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Dengue danger lurking outside

Transmission spot not at home or the workplace but at places in between

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KUALA LUMPUR: Contrary to popular belief, dengue infection is less likely to be contracted at home or at the workplace, but somewhere in between.

Former Association of Environmental Health (MAEH) vice-president S. Veeramohan said the dengue epicentre, a common transmission spot, is usually not in homes or offices/schools but elsewhere.

Veeramohan feels the government needs to target active epicentres of dengue infection more than homes and offices if it wants to bring down the alarming number of dengue cases in the country.

"To trace the epicentre, health authorities need to interview patients to find out the day dengue symptoms start and gauge when they are infected and trace the common route the various patients have taken.

"Once we establish the epicentre, we can eliminate it and end the transmission," said Veeramohan, who was an environmental health officer with the Health Ministry for 35 years before retiring in 2014.

His postulation is based on the study "Epidemiological aspects of an outbreak of dengue fever/dengue haemorrhagic fever in Singapore" (Southeast Asian J. Trop. Med. Public Health, 1987 Sep;18(3):295-302) by Singaporean epidemiologists/researchers Prof Dr Goh Kee Tai and four others which revealed that the outbreak (260 cases) in Singapore from April to September in 1986 originated from three separate foci of transmission – at the western, south-eastern and north-eastern parts of the island – and spread to other dengue receptive urban and sub-urban areas.

Veeramohan also said researchers have also found low incidence of infection among infants and the infirm in residential hotspot areas and this strengthened the hypothesis that infection is "being acquired



Dangerous situation: Sungai Rasah in Shah Alam littered with bottles and rubbish, causing the river to stagnate and mosquitoes to breed.

away from home" as suggested by seroepidemiological studies in Singapore by Goh KT, et al., 1998.

He said this was the best possible explanation to why many dengue clusters and hotspots, which are mostly in residential areas, still accumulate cases and remained as hotspots, with many persisting for more than 100 days, despite fumigation and mosquito breeding sites destroyed in residential areas.

The Health Ministry's key performance index (KPI) on epidemic management is for all outbreaks to be controlled within 14 days, he said.

An outbreak occurs if there are more than one case in 14 days within 200m of each other. If it persists with more cases, it is an active cluster,

and if still uncontrolled after 30 days, it is a hotspot.

"I believe that mobility mapping to identify the location of realtime and potential epicentres is necessary for interrupting secondary transmission and eliminate the so-called 'hotspots'," he said.

Working with the MAEH, this strategy was successfully applied in places like Sitiawan and Seri Iskandar in Perak. In Kuala Lumpur, Setapak was the first area chosen for a pilot study in 2007.

In the three pilot areas, there was a "consistent absence of hotspots lasting more than 30 days" which resulted in a consistent drop in annual cases for at least three consecutive years, with Setapak reporting only 103 cases in 2013 as com-

pared to 2,431 cases in 2006 before the start of the pilot.

"The most encouraging results were obtained after the Kuala Lumpur City Hall (DBKL) Vector control teams were briefed in late August 2014, which resulted in a consistent drop and absence of hotspots for 63 consecutive weeks in 2014," he said.

The strategy also paid dividends in Lembah Pantai where the vector team traced the epicentre to the open spaces outside of the Seputeh-Pantai Dalam area where the residents walk to the commuter station in Kerinchi; they found the Aedes larvae breeding in discarded litter in overgrown vegetation.

"We did larviciding and within two weeks, there were no more

new cases in Lembah Pantai residential areas," he said, adding that with the same approach, the team got rid of "hotspots" in Kepong, Batu Caves, Wangsa Maju and Setiawangsa.

"This outcome proves that the proper identification and elimination of transmission sources in the urban outdoors resulted in sustained interruption of local transmission," he said.

However, the projects ended following a leadership change in DBKL in 2015. This is why Veeramohan is urging the current government to adopt this approach again.

Last year, Malaysia reported a total of 130,101 dengue cases with 182 deaths from January to Dec 28 last year, the highest ever for the country. The spike in dengue cases were also reported in many neighbouring countries.

Veeramohan said Malaysia has reported a high incidence of dengue fatalities in the Asian region second only to the Philippines.

"If we can control outbreaks as early as possible, we can definitely save lives," he added.

World Health Organisation Collaborating Centre for Arbovirus Reference and Research director Prof Dr Sazaly Abu Bakar said Malaysia needs a "higher resolution surveillance" that target specifics and find out the route that patients travelled, rather than just observing "clusters".

"The current approach is to go by locality, and this is very "low resolution" because we look at clusters.

"We need to know the route individual patients take to find out when and where they were exposed," he said.

He said technology could be used to overcome shortage of manpower to get the information.

For instance, in Taiwan, the government distributes an app for patients to key in the information and the Health Ministry gathers the information and has a system that analyses the data.