
Insecticide-treated nets and treatment service: a trial using public and private sector channels in rural United Republic of Tanzania

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The Rotary Net Initiative, implemented in Kilombero District, southern United Republic of Tanzania, allowed us to explore different sales channels for the distribution of insecticide-treated nets (ITNs) and the insecticide treatment service in a rural area of very high malaria transmission. Several types of ITNs were promoted and sold through different channels in the public and private sector, i.e. hospital pharmacy, mother and child health (MCH) clinic, net committee, village health workers and retail shops. The ITNs were sold for US\$ 5.0–9.2, with profit margins of 9–16%. Net treatment cost US\$ 0.33, with commission fees of 75%. Net transport and treatment were partially subsidized. Some outlets established their own fund by ITN sales. Sales of nets and treatments were seasonal, and certain net types were preferred. Demand for insecticide treatment was generally low. Changes in net coverage were assessed in two villages. A range of outlet features were compared qualitatively. Our experience supports suggestions that ITN technology should be delivered through MCH care services and demonstrates that specific promotion and innovation are necessary to achieve substantial net treatment levels. A large-scale ITN project in the same area and other ITN studies should lead to better understanding of ITN implementation at the population level.

Introduction

Use of insecticide-treated nets (ITNs) as a public health intervention appears on the agenda of an increasing number of governments and organizations. This is due to the beneficial effects of ITNs on child mortality and morbidity, the scarcity of other effective tools for the prevention of malaria, and the high failure rate of malaria chemotherapy. ITNs represent an attractive essential health intervention for countries where malaria contributes substantially to the demand for health services. Cost-effectiveness of ITNs for children under 5 years of age was recently estimated at US\$ 14 per disability-adjusted life year (DALY), assuming ITN distribution through public health services and 50% compliance (1).

There is a flourishing private sector for mosquito nets, as illustrated by a recent directory of the main suppliers (2). However, transport and sales channels of factory-made nets, handmade nets, and netting material are largely unreported in the health literature. To some extent, the private sector has been able to distribute nets into rural areas in some

countries. Although insecticide for public health use is available at the national level, local markets have not developed. Two recent reviews provide comprehensive information and critical considerations concerning the operational experiences of ITN schemes and programmes (3, 4).

The Ministry of Health of the United Republic of Tanzania endorses the use of ITNs as a household preventive intervention in its national guidelines for community-based malaria control, and ITNs have a prominent place in the action plan for the coming years. Various projects have sold ITNs in the country to date, e.g. the UNICEF Child Survival, Protection and Development (CSPD) Programme channelled ITNs through the mother and child health (MCH) programme and gained valuable experience on logistics and revolving funds; the Bagamoyo Bednet Project assessed the capacity of “bednet committees” to promote, sell and re-treat ITNs in 13 villages (5); studies in Dar es Salaam have investigated the potential of urban treatment centres for net impregnation (J. Miller, personal communication, 1998); and the Bednet Project in Turiani explored the local production, sale and treatment of nets (Y. Smith, personal communication, 1998).

More exploration is needed in order to advise ministries of health and development agencies on ITN implementation, including net distribution channels, pricing, logistics, community demand and uptake, equity and potential participants in the implementation. The Rotary Net Initiative was

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launched in 1995, with the main goal of exploring approaches to improve local access to high-quality ITNs and insecticide treatment services in the United Republic of Tanzania. Activities were planned by the Ifakara Health Research and Development Centre (IHRDC) in collaboration with Kilombero District authorities. Funding was provided by Rotary Switzerland District 1980. The initiative enabled a comparison to be made of the public and private sectors for the introduction of ITNs and insecticide treatment services. Here we describe the approaches and achievements of the initiative through case studies of outlets of ITNs and insecticide treatment and discuss future ITN strategies.

Materials and methods

Intervention area. The Rotary Net Initiative was implemented in the town of Ifakara, United Republic of Tanzania, and in six villages to the north-east along the main road to Dar es Salaam. The communities lie at the edge of the flood plain of the Kilombero river, the largest wetland area of East Africa. Ifakara is the capital of Kilombero District, (area, 14 900 km²) and comprises 49 villages. Monsoon rains fall from December to May, leading to an average annual rainfall of 1200 mm. Mean monthly temperatures vary from 24 °C in July to 30 °C in December. Residents of the area are mainly subsistence farmers, casual farm labourers or petty traders. The estimated monthly income is around 13 000 Tanzanian shillings (TZS) (US\$ 22) (E. Lyimo, unpublished data, 1998). A notable feature is the tribal heterogeneity of the area; it is not uncommon to find 30 tribes in one village (6). Most people speak Kiswahili, and tribally nonmixed families also use their vernacular language. There are about equal proportions of Christians, Moslems and animists. The total fertility rate is 6.6, and under-5 mortality rate is 190 per 1000 live births (R. Nathan & F. Font, unpublished data, 1998).

Malaria. Malaria transmission is intense and perennial. The main vectors are *Anopheles gambiae* and *A. funestus*, and the estimated annual entomological inoculation rate is 300 (7). Mosquito densities, exposure and incidence of clinical episodes, but not *Plasmodium falciparum* prevalence, vary considerably over the year. By the age of 5 months, more than 60% of children are infected (8). The main clinical manifestation in young children is malaria-attributable anaemia, leading to an admission rate for severe anaemia in infants of 88 per 1000 per year

(9). The communities perceive malaria as a major health threat.

Health care. The government system comprises village health posts, dispensaries, health centres and the referral hospital in Ifakara. User charges are limited to the hospital, and children under 5 years of age receive care free of charge. There are also mission dispensaries and a thriving private sector (drug sellers, healers, and herbalists). Shops and kiosks play an increasing role in drug dispensing; there is often a shortage of drugs at health facilities, and distances between such facilities may be large.

Mosquito nuisance, malaria prevention and nets. Many residents protect themselves from mosquitos with coils, sprays, or smoke when mosquito populations are dense (M. Plotkin, personal communication, 1998), and also use bought or home-made nets, constructed from nylon bags or cloth. School pupils in the study area were asked to draw pictures about disease prevention: many drawings showed villagers sleeping under a net. The CSPD programme has been promoting and selling nets during health education sessions. Nets were given out free in two local villages in 1992 during a research project, and in 1996 many of these nets were still in use. A net coverage survey carried out in 1995 in a local village suggested that 17% of households already had at least one net. In March 1995, a survey in Ifakara found 12 retailers selling nets: the majority of these nets are made in the United Republic of Tanzania by Sunflag or by local tailors. Before the launch of the Rotary initiative, no ITNs were available in the area.

Nets and insecticide used in the initiative. Five types of nets were used, all made of polyester with mesh size 156. White nets with borders, denier 70 and dimensions (w × l × h) of 1.06 m × 1.82 m × 1.52 m (single round, ex-factory price US\$ 5), 1.82 m × 1.82 m × 1.52 m (double round, US\$ 5.55), 1.22 m × 1.82 m × 1.22 m (single box, US\$ 6.85), 1.82 m × 1.82 m × 1.22 m (double box, US\$ 7.40), all made by Sunflag, and green nets without borders, denier 75 and of dimensions 1.37 m × 1.82 m × 1.37 m (single box, US\$ 4.15), from Siamdutch, Thailand, were used. On average, the cost of transporting a net to Ifakara was US\$ 0.25. Nets were treated at the IHRDC with permethrin 500EC (Zeneca Public Health, Fernhurst, Surrey, England), numbered, packed in bags of 25 and stored at the IHRDC; the cost of net treatment including all materials and labour was, on average, US\$ 0.76 per net. Nets were numbered individually, and records were kept about treatment, stocks, and delivery. Net agents sold each

ITN with a receipt. Insecticide treatments were recorded by the treatment provider.

Information and promotion. Announcements in health facilities and Ifakara town were made, accompanied by leaflets, small posters, information letters, a calendar of "bednet days" and T-shirts. Investment in information and promotion was relatively small, with the main aim being to inform people of the local availability of ITNs and of a treatment service. An insert supplied with each new ITN provided information through text and pictures on proper use and re-treatment of the net and reminded customers to bring the net back when it had been washed or after 6 months to have it re-treated (two free "dips" were given per net purchase).

Results

Central structure

The coordinator of the initiative was responsible for transport arrangements, procurement and importing of nets and insecticide, storage of nets and insecticide, net treatment, packing and safe storage, and overall supervision of the implementation, finance and accounting. One project staff member assumed the role of signatory for the village-owned accounts. The project had two junior employees who carried out all the technical work and sold nets to agents at the central store and during supply trips to villages.

Outlets

Five different channels for selling nets and treatment service were explored, involving both the public sector (community-based organizations including the Ministry of Health, working on a nonprofit basis) and the private sector.

Hospital pharmacy (public sector). The St. Francis Pharmacy (SFP), adjacent to the district hospital in Ifakara, is run as a nonprofit operation by a foundation. Most customers come from the semi-urban area of Ifakara, which has approximately 60 000 residents. The outlet was opened in August 1995. Nets and treatment service were sold by an employee who was responsible for all ITN activities, including providing customer information. Nets were sold at the following prices in TZS/US\$: 3500/5.8 (single round), 4000/6.7 (double round), 5000/8.3 (single box), 5500/9.2 (double box). Full cost recovery was employed, but there was no sales commission for the ITNs. The cost of net treatment was TZS/US\$ 200/0.33. About 25% of this income was used to purchase insecticide at the central store, and 75% was kept by

SFP and used towards the salary of the ITN staff member. The SFP deposited money from the initial sale of nets in a bank account. This fund covered salary costs when income from net treatments was not sufficient.

MCH clinic (public sector). Kibaoni (6 km from Ifakara) is a peri-urban settlement of around 5000 inhabitants. The MCH clinic provides antenatal check-ups, routine weight assessments, and EPI vaccinations. This outlet opened in October 1995. Education on appropriate net use including re-treatment was done in conjunction with regularly scheduled health education sessions. Nets and treatment service were available daily. Nets were sold at the following prices (TZS/US\$): 3000/5.0 (single round), 3500/5.8 (double round), 4500/7.5 (single box), 5500/9.2 (double box). Sales commission was US\$ 0.8 per net and used for staff tea and purchase of private ITNs. Net treatment cost US\$ 0.33, and as for SFP, 25% of this was used to buy insecticide and 75% was commission. Impregnation equipment was supplied by the initiative. Staff members purchased nets at the central store, usually in bulk once per month. At the start of the project, the clinic was given a small consignment of nets, and new consignments were authorized when the full sales income was submitted to the coordinator. The payments of the first few months were then deposited in a village account at the local bank, reaching US\$ 2400 when the fund was handed over to the village. This fund is to be used for malaria activities in Kibaoni, provided the village leaders agree. A total of 100 nets were bought using this fund in July 1996 as the start-up capital for the clinic's ITN activities.

Net committee (public-private sector). Kikwawila (10–15 km north-east of Ifakara) has approximately 4900 inhabitants, scattered over about 50 km². In 1995 there was no functional health facility, and no shop selling nets. A mobile MCH clinic is conducted every month in each of the four sub-villages. Village meetings were held in order to identify net and treatment agents. Four individuals, one from each sub-village, were selected, forming the Kikwawila net committee. Two of them were village health workers (VHWs). All four started in September 1995. The committee members were trained on net treatment and received a project bicycle, treatment equipment and insecticide. As with the Kibaoni MCH staff, the committee started its activities by receiving a small consignment of nets and insecticide, and a village-owned fund was gradually established through income from the sales. A consignment of 100 nets was bought in July 1996 with some of the savings. Sales prices and commissions were the same as for the

MCH clinic. Nets and insecticide were purchased at the central store. Committee members performed their ITN activities including net treatment during MCH clinics and household visits.

VHWs (public-private sector). Kiberege (45 km from Ifakara) has around 6500 inhabitants and a high influx of visitors. There is a small dispensary, which employs two VHWs part-time; the female VHW is a trained traditional birth attendant. The ITN outlet was opened in November 1996, with the two VHWs becoming sales agents. They were each given five nets as starting capital, enough insecticide for 200 net treatments, one set of treatment equipment, and a bicycle. Nets were sold in the village or at the dispensary. Nets were always treated at the dispensary. Prices and commission for nets and treatment service were the same as at the MCH clinic. The initiative brought supplies of nets and insecticide every 2 weeks.

Retail shops (private sector). Contacts with retail shops were taken up in five villages (Signalí, Kiberege, Kisawasawa, Mang'ula A, Mang'ula B), with the aim of making ITNs and treatment service available on a stretch of about 50 km along the main road to Dar es Salaam. Shops were initially selected with regard to their size and capacity to store ITNs. Shopkeepers were informed about the initiative, and those interested in the scheme were supplied with nets and insecticide every fortnight. Sales started in December 1996, and 11 supply trips were conducted during the rainy season. A total of 25 retail shops were initially contacted, and 20 shopkeepers purchased nets on one or more occasions. Three net agents also set up a treatment service; they were

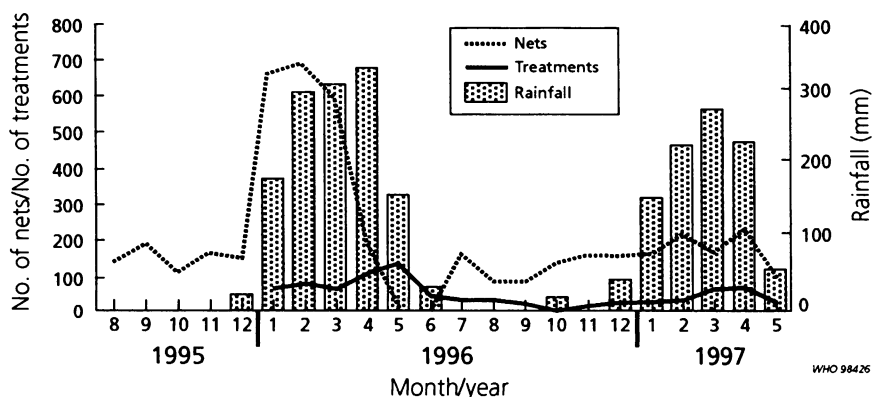
instructed on the treatment technique but had to provide the equipment themselves. The prices of nets and insecticide and sales commission were as for the MCH clinic.

Sales of ITNs and treatment service

Hospital pharmacy. During the first 21 months of net sale, a total of 4378 ITNs were sold. Net sale was highly seasonal, especially during the first year, and casual exchange with customers revealed that changes in mosquito populations had a major impact on demand and purchasing behaviour (Fig. 1). There were no nets sold during 2 months in 1996 due to a lack of stock. The most popular type of net was the single-box type, coloured white or green (42%), followed by the single-round (31%), double-round (22%) and double-box types (5%, only on sale from the 11th month onwards). About 70% of customers were from Ifakara, 25% were from other villages in the district and 5% were from other districts. A total of 652 net treatments were carried out during the first 17 months. The maximum monthly number in the first rainy season was 127 treatments, and there were 42 in the second. It is unclear to what extent promotional activities, novelty, and thriving mosquito populations each contributed to this demand for the service.

MCH clinic. In the first 16 months, the clinic sold a total of 909 ITNs; again, sales were higher during the wet months. The white and green single-box nets were most popular (52%), followed by the single-round (28%), double-round (19%) and double-box types (1%, on sale only from the 8th month on-

Fig. 1. No. of ITNs and net treatments sold by the St. Francis Pharmacy outlet in the first 22 months, and rainfall in Ifakara.



wards). During the same period, 135 nets were treated at the clinic, including 27 ITNs from the initiative which were "free dips".

Net committee. During the first 16 months of sale, a total of 453 nets were sold (36% single-box white or green, 34% double-round, 30% single-round type). The number of net treatments after 12 months was only 53, with 39 being free of charge for project nets.

VHWs. During the first 6 months, VHWs purchased 89 nets. The female VHW bought on average 11 nets and the male 5 nets per supply trip; the female VHW therefore scaled up her business starting with 5 free nets. The number of net treatments per month was always below 10.

Retail shops. During almost 6 months of fortnightly supply trips, the 20 net agents purchased 659 ITNs. Two agents in Mang'ula bought 42% of all the nets. The shopkeepers appreciated the mobile supply scheme, which saved them the trip to a wholesaler. The number of nets taken on was mainly determined by cash availability, stock of ITNs left and customers' demands. A note indicating the next supply trip appeared to increase the sales made by the mobile net agents. The three shopkeepers also doing net treatment rarely found customers. A common request from many agents was provision of advertising material.

Informal discussions with buyers and vendors of ITNs in all intervention villages suggested that the choice of a net was mainly determined by the price. This was more pronounced in the rural than in the semi-urban areas. While both white and green nets

were available, some information was also collected concerning colour preference among customers. Overall, people favoured coloured nets because the white fabrics tend to show dirt and smoke more rapidly.

Comparison of outlets

The initiative explored five different sales channels in several communities during 5–21 months. Outlet features of importance in the operationalization of ITNs which can be compared on a qualitative level are presented in Table 1. Each outlet has particular strengths. The two outlets in the public health sector target malaria high-risk groups effectively. Retail shops, pharmacies and committees as outlets depend on concomitant health education activities in order to assure effective use of the interventions. Storage of nets was a problem for the net committee and the smaller retail shops. Individuals (committee members and VHWs) were difficult to find during supply trips, compared with staff at institutions. The committee members initially suggested that the commission fee per net should be as high as US\$ 0.8. Health personnel (from the pharmacy and the MCH clinic, and the VHWs) were best motivated in being agents, presumably due to their awareness of the malaria problem, and the potential recognition obtained by offering a health tool. The staff at the MCH clinic had a novel approach to the management of the sales commission. Initially, the team used the commission for tea and snacks, but then decided to invest in private ITNs in order to have a lasting benefit. After their families were supplied with nets, the commission was saved to be split among all staff members.

Table 1: Comparison of outlets for ITNs and net treatment service

	Public ^a		Public-Private ^a		Private ^a
	Hospital pharmacy	MCH clinic	Net committee	VHWs	Retail shops
Customer encounters	+++	+++	+	++	+++
Contact with high-risk groups	+++	+++	+	++	++
Health education	+	+++	+	++	-
Storage security	+++	++	+	++	++
Ease to supply goods	+++	+++	+	+	+++
Income generation for community members	-	+	+++	++	+
Motivation for ITN activities	+++	+++	++	++	++
Net sales in the first 6 months	1952	712	453 total (113 per member)	89 total (45 per VHW)	659 total (33 per shop)
Net treatments in the first 6 months	473	102	ca. 30 (8 per member)	ca. 40 (20 per VHW)	ca. 30 (10 per treating shop)

^a - = Negligible; + = low; ++ = medium; +++ = high.

The benefit was therefore shared, since it was understood that the personnel not selling ITNs or treating nets worked on behalf of those carrying out ITN implementation.

The summary of net sales and treatments illustrates that each outlet was instrumental in making ITNs available, but had little success in the net treatment service, bearing in mind that there are many nets in these communities that could be brought for treatment. The sustainability of the outlets could not be assessed in the short time period of operation. A large amount of guidance and input was required by the net committee (meetings with the members and with the village assembly, payment of sitting allowances, bicycles and their maintenance). The committee easily became dormant during periods of low net and treatment demand and required frequent encouragement.

Resulting net coverage

The villages of Kibaoni and Kikwawila were served by the outlets of the MCH clinic and the net committee, respectively — outlets which are feasible for most rural villages in the United Republic of Tanzania. The net coverage achieved in these villages was thus assessed before the onset of the rains in March 1997, after the initiative had been operational for 16 months in each of the villages. Information on nets was sought from all households. The number of sleeping places was assessed by direct observation, and nets physically present in the houses were counted, irrespective of the condition of the net. The inhabitants of 2% of all households were not available. Data from 1643 households (98%) are shown in Table 2. The number of inhabitants per household ranged from 1 to 20, and the number of sleeping

places from 1 to 15. Coverage (proportion of sleeping places covered by a net) was similar in the two villages and averaged almost 50%. The proportion of households without any net was slightly higher in Kikwawila (37%) compared with Kibaoni (33%). Overall, 32% of households owned enough nets to cover all sleeping places.

Among the 312 Rotary ITNs in Kikwawila households, 40 (13%) had been purchased through the Kibaoni MCH clinic, and 8 (2%) of the 491 Rotary ITNs in Kibaoni households had been obtained through the Kikwawila net committee. The coverage increased slightly more in the village where the net committee was operating. The MCH clinic was successful in selling ITNs to customers from neighbouring villages: only 312 of the 909 nets were found in Kibaoni during the coverage survey. This might be due to its location at the periphery of Ifakara and in proximity to the station of the United Republic of Tanzania–Zambia railway and the powerful ITN promotion by the staff.

Conclusions

There is compelling evidence that ITNs lead to substantial reduction in child mortality in a range of transmission settings, and the inclusion of ITNs in a future “healthy house” package has been proposed (1). The implementation of large-scale malaria prevention programmes based on ITNs is complex, both for implementing agencies and communities (3, 4, 10). The Rotary Net Initiative has set a precedent for an operational outlet study in a highly malarious area. The trial demonstrates that by merely facilitating import of high-quality nets and sale through existing or new outlets, a multiplier effect can be

Table 2: Overall coverage in the two project villages

	Net committee (Kikwawila)	MCH clinic (Kibaoni)
No. households	618	1 025
No. inhabitants	3 105	5 088
No. sleeping places ^a	1 644	2 951
Total no. of nets	726	1 454
Total Rotary ITNs	312 (43) ^b	491 (34) ^b
% Households with ≥ 1 net	63 (33) ^c	67 (29) ^c
% Sleeping places with net	45 (19) ^d	50 (17) ^d
% Households newly owning a net from the initiative, i.e. “new owners”	24	19

^a Defined as a place that would be covered by a single net if installed.

^b % of all nets.

^c % with ≥ 1 Rotary ITN.

^d % with Rotary ITN, defining “coverage”.

obtained. Our experience suggests that ITN activities may employ a mix of public and private outlets in order to assure wide and permanent availability of ITNs and treatment service. The idea of complementary outlets was tested in the Gambian National Impregnated Bednet Programme, and highest impregnation coverage was attained in communities where VHWs and shops for general goods or drugs were selling insecticide concomitantly (11). The same trial also provided evidence that MCH clinics are excellent insecticide outlets to reach young children. Integration of ITN implementation into antenatal and delivery care may indeed allow intensified implementation in high-risk groups. Proper information and education on the use of the intervention, a crucial issue for high ITN community effectiveness, is likely to rely on the public sector. A study in Burundi that followed up net purchasers showed that 7–47% of all nets sold were still packed and not in use (12), which illustrates the importance of powerful and motivating customer information as part of the intervention, irrespective of the outlet. The selection of treatment agents is obviously a critical step in the intervention. In Kilombero District, most of the residents do not have experience with net treatment. There seems to be great uncertainty about the quality of the product in repelling and killing mosquitos. People might be more inclined to request the service of a trustworthy person who has a commitment in health activities. Low demand for insecticide treatment of nets has been experienced in many ITN projects, and clearly needs much stronger promotion and technical innovation (e.g. cheaper insecticide, better packaging of insecticide, netting material that is better at retaining insecticide). Currently much effort is put into product development and promotion of net treatment kits, since a home-based treatment appears to be more popular and acceptable, ultimately leading to wide uptake and use of the ITN technology. Profit margins which assure availability of the interventions also need further exploration. This particular endeavour suggests that remuneration of agents from the private and public-private sectors needs to be substantial in order to be motivating (commission for nets was 9–16% of the ITN price). Personal financial benefit of agents from the public health sector appeared less important; other aspects such as recognition may play a more important role in motivation. Van der Geest (13) claims that for VHWs, medicine selling can be a means of communication and open up an opportunity for discussing health matters. Selling nets and treatment might have similar effects, but be even more relevant to the role of VHWs, who are primarily concerned with disease prevention and healthy life. The Rotary Net Initiative has explored ways of introducing the

ITN technology in rural United Republic of Tanzania. Some of the lessons learnt are now used in the KINET project, which represents the first project at the population level addressing the effectiveness and cost-effectiveness of ITNs and insecticide distributed in a sustainable way, covering around 350 000 people living in the Kilombero valley, south-west of Ifakara. The implementation is based on a social marketing approach, and the evaluation focuses on infant and child survival. This and other activities testing community delivery systems, attained usage levels, financing models, sustainability and community effectiveness are required to advise development agencies and ministries on ITN investments and to advise communities on implementation strategies.

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Résumé

Un service de traitement insecticide des moustiquaires et de fourniture de moustiquaires traitées: essai impliquant le secteur public et le secteur privé dans une zone rurale de la République-Unie de Tanzanie

L'utilisation de moustiquaires traitées aux insecticides (MTI) se révèle extrêmement rentable dans les zones d'endémie palustre. On n'a toutefois qu'une expérience limitée des aspects opérationnels de sa mise en oeuvre. L'initiative *moustiquaires traitées* du Rotary Club a pour but de rendre les moustiquaires traitées et leur traitement insecticide plus accessibles aux habitants de la ville d'Ifakara et de six villages du district de Kilombero, dans le sud de la Tanzanie. Le présent article rend

compte de l'expérience acquise en utilisant divers circuits de vente appartenant au secteur public et au secteur privé.

La mise en oeuvre de cette initiative est assurée par le Health Research and Development Centre d'Ifakara et les Kilombero District Departments, le financement étant pris en charge par le Rotary Club de Suisse (District 1980). La zone d'expérimentation est soumise à de fortes précipitations saisonnières qui favorisent la prolifération des moustiques. Le paludisme est le principal problème sanitaire de la région. Les habitants, qui subissent quelque 300 piqûres infectantes par an, tentent de s'en protéger par divers moyens individuels, notamment des moustiquaires.

Cinq types de moustiquaires imprégnées de perméthrine sont utilisées dans le cadre de cette initiative: simple ou double, ronde ou parallélépipédique en blanc et parallélépipédique en vert. Une campagne d'information et de promotion a été organisée en utilisant divers supports: dépliants, notices, un calendrier des journées "moustiquaires traitées" et T-shirts. Cinq circuits différents de vente et de traitement ont été utilisés pendant 5 à 21 mois de cette opération: une pharmacie d'hôpital, un service de protection maternelle et infantile (SMI, secteur public), un comité des moustiquaires, deux agents sanitaires de village (secteur public et privé puisqu'il s'agit d'employés du secteur public qui se livrent à un commerce privé) et 20 détaillants de cinq villages (secteur privé). Le prix de vente des moustiquaires est de USD 5,8–9,2 à la pharmacie de l'hôpital d'Ifakara (couverture intégrale des coûts, y compris le transport et l'imprégnation, pas de commission sur les ventes) et de USD 5,0–9,2 dans tous les autres points de vente non urbains (couverture partielle des coûts, commission sur les ventes de USD 0,8 par moustiquaire). Le coût de l'imprégnation d'une moustiquaire est de USD 0,33, dont USD 0,24 de commission et le reste correspondant au prix d'achat de l'insecticide. Des bicyclettes ont été attribuées aux membres du comité et aux agents sanitaires de village. La pharmacie de l'hôpital avait déposé le produit de ses ventes antérieures de moustiquaires sur un compte bancaire qui a été utilisé pour couvrir des dépenses occasionnées par l'initiative. Deux points de vente de village (un service de protection maternelle et infantile et un comité) disposaient d'un "fond paludisme" constitué de manière analogue.

Les ventes de moustiquaires et d'imprégnations ont été saisonnières et tributaires de la manière dont la nuisance culicidienne était perçue.

Ce sont les moustiquaires simples de forme parallélépipédique qui ont eu la préférence des consommateurs. Le choix du modèle a été essentiellement dicté par le prix et les moustiquaires vertes ont attiré davantage le client que les blanches. La demande d'imprégnation est restée faible. Dans les villages dont les points de ventes étaient le service de SMI et le comité, la couverture par les moustiquaires a été évaluée au bout de 16 mois. Elle était alors de 50%, en légère augmentation dans le village où se trouvait le comité. Dans l'autre village, plus de la moitié des moustiquaires avaient quitté le village.

Dans une campagne de distribution de moustiquaires imprégnées, il est probable que des facteurs tels que l'accès aux groupes à risque, la mise en place d'une éducation sanitaire parallèle, l'innocuité des moustiquaires, leur distribution, la motivation des agents, les marges de profit, les besoins d'encadrement et la durabilité sont d'une importance capitale. Il pourrait y avoir avantage à intégrer la distribution des moustiquaires imprégnées aux services de soins prénatals et obstétricaux, mais la participation du secteur public et du secteur privé peut aussi améliorer l'accessibilité générale de ce nouveau type de service et contribuer à le faire connaître. L'utilisation de moustiquaires imprégnées suppose une action promotionnelle énergique et beaucoup d'innovation technique. Les avantages concédés aux agents doivent être étudiés plus avant. Le projet KINET, qui est en cours au sein de la population de la même région, aborde un grand nombre des problèmes posés par les moustiquaires imprégnées et, de concert avec d'autres études, il devrait permettre d'aboutir à une technologie qui rende ce moyen de protection très efficace dans les collectivités.

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