

Legislation for Control of Dengue in Singapore

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Abstract

In Singapore, three pieces of legislation, namely, the Infectious Diseases Act (IDA), the Control of Vectors and Pesticides Act (CVPA) and the Environmental Public Health Act (EPHA) provide very wide powers to prevent and control dengue. They prescribe hefty penalties against offenders for failure to comply with the laws. Despite that, the experience showed that it was inadequate to rely only on legislation to control dengue. It is more effective to make the community understand, through communication, the importance of preventing mosquito-breeding within their premises and assist them to have a proper system to do so. Through working with various agencies, much better long-term cooperation and results can be achieved than through enforcement of law. Legislation can be used in emergency situations like disease outbreak or when dealing with recalcitrant offenders.

Keywords: Dengue, legislation, control, community participation, Singapore.

Introduction

In Singapore, three pieces of legislation are enforced for the prevention and control of dengue; these are: the Infectious Diseases Act (IDA)⁽¹⁾; the Control of Vectors and Pesticides Act (CVPA)⁽²⁾; and the Environmental Public Health Act (EPHA)⁽³⁾.

Each of these laws deals with different aspects of dengue control. The IDA deals with notification, investigation and treatment

of dengue; the CVPA deals with vector control; and the EPHA deals with environmental sanitation and other environmental public health issues.

The Infectious Diseases Act (IDA)

Dengue fever and dengue haemorrhagic fever are notifiable as infectious diseases under the IDA. The Act requires any doctor, laboratory or anyone who has reason to

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believe or suspect a DF/DHF case to notify the Ministry of Health (MOH) and the Ministry of the Environment (ENV) within 24 hours. Such notifications are required to be sent by fax or email. The Act also requires anyone who is possibly infected to undergo medical examination, and anyone infected to be quarantined and treated.

Other powers authorized by the Act to deal with infectious diseases (dengue and others) include epidemiological surveillance, investigation, post-mortem examination and disposal of corpses, disinfection of vessels and premises, destruction of infected animals, food and water, prevention of overcrowding, prohibition to carry on business and closure of food establishment.

The Control of Vectors and Pesticides Act (CVPA)

The CVPA prohibits anyone from creating a condition favourable to the propagation of vectors. It also prohibits anyone from breeding, keeping, importing and exporting vectors without permission. It gives public health officers the following powers to prevent the propagation of vectors:

- To enter and inspect premises, vessels or aircraft with the owner/occupier's consent, or after giving at least 12 hours' notice;
- To serve an order on owner/occupier of premises to take measures within a stipulated time;
- To require the owner/occupier to carry out fogging or spraying at his own expense;

- To carry out any measure if the owner/occupier fails to do so, and to recover the costs incurred.

In practice, we do not enforce these regulations, based on mere presence of favourable conditions. Enforcement action is taken only when actual vector mosquito breeding is established. For premises with existing or foreseeable conditions for mosquito breeding, an order is served to the owner/occupier to remove or rectify the conditions. For example, orders are served to construction sites at the start of the project to ensure good housekeeping, to prevent vector breeding, and to engage pest control operators to carry out regular control; to vacant premises owners to maintain the unoccupied premises mosquito-free; and to householders to remove, maintain or repair their gutters. In an outbreak caused at a construction site, the officers can carry out emergency vector control measures within the site, and all costs incurred (manpower, chemicals, contractor's cost) are charged to the construction site.

Currently, the fines for all types of premises (except construction sites) found breeding mosquitoes is S\$200. In the case of construction sites, they are fined S\$ 1,000 for mosquito breeding found the first time at their sites, and S\$2,000 for the second time. For subsequent offences, they will go to the court, where they can be fined up to S\$ 10,000 and/or 6 months' jail. If anyone served with an order fails to comply with it, he will be fined S\$ 2,000 for the first offence, S\$ 4,000 for the second, and S\$ 5,000 for the third offence. He goes to the

court for subsequent offences and can be fined up to S\$50,000 and/or 6 months' jail.

The Environmental Public Health Act (EPHA)

The EPHA deals with many aspects of environmental public health. The parts relevant to dengue prevention pertain to: (i) public cleansing; (ii) public nuisances, and (iii) insanitary premises.

Is legislation the solution?

The purpose of legislation is to ensure compliance with advices/messages to speed up behavioural changes. However, it alone is not the solution. The message should be internalized and people motivated to act in the desired way by themselves, instead of through the fear of enforcement. To illustrate this point, we use the case of the IDA, which requires doctors to notify ENV on any DF/DHF case. To comply strictly with the law, the doctor would need to take blood sample from any febrile patient and send it for diagnosis in a laboratory to confirm if the patient is infected with DF/DHF. However, doctors are not prepared to take blood samples from patients because of the cost that will be passed on to the patients, until the symptoms are quite obviously DF/DHF. By this time much precious time has already been lost for control measures to be taken to prevent the transmission of the disease.

On the other hand, if doctors understand the public health importance of controlling the vectors quickly to stop transmission, they would be more motivated to take blood samples once the patients

indicate that they had fever for five or more days. The ENV has arranged with a selected group of doctors to send blood samples for diagnosis without charge. This clears the obstacles and encourages doctors to do what is necessary, not because they are required by law to do so. Similarly, householders, management of estates and management of construction sites, once motivated, could greatly contribute to the control of the disease rather than be compelled by legislation to act. When they are convinced that maintaining their premises free from mosquito breeding is beneficial to them and to the people they have a duty to protect, legislation is of secondary importance.

Nevertheless, legislation has its place in dengue control for the recalcitrant or those who pay lip service only, especially after repeated reminders and efforts to educate them. It is always useful to have a "stick" which can be used when the situation warrants it.

Community participation

Although Singapore is known for its use of legislation in dengue control, we rather play the role of facilitator and educator to work with and help various target groups to implement a system or re-design structures to prevent mosquito-breeding. Given below are some examples:

- Schools used to be a major source of mosquito-breeding and as much as 25% of cases were among schoolchildren and teenagers. We started to work with the Ministry of Education (MOE) to identify the common breeding habitats in

schools, held talks with all principals, school operations managers and senior officers from MOE on the problem and control measures, and finally convinced them of the need to carry out routine mosquito control in schools. We also advised MOE on contract specifications for mosquito control measures, and educated students and teachers on where to look for the habitats. There is now a system of regular mosquito control in all government and government-aided schools, and ENV audits the situation. The situation in schools is much improved now.

- The Housing and Development Board (HDB) changed the design of bamboo pole-holders for new flats after we highlighted to them that these holders bred mosquitoes and posed a big problem as their numbers were very large in public housing estates. The new designs in new housing estates are mosquito-proof.
- Vacant flats were also a problematic breeding source as the water closets, cisterns and gully traps and other potential habitats were not removed after the flats were vacated. We have worked out a Standard Operating Procedure (SOP) with HDB to make sure such potential habitats are treated, drained or removed when a flat becomes vacant.
- Bus shelters were provided with roof gutters. Over time, the gutters

were choked and bred mosquitoes. With our persuasion, despite the hefty cost involved, the Land Transport Authority (LTA) changed the design of bus shelters to do away with gutters. The remaining shelters with gutters are maintained regularly, and will be replaced by the new gutter-less type in phases.

- Similarly, we had worked with the Singapore Institute of Architects to convince them to design structures and houses without gutters and other structures that might become potential habitats for mosquitoes.
- ENV has also encouraged the formation of dengue prevention volunteer groups (DPVGs) amongst residents of estates. The volunteers are educated on the types of mosquito habitats in a household, and they visit houses on weekends to educate residents in turn. There are now 35 such volunteer groups.

Health education

We have always attempted to reach out to the public with messages on mosquito prevention through talks, the mass media, exhibitions, campaigns, etc. Whether the approach is one of mass outreach but low impact, or small target group but intensive, we have not been successful in sustaining the results. Most people did not remember what they had seen or heard once it was over.

There is a need to involve sociologists and behavioural scientists to understand what will make people act and continue to

act. In our public communications, there is also a need for expertise in mass communications to convey the right message across to achieve the desired perceptions or results.

Conclusion

In conclusion, it can be said that legislation is useful for dealing with recalcitrant offenders and in emergency situations to bring an outbreak under control. But it is not the solution to overcome mosquito-breeding problems. It is more effective to make the community understand the importance of mosquito prevention, and to help them put

in place a proper system for mosquito control. Side by side with legislation, there must be good, sustained public education and communications plans. Legislation should therefore be used as a tool with discretion. Blanket legislation does not work for all target groups.

References

1. The Infectious Disease Act (Chapter 137), 1 August 1977, Government of Singapore.
2. The Control of Vectors and Pesticides Act (Chapter 59) 1 September 1998, Government of Singapore.
3. The Environmental Public Health Act (Chapter 95) 1 July 1987, Government of Singapore.