

Battling the dengue menace

A Health Department worker at a dengue hot spot in Shah Alam. The 'Dengue Free Malaysia Movement', with the Sultan of Selangor as its patron, is laudable initiative deserving broad-based support



Dr Hezri Adnan

A DEADLY KILLER: Collective action urgently needed

MOSQUITO means "a small fly" in Spanish and Portuguese. Because it is small, it is all too usual to think that a mosquito is also simple. Nothing could be further from the truth.

The late Andrew Spielman, a renowned Harvard specialist in tropical diseases aptly described the mosquito as a "self-serving creature", so small and yet so selfish. Unlike ants and worms, mosquitoes do not aerate the soil, neither are they important pollinators of plants like the bee.

Each mosquito is equipped with everything that is required for the continuity of more than its 3500 known species. They have been around for over 160 million years and adapted well to practically every habitat on Earth from the Equator to the Arctic.

During their pre-adult stage, mosquito larvae are able to exploit almost any type of water, be they natural ponds and swamps or human creations such as irrigation canals. This is proof of its evolutionary ingenuity and a weapon to plague mankind for centuries with more than 100 fatal diseases including malaria, dengue, yellow fever, and filariasis. So deadly that mosquitoes kill one person every 12 seconds.

Mosquito-borne dengue was first described in 1780 by the Philadelphia physician Benjamin Rush during an epidemic killing thousands in his city. Once a sporadic illness, dengue is now on the rise. Before 1970, only nine countries experienced severe dengue epidemics, today the disease is found in more than 100 countries, putting more than 2.5 billion people or over 40 per cent of the world's population at risk

Apart from the tropical 'belt', dengue has recently been reported in Japan, China, Portugal and in the United States of America. The World Health Organisation (WHO) estimates that as many as 50 to 100 million people are infected annually. A 2013 modelling study published in *Nature* points to a figure as high as 390 million infections per year, about three times WHO's estimate in 2009.

Spread by the bite of the female *Aedes aegypti* mosquito which breeds in stagnant water, dengue is caused by four Flavivirus strains. Those infected develop high fever and joint pain so painful it is sometimes referred to as "breakbone fever". It can leave patients to be bedridden for weeks.

Since the first reported case in Malaysia in 1901, Malaysia used to only suffer major dengue outbreaks once or twice a decade for instance with peaks in 1974, 1978, 1982 and 1990. But

since 1991, it has had yearly outbreaks with increasing severity.

The first major outbreak in 1973 recorded only 1,487 cases whereas until April 2015, the number of incidence is a whopping 33,425 cases with Selangor as the main hot spot followed by Penang. This has prompted the Centre for Disease Prevention and Control (CDC) to issue a travelling notice for Americans travelling to the country.

The ecology of dengue was dramatically altered by Malaysia's rapid pace of urbanisation. Aedes mosquitoes breed both in poor and rich households, indoor and around houses. Our water storage practices and our embarrassing habit to litter contribute to Aedes aegypti breeding success. The WHO describes dengue as a "manmade problem related to human behaviour".

Current efforts to curb dengue transmission by the Ministry of Health focus' on the vector, using combinations of chemical and biological targeting of Aedes mosquitoes and management of breeding sites. This has involved spraying with insecticides and outlawing of open water containers and litter which can collect water. Genetically modified RIDL (Release of Insects with Dominant Lethal) mosquitoes had also been released in Malaysia by Oxitec (Oxford Insect Technologies). The ministry is also exploring the possibility of using anti-mosquito wall paint.

But all efforts to date are in vain as dengue continues to kill more Malaysians. Indeed, the dengue menace is a societal threat requiring nothing short of a social movement to address it. The responsibility to fight dengue is beyond the jurisdiction of the Ministry of Health alone. It is no longer a public health problem but instead a wicked public policy problem. A strong political backing from all is now called for.

History reminds us that the tiny beast was strong enough to wipe out half an 80,000-strong Roman army during operations in Scotland. Even Genghis Khan was not spared the same fate when his soldiers succumbed to malaria brought by mosquitoes, to the effect of stopping their relentless drive west. When the French tried to reconquer Haiti in 1802 more soldiers were killed by mosquitoes than by rebels. Out of a force of 29,000 only 6,000 survived.

The "Dengue Free Malaysia Movement", with the Sultan of Selangor as its patron, is a laudable initiative deserving broad-based support. The rakyat may contribute by mobilising mass gotong royong to clean the breeding grounds of mosquitoes. This calls upon town planners and federal and state decision-makers to bring land use into public health policy. They may approach development by shifting away from only identifying specific risk factors and look "upstream" to underlying land-use determinants of dengue outbreaks. The private sector, on its part, could begin to identify and foster business models that are supportive of the battle against dengue.

One question remains though. Would fighting dengue be a noble enough cause to bring the warring political parties to work together for the common good of all Malaysians?

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