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Changing community behaviour: experience from three African countries

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In the developing world, more than 1 billion people lack access to safe water. To address this problem, the US Centers for Disease Control and Prevention developed the Safe Water System (SWS), a household-based intervention with three elements: water disinfection, safe storage and behaviour change techniques, and tested these in three countries. In Zambia, social marketing (SM) was used to implement the SWS, and 100 randomly selected households also received motivational interviewing (MI). In Madagascar, the SWS was implemented using SM and community mobilisation (CM). In rural Western Kenya, the SWS was also implemented with SM and CM. In Zambia, 3 months after the SM project launch, 14% of households in the SM-only group had adopted the disinfectant compared with 78% of households in the SM plus MI group. Through SM, over 1 million bottles of disinfectant were sold in 3 years in Zambia. In Antananarivo, Madagascar, 6 months after launch of the water disinfectant, 8% of households in an early stage of the CM process were using the disinfectant compared with 20% in households at a late stage of the CM process. In 1 year, over 500,000 bottles of disinfectant were sold in Madagascar. In Kenya, adoption of the water disinfectant exceeded 60% in intervention households and diarrhoea rates decreased by 58% in children < 5 years. Social marketing permits widespread dissemination of interventions, but may have limited penetration into economically disadvantaged communities. Additional, targeted interventions, such as MI and CM, can increase product adoption. A combination of behaviour change interventions can increase project impact.

Keywords: Safe Water System; behaviour change; social marketing; community mobilisation; motivational interviewing; disinfectant; diarrhoea.

Introduction

This paper will cover projects in three African countries that have used several combinations of behaviour change to motivate the adoption of a safe water intervention at the household level to prevent diarrhoeal diseases. The intervention, which is called the Safe Water System (SWS), was developed to bridge the gap that exists between those who have safe water and those who do not. The intervention has three elements. The first is water disinfection with sodium hypochlorite solution, usually produced locally, the second is safe storage in narrow-mouthed containers with a lid and spigot, and the third includes behaviour change methods, such as social marketing and community mobilisation.

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This intervention has been evaluated extensively in the field and shown to improve water quality and to prevent diarrhoeal diseases (Quick *et al*. 1996, 1999, 2002; Semenza 1998; Luby *et al*. 2001; Reller 2001). As the idea was approached of scaling up the project it was realised that the issue of behaviour change had to be addressed so as to enable an intervention to be implemented on a large scale.

Using a computer analogy, the SWS has two hardware elements – adding a chemical disinfectant and altering traditional water storage practices. Adoption of these new interventions requires new behaviours, which can be visualised using this analogy as the software. As is well known, a computer will not function without software, and this can be reflected in the same way with any public health intervention. Thus, the approach to behaviour change impacts the potential success of a project.

There are a number of factors influencing behaviour change. The first category is made up of people who are hygiene conscious in the Unilever model (Y. Jain, unpublished data) or innovators and early adopters in Everett Rogers' model (Rogers 1995). This is a very small proportion of the population. The second larger group is made up of cynics according to Unilever or the sceptics according to Everett Rogers – the people who really need the intervention to be proven to them before they choose whether to adopt it. This is the vast majority of people in most societies. The third group is made up of the 'fatalists' in the Unilever model and the 'laggards' in the Everett Rogers model. These are the people who maybe feel that their poor health is predestined and are very difficult to convince otherwise (Table 1).

Several other factors influence behaviour change in developing countries. Poverty limits access of a population to a given intervention, and cultures and customs may limit the acceptability of an intervention. Poor infrastructure influences the adoption of changing behaviours because, for example, poor roads limit access to interventions, and the lack of electricity creates constraints in communications limiting access to information. Poor education also provides a barrier to accessing information.

Certain trigger events also influence behaviour change. These can include the onset of rains (which increases the perceived risk of diarrhoea), the introduction of a newborn child into the household (which induces protective instincts of mothers), or the need to care for a sick person.

Methods of behavioural change

Methods used for changing behaviour in SWS projects include social marketing, motivational interviewing and community mobilisation.

Table 1. Categories of product adopters

Hindustan-Unilever	*Everett Rodgers*	*Approximate proportion of given population (%)*
Hygiene conscious	Innovators Early adopters	5–15%
Cynics	Early majority Late majority (sceptics)	65–85%
Fatalists	Laggards	10–20%

Social marketing

Social marketing is the use of marketing techniques to promote socially useful products in order to change behaviour through generation of demand for products. There are four 'p's' in social marketing that can be used to describe it. The 'product' should be high quality and attractive; the 'price' should be affordable and permit at least partial cost recovery; the 'promotion' is the use of information, education and communication to generate demand, and the final 'p' is 'placement', which describes widespread distribution to sales outlets for easy access. Social marketing has been chosen as the main implementation approach because it rapidly and effectively disseminates the SWS products.

To provide an example of social marketing of the SWS, water disinfectant 'products' are sold in 250 to 500 ml bottles in several countries. In Zambia, the price for boiling 20 litres of water is approximately 600 kwacha (US$0.12), which is a fairly high price. The price for using the chlorine disinfectant that Population Services International (PSI), a social marketing non-governmental organisation (NGO), is marketing in Zambia is only 10 kwacha (US$0.002) per day, i.e., 1/60th of the price. Typical promotional activities used in western Kenya by Co-operative for Assistance and Relief Everywhere (CARE) to socially market their water disinfectant product include street theatre, a giant dancing chlorine bottle and sponsored football tournaments. Finally, placement is exemplified by the presence of the water disinfectant solution being sold in local stores and kiosks.

Motivational interviewing

The second intervention is motivational interviewing, which is theory-based and incorporates decision theory, motivational psychology and the stages of change theory. It involves the use of simple counselling techniques, including listening, reflecting back certain themes and eliciting from the client their own arguments for change. This is done so that the client realises the need for change.

Community mobilisation

The third intervention used extensively is community mobilisation. It involves training community members in the technology and reasons for its use. There is also active community participation in research, planning, implementation and monitoring, so that the community develops a commitment to the project and a sense of ownership.

Zambian field trial

The first field trials of behaviour change methods were held in Zambia and involved PSI as the implementing agency. The implementation strategy was social marketing, an intervention to which everyone was exposed. The experimental behaviour change strategy was motivational interviewing conducted by the Medical University of South Carolina, USA. The product was water disinfectant with the brand name Clorin. The indicator behaviours were Clorin brand name recognition, and the purchase and correct use of Clorin. The evaluation population included one hundred intervention households, which were exposed to motivational interviewing and social marketing, and one hundred control households, which received social marketing only. Baseline and follow-up surveys were conducted during which the presence of chlorine residuals in stored water was determined as an objective measure of adherence to recommendations to purchase and use Clorin.

The results showed that brand name recognition in the social marketing only group scored an impressive 85% 3 months after the launch of the project. In the motivational interviewing group brand name recognition was 100%. Reported use of Clorin was 36% in the comparison group and 99% in the social marketing/motivational interviewing group. The observed use of Clorin, that is, the percentage of households with detectable free chlorine residuals in stored water, was 14% in the comparison group and 78% in the social marketing/motivational interviewing group. This finding suggested that social marketing alone was successful in encouraging the early adopters, whereas the addition of motivational interviewing incorporated a much broader population, which included the cynics and sceptics.

Behaviour change triggers were also a factor in the Clorin project in Zambia. A major cholera epidemic occurred in the country in January 1999. Clorin, which was launched in October 1998, was used as a primary outbreak response measure for this epidemic. In response to the contributions of this product in controlling the outbreak, the US Agency for International Development (USAID) funded a national expansion of the Clorin project. Clorin sales data collected by PSI showed relatively slow sales in the first 3 months of the project in three peri-urban communities, followed by a sudden increase in demand for the product generated by the cholera outbreak in early 1999. During the dry season in mid-1999, a reduced demand for Clorin was noted, followed by accelerated demand during the rainy season, when the perceived risk of cholera was high. This trend was repeated in the following 2 years. In 2001 alone, PSI sold more than one million bottles of Clorin in Zambia (Fig. 1).

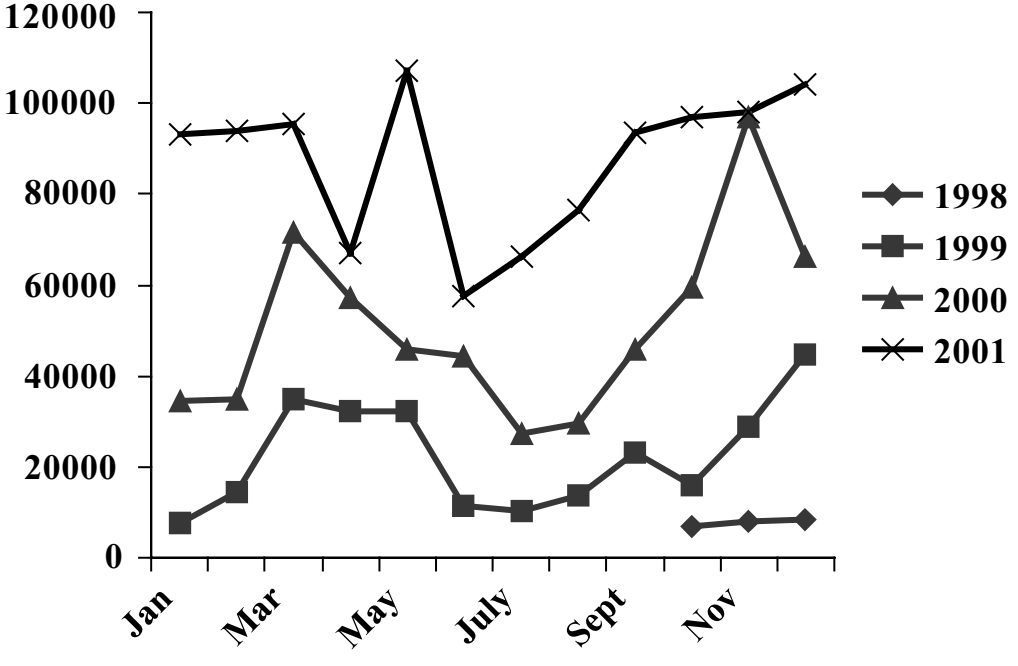

Fig. 1. Sales of Clorin in Zambia by month and year.

Madagascar field trial

In 2000, the Centers for Disease Control and Prevention (CDC) conducted a field trial of behaviour change interventions in Antananarivo, Madagascar, in co-operation with CARE and PSI. The product was a disinfectant solution with the brand name Sûr'Eau. The implementation strategy was social marketing, which, as in Zambia, everyone was exposed to. Within the project population, 30 urban neighbourhoods were selected to receive the additional strategy of community mobilisation through CARE. The indicator behaviours were Sûr'Eau brand name recognition, and the purchase and correct use of Sûr'Eau.

A population-based survey was performed 3 months after the launch of the project, which included measurement of free chlorine residuals in stored water to monitor use of Sûr'Eau. The results showed that in the social marketing only group and the community mobilisation group brand name recognition was more than 90%. The observed use of Sûr'Eau, as measured by free chlorine residuals, was 20% in the community mobilisation group, compared with 11% in the social marketing only group.

Behaviour change triggers also influenced product adoption in Madagascar. The project was scheduled to be launched in July 2000, but because of a cholera outbreak in January 2000, the actual launch was rescheduled to March 2000. Between February and April 2000 three cyclones devastated eastern Madagascar, creating enormous demand for Sûr'Eau (Dunston 2001; Mong 2001). USAID funded a national expansion of Sûr'Eau, again in recognition of the role it played in these emergencies. The demand for the product was very high from the beginning of the project because of the cholera outbreak (Fig. 2). Demand surged in the dry season because of the cyclone response and then decreased towards the end of the dry season. In the second

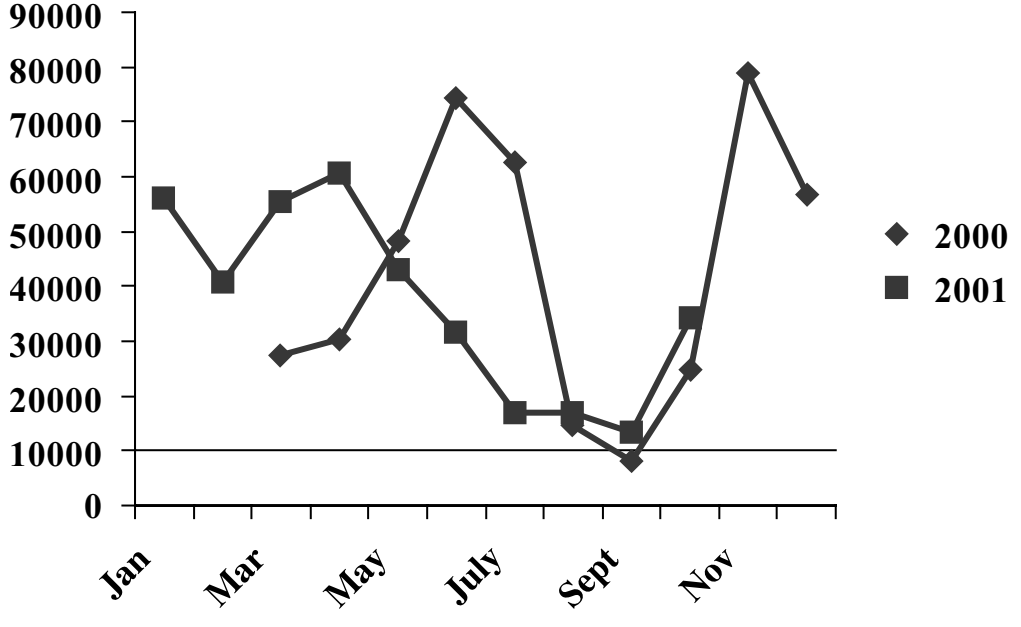

Fig. 2. Sales of Sûr'Eau in Madagascar by month and year.

year, demand and sales remained high, and then waned sooner during the dry season, reflecting the absence of demand-stimulating events such as the cyclones of the preceding year. Sales data for the last 2 months of 2001 were not yet available at the time of publication of this paper.

Kenya field trial

A third field trial of behaviour change interventions was conducted in rural villages in western provinces of Kenya. Project partners were CARE and CDC. The disinfectant product was given the brand name Klorin. The implementation strategy included a combined approach of social marketing and community mobilisation.

Formative research showed that this population, which had been using clay pots for literally thousands of years, preferred not to use plastic containers for water storage. Therefore, a local women's pottery collective was organised to modify clay pots for safer storage, adding a narrow mouth, lid and spigot. An agreement was made with them to produce the pots for the local population. At the time of this evaluation, nearly a fifth of the population in this region had purchased modified pots (Makutsa 2001).

Obstacles to product adoption were addressed through the community mobilisation process. Some people complained of the taste and smell of chlorine, but the CARE staff worked with the local community leaders to successfully convince the local population that a slight chlorine taste or smell equated to safe water. There was also a misguided belief that chlorine was a contraceptive or that it lowered libido. Again, the CARE staff convinced the population otherwise by pointing out that there were high numbers of pregnant women and babies in Nairobi, where tap water is chlorinated. Clearly libido was not a problem there.

An evaluation was conducted to measure the acceptability and the health impact of the SWS in 12 intervention villages and six comparison villages. Active diarrhoea surveillance was carried out in children under 5 years of age, through 8 weekly home visits, during which the principal caregiver was asked about diarrhoea episodes in the preceding 7 days. Klorin use was monitored through measurement of free chlorine residuals in stored water.

Evaluation results showed that in the intervention group the percentage of households with detectable free chlorine residuals ranged from 37% to 64% (Quick, unpublished data). The risk of diarrhoea in children in the intervention group was less than half the risk of the children in the comparison group (Quick, unpublished data).

Conclusion

Social marketing is a very effective tool for disseminating product awareness, motivating those individuals who are hygiene conscious and early adopters to test promising new products, creating access to these inexpensive products, and enabling a response to behaviour change triggers, such as natural disasters and disease outbreaks. Motivational interviewing and community mobilisation prod some of the sceptics or cynics to consider product adoption and thereby enhance the effect of social marketing.

Based on these findings, the current model for implementing the SWS is to use social marketing to generate demand and create widespread access to products, and to use community mobilisation and motivational interviewing in target communities, motivating SWS use by the cynics/sceptics through peer influence and by enhancing the effect of behaviour change triggers. Encouraging the adoption of the SWS will ultimately lead to a lower incidence of diarrhoeal diseases.

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