

NEgociación de PRÁcticas Mejoradas – NEPRAM (Negotiation of Improved Practices): The Development of a National Behaviour Change Strategy for Community-based Prevention of Dengue Fever in the Dominican Republic

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Abstract

Social scientists working with the national dengue programme in the Dominican Republic developed NEPRAM as a research method and as a behaviour change strategy. As a formative research tool, NEPRAM is a form of behavioural trial that emphasizes negotiation with householders who act as programme consultants on more than one behavioural option, in this case, two novel uses of household bleach. As an implementation process, NEPRAM involves communities and health planners in the joint development of effective and feasible behaviour change interventions through negotiation and continuous feedback, in this case, through individualized home visits by volunteer members of community groups and organizations.

Keywords: DF/DHF, NEPRAM, communities, health planner, behaviour change, Dominican Republic.

Country setting and background

"We are a small opening between the sea and the sky 500 years later; an ignited race, black, white and taino, but who discovered whom?"^[1]

This is how a contemporary poet and vocalist describes the Dominican Republic

(DR) where Christopher Columbus landed first when he discovered America, roughly 500 years ago. Today, the abundant natural beauty and a rich history and culture make the DR a top international tourist destination.

Santo Domingo is known for its deficiencies in the water supply system. Out in the interior, newly established communities tend to lack any kind of

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services, water included. As a result, water collection and storage is a daily household routine. Fifty-five-gallon drums are the most frequently used storage containers, found in virtually every home of the popular classes.

Dengue is endemic with epidemic peaks typically occurring every 2-3 years, causing classical dengue and a variable number of dengue haemorrhagic fever^[2]. In 1998 *Aedes aegypti* infestation indices were as high as 50% (House Index) and over 95 (Breteau Index) in major urban areas. That same year, the government launched an expensive anti-dengue mass media campaign, in addition to ultra-low volume spraying activities and clean-up campaigns. In retrospect, the effort lacked an overarching behavioural focus and promoted inadequate or unrealistic practices.

Hurricane Georges struck in September 1998 and was largely responsible for the impetus to innovate dengue prevention, as it caused further destruction of the water infrastructure and an increased need for water storage by the new homeless. The US Congress responded with an emergency relief fund. An interagency group was formed to oversee the new initiative.

Planning and implementing innovation for dengue prevention and control

The decision was made to focus on drums, because they were most frequently found infested with mosquitoes and no feasible and effective practice existed at the time to protect them from *Aedes*.

Planning began with formative research, conducted intermittently between March 1999 and March 2000, in Santo Domingo

and Hato Mayor. The study focused on drum management behaviours that would build on existing practices, prove efficacious in the entomology lab, and resonate with local people as feasible. First, in-depth interviews were conducted to better understand household knowledge, perception of dengue risk, and water sources, storage, maintenance, and use. Water container cleaning practices were documented by structured observation. Key findings included: maintaining clean stored water was of high priority for families; obstacles to thorough cleaning included lack of drains to vacate water, and inability to tilt let alone turn over these heavy containers; bleach, on the other hand, was widely available and commonly used in drum cleaning, as well as sprinkled into the freshly refilled water as a sterilizing agent.

Bleach mixed with detergent and dabbed directly on egg-infested drum walls had demonstrated ovicidal properties in earlier studies in Honduras^[3]. Given the extreme scarcity of water in the DR and the need to thoroughly rinse the container to remove any residual detergent, the idea arose to experiment with bleach only, as a means of *Aedes* control. Trials conducted at the entomology laboratory found that bleach alone, when applied directly on the walls of infested drums and left for 15 minutes before washing off, caused very few eggs to hatch afterwards. Regular bleach treatment of eggs deposited at various water levels would eventually destroy all or most egg rings, before they had a chance to hatch.

Two efficacious behaviours were identified for a behavioural trial by NEPRAM with a small number of community members acting as the programme's consultants. One was a complete dabbing of straight bleach directly on the entire walls,

pouring some on the bottom of the empty drum, and waiting 15 minutes before refilling. When the drum could not be emptied for a thorough cleaning, householders would dab straight bleach on the exposed walls of the drum, above the water level only, rather than the entire wall. It was important that either type of bleach dabbing be practiced once a week. More important than the adherence to the ideal or complete cleaning was the adherence to a weekly frequency.

During the NEPRAM trials, the candidate behaviours were introduced as part of a negotiation process. A researcher visited a subset of the original study households and invited the householder to try the candidate behaviours as a way to improve water-related hygiene rather than strictly for dengue control. The householder was asked to be a consultant in trying the new behaviours and judge whether they were as feasible or as effective in a real life setting. The researcher discussed impressions, difficulties, and perceived advantages and disadvantages for each behaviour during return visits and negotiated solutions with the family.

Monitoring and evaluating the new approach

The results of the NEPRAM trials were positive: people thought that the behaviours were reasonable; they actually said that each one had its role, depending on the situation. The promotion of these behaviours then, complete with modifications and community-generated problem solving, became part of the new strategy for drum maintenance. Though not originally conceptualized as an intervention approach but rather a research approach to develop

interventions, the very process of introducing the prevention options by negotiation with households was also integrated into the new strategy.

The next step was to test the behavioural and negotiation strategies in a small-scale trial in the urban community of Herrera, in Santo Domingo. A two-month intervention that included an interpersonal and a media component was implemented in 2000. Negotiation was extended to community groups and organizations which in turn conducted negotiation home visits. Interestingly, these volunteers spontaneously coined the dengue strategy as NEPRAM, so the term came to mean an implementation process as well. Despite some limitations in the interpretation of the evaluation findings, these seem to indicate that the subgroup of people who had had a chance to try the new behaviours out, had fewer infested drums.

The NEPRAM strategy was later implemented in several other provinces and, to date, continues to be part of the national dengue prevention and control strategy in the DR.

Lessons learned

One way to ensure behaviour change is to base prevention and control activities upon existing practices, while offering people behavioural choices. Through the process of negotiation, householders become programme consultants. If needed, promising behaviours should be tested for entomological efficacy. Ideally, a link should be made between recommended behaviours and locally perceived priorities which may not necessarily be dengue. And finally, in this case, negotiation was transformed from a formative research tool

into a social mobilization and communication approach to build alliances and strengthen interpersonal communication during household visits. These tools and approaches are now disseminated and implemented in other country settings.

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