Social Mobilization Using Strategies of Education and Communication to Prevent Dengue Fever in Bucaramanga, Colombia

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Abstract
This paper describes a dengue prevention initiative developed in the City of Bucaramanga, northeastern Colombia. The authors explain how qualitative and quantitative research, including formative research, and data analysis based on the Stages of Change Model, was used as the basis for planning of an integrated social mobilization and communication approach. The programme focused on one day a week (i.e. Thursday) when residents were to seek and destroy the sites where the Aedes aegypti mosquito might occur. On this day, communication and educational actions were used to mobilize and motivate the people. Following this approach, innovative printed materials were designed and disseminated which resulted in a massive mobilization of students, housekeepers and other publics. The programme also produced materials and a methodology of interpersonal communication that generated partnerships with the private sector and community groups. Another innovative feature included a mobile dengue exhibit with interactive educational games.

Keywords: Dengue prevention, social mobilization, behavioural change.

Country setting and background
A dengue prevention initiative was developed in the city of Bucaramanga, capital of the Department of Santander, northeastern Colombia. Bucaramanga is situated 1,000 metres above sea level with an average annual temperature of 24 °C and relative humidity ranging from 65% to 100%. The city has a population of 500,000, residing in 100,000 premises.

In 1991, Colombia reported its first case of dengue hemorrhagic fever (DHF) [1]. The following year the Department of Santander reported 2,034 cases of dengue and 342 cases of DHF. The number of reported cases of dengue increased in subsequent years, in 1997, 456 cases of DHF and 16,345 of dengue were reported.

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Most (85%) of cases in the Department were reported from Bucaramanga and the adjacent metropolitan area. In 1998 the number of dengue and DHF cases increased to 22,934 and 874, respectively[2].

Until 1997, the Dengue Control Programme in Bucaramanga was operated mainly by the Secretary of Health of the City, with the Malaria Eradication Service (under the national Ministry of Health, Bogota). There were interactions with the Department of Santander’s Secretary of Education and private enterprise but limited financial resources were provided for social mobilization and communication.

Planning innovation for dengue prevention and control

In 1986, the Secretary of Health of Bucaramanga began promoting activities with residents to assume responsibility to find and destroy containers that might harbour mosquito larvae around their houses, schools and workplaces as a substitute for government agents who did this work. In 1993, the Rotary Clubs of Bucaramanga-Chicamocha and San Juan, Puerto Rico, in collaboration with the Secretary of Health of Bucaramanga and staff from the Division of Vector-Borne Infectious Diseases of the US Centers for Disease Control and Prevention (CDC) submitted a 3-H (Health, Hunger and Humanity) grant proposal to the Rotary Foundation. This request was approved in 1998 to continue strengthening the Dengue Prevention Programme previously established in Bucaramanga, and this year a new phase of the programme began. Funds from the Rotary Foundation were used to finance mass media communications, educational materials and equipment. The CDC provided additional financial support. As a result of this external support, an agreement was signed between the Secretary of Health of Bucaramanga and the Tres-H Corporation of the Rotary Club of Bucaramanga-Chicamocha to promote dengue prevention. The initial phase of the programme was for three years but was later extended to five.

The main goal of the new programme is to prevent dengue fever epidemics and DHF through educational and communication strategies encouraging citizens to locate and eliminate Aedes aegypti breeding sites in residences, workplaces and schools. Formative research was first conducted to gain information on residents’ current behaviour patterns in reducing Aedes vector breeding sites. A qualitative investigation utilizing 100 personal interviews with housewives was undertaken with consideration for the socioeconomic distribution of residents in Bucaramanga. The ‘Stages of Change Model’ was used to classify housewives’ behaviours in identifying and eliminating containers with Ae. aegypti. The Stages of Change Model classifies individuals according to where they fall in the behaviour change process: (i) pre-contemplation – the person is not thinking of changing his or her behaviour (21% of housewives were in this stage); (ii) contemplation – the person begins to think about the action (50% were in this stage); (iii) preparation – the person plans to change the behaviour; (iv) action – the person implements the plan to change the
behaviour (29% in this stage); and (v) maintenance - the person continues to practice the new behaviour\cite{3}. Stratified focus groups also investigated the housewives’ perception of the Dengue Prevention Programme in Bucaramanga.

The research showed it would be necessary to continue to monitor the housewives in the action stage and aim to elevate them to the maintenance stage. This research also confirmed that the target audience for the communication and educational actions are mainly housewives, as they deal directly with most of the containers where immature Ae. aegypti are present. However, the programme found that other segments of the public (i.e., children, fathers, and others) can help housewives promote and generate a healthy environment.

**Implementing the new approach**

Students in Colombia are required to perform community service before graduating from high school. Building on this service, educational materials such as books, manuals and videos were designed specifically for school-age students. Students receive 20 hours training on conducting visits and interacting with householders. Eleventh grade students are then mobilized to visit 20%-30% of the premises of Bucaramanga twice a year. To help the students in their household visits and face-to-face communication, specific educational materials were designed to serve as a reminder for residents about the two main sources of the Ae. aegypti mosquito.

In 2003, the programme had the same budget and personnel as in previous years and was faced with the challenge of needing to involve more people so a massive, multi-faceted and creative social mobilization effort was developed. The main target group was housewives but it was necessary to direct the message to other groups in order to generate massive social mobilization. Each intervention was carefully planned and implemented and the impact on the behaviour of each group, including the target group, was measured. A key part involved one day a week as the focal point for concentrating the communication and educational actions with a slogan “On Thursday, YOU CAN put the “tatequito” (stop) to Dengue” (in Spanish it rhymes). The slogan demonstrated what action was being promoted and was included in an innovative mix of mass media strategies. A new, short approach for face-to-face communication by students was designed and incorporated a reminder for residents to focus on the two or three main places where the mosquito occurred. A sticker was placed on the walls of the “pilas” (concrete washbasins) as a reminder of their responsibility to eliminate mosquito breeding. An attempt was made to create a healthy environment by involving more segments of the public than just housewives. The last component of the new programme, and perhaps the one with most impact, involved two kinds of calendars. One was put in public buildings, stores, and supermarkets and the other was designed for all students throughout the city. The other calendar was tailored to students in grades 1 to 5 and, with a slightly different design, to grades 6 to 11.
The calendars were distributed to teachers who quickly learned how to use it. Every Thursday, in around 500 classrooms across the city, nearly 200,000 students spent 5 to 10 minutes learning in a humorous way how to “Put the tatequieto (stop) to dengue.”

Prior to selecting the radio stations for the prevention programme, listenership surveys were conducted by companies specializing in this activity, in order to learn which stations our target audience listened to. Every Thursday morning, announcers on the selected radio stations in the city talked about “How to put the (tatequieto) stop to dengue” using a communication strategy called social modeling. Every week, we sent the announcers the message that was to be used that week. With that, they were free to use their own words to transmit the message. Many announcers assimilated the messages and continued promoting them Thursday for a year without being paid to do so. Before and after the announcer shared each message, a theme song identifying it as a dengue prevention message was played. All materials and messages were pre-tested with a sample of individuals from the target audience (e.g., children, teachers and housewives).

A key feature of this new initiative is an interactive exhibit on dengue prevention (a 24m long x 3m tall, mosquito-shaped tent). Through interactive games, visitors can learn about dengue fever, vector control methods and how to identify and eliminate or control containers with *Ae. aegypti*. Another innovative component has been the annual “Dengue Prevention Day” in which interested groups and individuals from Bucaramanga and other cities in Colombia share their dengue prevention experiences. Individuals and institutions participating in the programme are recognized for their efforts in dengue prevention. Students give theatre, songs, puppet and others shows and the interactive exhibit is placed in Bucaramanga’s main plaza.

**Monitoring and evaluating the new approach**

The calendars for the students were evaluated 8 months after they were distributed. It was found that 94% of the teachers and 96% of the students knew about the calendar and 88% of the teachers and 77% of the students used it. The impact on households of messages broadcast on radio from 2002–2003 was evaluated. Twenty-seven percent of the people recognized Thursday as Dengue Prevention Day and the same percentage knew about and practiced specific actions to look for and control *Ae. aegypti* breeding sites on Thursday.

A sample of elementary school students’ homes participating in the initiative was visited and the *Ae. aegypti* House Index was established before and after the intervention. This procedure was also followed at the schools. In all cases, the number of houses and schools with immature *Ae. aegypti* was fewer in the post-intervention evaluation compared to the pre-intervention survey. To monitor behavioural impact among housewives and the rest of the population, the House Index was measured every three months. Results showed the index decreased from 18% in 1998 to 5% in 2003.
Lessons learned

The three most important lessons learned from experiences in Bucaramanga City are: (i) communication objectives should be based on results from research that combine appropriate qualitative and quantitative methods; (ii) it is necessary to generate a critical mass of committed persons acting in different roles to prevent dengue; and (iii) to develop a behaviour change project, it is necessary to have at least three years of continuous work before any significant changes are observed.

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References

[2] Secretary of Health, Department of Santander.