National dengue control and prevention programs have endorsed community-based control programs throughout the world. Most commonly used methods in these programs are based on larval control in containers and source reduction, carried out as a “Clean up community campaign”. Source reduction is usually organized once or twice a year by the relevant authorities on a regular basis. A whole community is involved in cleaning up garbage, breeding sites of dengue mosquitoes in their houses and in public areas. Larval control in water containers, instead, relies solely on householders’ willingness to carry out control practices. Community participation in “larval control in water containers” has been frustrating and results have been unsatisfactory. This has been mainly due to the inability of the programs to sustain people’s control practices. People’s ignorance and lack of commitment in disease control are being blamed and program planners are criticized as incompetent in securing people’s attention and involvement.

Larval control in water container campaigns adopt health education as well as distributing control supplies as a main strategy. The contents of health education messages are mainly related to people’s knowledge about the harm of dengue and suggests larval control practices such as using larvicide (temephos) or fish. However, there is no strong evidence that this approach provides an effective means to control dengue. Indeed, dengue cases keep rising and outbreaks occur frequently. An evaluation of the control campaign showed that people’s knowledge is not significantly associated with control practices. Although health promotion has been successful in raising people’s awareness, this neither ensures behavioural change nor sustains people’s undertaking of control activities. Control promotions are mostly conducted during an outbreak of the disease. After the outbreak ends, the control campaigns are left as a routine task which is often carried out irregularly and this results in insufficient control of supply. After a while, people’s attention towards the disease declines.

These statements might explain to some extent the reason why community-based dengue control programs are not fully successful in getting people involved in larval control and if they do become involved, why behavioural change is not sustained. However, it is still not clear what the solutions are and what other factors we have not comprehended as yet.

In many developing countries, dengue control programs compete with resources provided for other disease control programs by the Ministry of Health. For example, limited budgets can only allow for sufficient supplies of larvicide during an outbreak. Apart from the insufficient budget, existing assessment data is insufficient to develop effective control campaigns tailored to the needs of different communities. There is a need to find a new approach to strengthen the current dengue control programs so they can allow the campaign to be effective and sustainable within the limited budget.

To carry out a dengue control program, the following is suggested. Firstly, the most productive larval containers needs to be identified; secondly, larval control methods such as covering a container with a lid, adding larvicide or releasing fish, need to be investigated as some control methods may not be effective for controlling larvae in particular containers. The combinations of control activities (eg. adding larvicide to container which should be covered with a lid) may also enhance the control effectiveness.

Thirdly, householders’ water practices are important factors supporting larval control, i.e. the frequency of use of water and the frequency of cleaning the containers affect the effectiveness of larval control. Understanding of people’s practices in households is vital to achieve behavioural changes for better larval control outcomes.
There is evidence showing that the use of larvicide is has often been incorrectly implemented. Problems in the use of larvicide are incorrect amounts being applied, incorrect methods of application being used and incorrect frequency of addition of the larvicide. Lids were used for protecting water especially drinking water but some lids were broken or ill fitting. Lids were effective for larval control only if they fit the containers. The use of fish was very effective; however fish were often kept for recreation in water plant containers, not for household water storing containers. Weekly emptying and cleaning of containers was effective for larval control, but not for large containers. This kind of information is needed as it is crucial for control planning.

To sustain the “successful” control activities is the next challenge as there is no guarantee that what worked in one situation will work in another. Close monitoring and continued motivation to maintain and improve control effectiveness are important for sustaining control practices. All of these are time- and resource consuming processes. Moreover, it requires a strong network linking people together and this may not be easy to achieve if people are isolated, independent, mobile or in conflict. Effective dengue larval control needs to be understood as a continuous action and learning process, that would allow people to be independent and to learn and try different control methods, as well as to discover the most appropriate control strategies relevant to their needs. Personal skills also needs to be developed and genuine ‘ownership’ of the control program has to be achieved by the governments.

References

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