more than 300 infections, started in May and June. In these super clusters, homes accounted for an alarming 45 per cent to 79 per cent of mosquito breeding.

Tanjong Pagar Town Council, which oversees the area of the second-biggest cluster with 343 people infected, said it has been working with the NEA on various measures, including cleaning and oiling drains, cutting grass, spraying



A red alert dengue banner at a bus stop in Geylang Road early last month. It is important for people with dengue to prevent themselves from being bitten again while they remain infectious. Even someone who has been bitten but has no symptoms can still spread dengue and add to a cluster. ST PHOTO: DESMOND WEE



aerosol, fogging and inspections.

The Aedes mosquito is an “urban” mosquito that thrives in homes and built-up areas. It needs only a small amount of water to breed, and larvae can survive in the rims of pails, or discarded drink cans.

The NEA told The Straits Times that the persistence of large dengue clusters is due to “the high number of dengue cases which form a host reservoir that passes on the dengue virus when the mosquito bites them and then bites an uninfected person”. That is, the more people

infected, the higher the chance of spread to others around them.

This is why it is important for people with dengue to prevent themselves from being bitten again while they remain infectious.

Dengue is spread by the female Aedes mosquito, which picks up the virus when it bites someone who has the disease and can spread it to other humans it subsequently bites.

Associate Professor Hsu Li Yang, an infectious diseases expert with the National University of Singapore Saw Swee Hock School

**SUPER CLUSTERS**

- 1 Aljunied-Geylang (two clusters)  
375 cases (Started on Feb 21)  
300 cases (Started on May 19)
- 2 River Valley-Killiney  
343 cases (Started on June 1)
- 3 Bukit Panjang (two clusters)  
329 cases (Started on May 27)  
319 cases (Started on May 5)

Source: NEA STRAITS TIMES GRAPHICS

clusters, the incidence of mosquito breeding is high and clusters only start to close when the number of breeding (spots) we detect drop,” an NEA spokesman said.

Thus, a key strategy is to detect and destroy mosquito breeding. To encourage this, the NEA raised the penalty for repeated mosquito breeding from July 15.

From a flat fine of \$200 for households found breeding mosquitoes, the fine has gone up to \$300 for a second offence, or if the place has more than one breeding spot; and \$400 if it is more serious. Subsequent offences can see offenders hauled to court, where they may face a fine of up to \$5,000, three months’ jail, or both.

The agency warned: “We are still in the peak dengue season, and weekly cases can continue to remain high beyond October if mosquito prevention measures are not sustained by all stakeholders.”

Besides checking for breeding, it also advised people living in dengue corners to spray insecticide in dark corners of their homes, apply insect repellent regularly and wear long-sleeved tops and long pants.

The NEA said that about 85 per cent of the 2,392 dengue clusters reported this year closed by Sept 1. But there are still 326 active clusters, of which 26 are big clusters with more than 100 people infected.

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