Applying Communication-for-Behavioural-Impact (COMBI) in the Prevention and Control of Dengue in Johor Bahru, Johore, Malaysia


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Abstract

The Ministry of Health in Malaysia has used a variety of mass media interventions and community-based actions to prevent and control dengue fever in the past but with only limited success. In 2001, an innovative approach to planning and implementing social mobilization, known as Communication-for-Behavioural-Impact (COMBI), was piloted in Johor Bahru District, Johore State, with assistance from the World Health Organization. This paper provides highlights of the COMBI Plan. Results from intensive monitoring and evaluation suggest that the pilot project has contributed towards positive behavioural outcomes in Johor Bahru. COMBI has now been adopted as the national approach to social mobilization and communication for dengue fever prevention and control.

Keywords: DF/DHF control, social mobilization, COMBI, positive behavioural outcomes, national approach, Johor Bahru, Malaysia.

Country setting and background

Johore state is located at the southern end of the peninsula and shares a common boundary with Pahang and Malacca to the north. To the south, separated by the Strait of Tebrau, is the island state of Singapore. Covering an area of 18,986 km², the state of Johore is divided into eight administrative districts. The state’s capital city is Johor Bahru, the second largest city in Malaysia after Kuala Lumpur. The estimated metropolitan population in 2000 was 1,264,547 with an estimated growth of 4.2% per annum. The population growth is partially due to the influx of people from other countries and other parts of Malaysia.

Dengue fever/dengue haemorrhagic fever (DF/DHF) imposes a significant social, economic, and medical burden in Malaysia. Since 1994, the incidence of DF/DHF has
been on the rise\cite{1}. Johore state is particularly affected with the district of Johor Bahru reporting more than half of the State's cases in 2000. The Ministry of Health in Johor Bahru (MOHJB) has used a variety of mass media interventions and community-based actions to prevent and control DF/DHF in the past but with limited success\cite{2,3}. In January 2001, MOHJB decided to try a fresh approach to social mobilization and communication for dengue prevention and control in the city of Johor Bahru. The Social Mobilization and Training Team (SMT) of the World Health Organization provided technical assistance in the production of a Communication-for-Behavioural-Impact (COMBI) Strategic Plan. The pilot project was launched in August 2001 and lasted for 12 weeks. This paper provides highlights of the COMBI Plan together with results from intensive project monitoring and evaluation.

Planning innovation for dengue prevention and control

COMBI is an integrated marketing approach to social mobilization based on lessons learnt from over 100 years of consumer communication and 50 years of public health communication. The overall goal of the COMBI Plan in Johor Bahru (JB) was to: “contribute to the dramatic reduction in the incidence of dengue fever (DF) and deaths due to dengue haemorrhagic fever (DHF) in the state of Johor Bahru, Malaysia in the year 2001.” The Plan focused efforts on the achievement of three behavioural goals:

1. To prompt family members in every home in the city of JB to conduct a weekly, 30-minute Sunday inspection of their homes both inside and outside for potential mosquito larva sites over 12 weeks (August – September, 2001)

2. To prompt, in every village/community/block in JB, the formation of a Dengue Volunteer Inspection Team (DVIT) which will conduct a weekly larva site inspection of the community surroundings (not within the definition of homes) and take specific action to rid the area of these breeding sites.

3. To prompt every individual with a fever during the 12 weeks of the Plan’s implementation to presume that it is DF and to come immediately (at least within a day) to the nearest health clinic for diagnosis and treatment.

Two simple but important messages containing the desired behavioural outcomes were composed and were to be repeated over and over again throughout the 12-week campaign: (i) INSPECT YOUR HOME. GET RID OF AEDES BREEDING SITES; and (ii) IF YOU HAVE FEVER SEEK IMMEDIATE TREATMENT. A minimum budget of US$ 100,000 was agreed upon. The WHO Regional Office for the Western Pacific (WPRO), provided three-quarters of this budget with the remainder borne by the Ministry of Health.

Implementation of the new approach

The following are highlights of the integrated approach:

1. Advocacy/public relations/administrative mobilization. Advocacy and public relations activities (e.g., meetings and press conferences) rather than formal directives were applied to engage key stakeholders including local politicians.
(2) Community mobilization. (i) Dengue Volunteer Inspection Teams (DeVITs) were formed in 48 localities. Volunteers were either selected by their local community or came forward on their own accord. They were responsible for inspecting areas beyond the home such as vacant lots and community halls, and also encouraged house owners to carry out weekly house inspections. (ii) Local youths formed bicycle riding teams (D'RIDERS) to undertake promotional tours of the district each Sunday morning, accompanied by a van equipped with a public announcement system. At each location the team was greeted by the local community leaders and residents.

(3) Communication. (i) Two thousand vertical buntings measuring two by six feet were hung on the posts along selected streets of Johor Bahru. (ii) A single, two-sided self-instructional worksheet/checklist on how to deal with Aedes breeding sites at home were prepared in four major languages (Malay, Chinese, English, and Tamil). Worksheets were distributed to schoolchildren every week to take home to their parents. The worksheet encouraged families to inspect their home for mosquitoes breeding sites. (iii) Radio advertisements (30 seconds and 60 seconds) were broadcast in Malay and Chinese on four radio channels throughout the 12 weeks. The advertisements contained the two behavioural messages. Four mainstream newspapers also carried a series of half-page and quarter-page advertisements containing the two behavioural messages. (iv) Radio talk shows presented by local doctors promoted COMBI and gave listeners information on dengue. Listeners were encouraged to call in to ask questions. (v) All doctors, nurses and other staff in government clinics carried out “point-of-service promotion” by explaining the behavioural goals of the project to every patient who came to the clinic for whatever reason. Private doctors were also encouraged to do this.

Monitoring and evaluating the new approach

Project progress and impact was measured by various means. Two monitoring and evaluation processes and their associated results are worth highlighting.

(1) Pre- and Post-COMBI KAP survey. A post-intervention structured questionnaire survey was carried out at the end of the 12-week campaign with results compared against baseline data collected before the intervention. The survey used a multistage stratified sample. Respondents were either household heads or anyone over 18 years. Out of 1712 post-intervention respondents, only 926 were considered “paired” respondents i.e., they were the same respondents who were interviewed during the baseline survey. Selected results include: almost all (99%) the respondents interviewed in the post-survey claimed that they had carried out Sunday household inspections compared to 71% in the pre-survey (p<0.01). Caution is needed, however, when interpreting whether this impact can be attributed to the campaign for two reasons. First, survey responses are self-reports, not observations. Second, many of those who self-reported carrying out
household inspections had not heard specific campaign messages. Nevertheless, field reports from members of DeVITs and local health workers who monitored the activities of residents in areas assigned to them indicate that the “majority” of the residents did carry out Sunday house inspections as promoted by the campaign.

(2) **Treatment-seeking surveys.** Short questionnaires were developed to elicit responses on treatment-seeking behaviours among patients admitted and diagnosed with dengue in all government hospitals throughout Johore State. Patients admitted to Sultanah Aminah Hospital and Kulai Hospital (government hospitals serving Johor Bahru district) were considered as “cases” while those admitted in hospitals in other districts served as “controls”. It was assumed that people who resided in other districts did not have exposure to or involvement in all COMBI mobilization and communication activities. During the 12-week study period, a total of 134 patients admitted into the two government hospitals in Johor Bahru district and 146 patients admitted into government hospitals in other districts were interviewed. Patients admitted to private hospitals were not interviewed. Results show that 59% of those admitted to Johor Bahru government hospitals sought treatment within 24 hours of the onset of fever compared to 42% among those from control areas (P<0.01). Apart from “exposure to COMBI”, there were no associations between other variables and the time between onset of fever and admission to hospital. It was also noted that although the total number of cases reported in the study area did not show a dramatic reduction, there was a decline in the number of cases in areas where DeVITs were established. No decline was measured in the non-DeVIT areas.

**Lessons learned**

Many lessons have been learnt from the Johor Bahru experience. First, a small group of committed and dedicated people can plan and execute a project as well as, if not better, than a large committee. Second, communities and households will readily get involved if the behavioural targets set are reasonable and achievable. Third, sustaining the interest of the volunteers is fundamental. There were noticeable differences in areas where the volunteers are active compared to those where they were less active. Lastly, measuring behavioural impact and trying to determine the role of COMBI are not straightforward. Nevertheless, our results suggest the COMBI Plan did contribute towards positive behavioural outcomes. COMBI has now been adopted as the national approach to social mobilization and communication for dengue fever prevention and control.

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