Keeping Malaria at Bay

Mosquito Nets Treated with Insecticide Are Inexpensive, Effective

PSI is enabling millions of low-income people to protect themselves from malaria by using mosquito nets treated with environmentally-safe insecticide.

Social marketing programs managed by PSI and its affiliates have sold more than three million insecticide-treated nets (ITNs) and nearly four million home insecticide re-treatment kits, which have together provided over eight million person-years of malaria protection in Africa, South America, and Asia. These programs are among the most cost-effective health interventions available — protecting individuals from malaria at a cost often less than $2 per person per year. PSI’s programs are also sustainable, motivating consumers to contribute a substantial share of the cost and stimulating the commercial sector to increase the production and distribution of ITNs.

Malaria Kills One Million Annually

Malaria kills more people in the tropics every year than any other infectious disease and impairs economic development by preventing people from engaging in productive activities. There are more than 300 million malaria cases each year resulting in at least one million deaths, mostly among children under five. Pregnant women and their unborn children are also at high risk of malaria, which increases the health risks associated with childbirth, contributing to low birth weight and maternal anemia.

Person-years of malaria protection are calculated on the assumption that a mosquito net lasts five years, an average of two people sleep under each net, treated nets provide 50% protection against malaria and untreated nets provide 25% protection.
ITNs repel and kill the mosquitoes that cause malaria, and currently offer the best opportunity for widespread sustainable malaria prevention in most endemic countries. The health impact of ITNs is well documented. ITNs have been shown to reduce malarial episodes by 50% and reduce mortality from all causes by up to 20% in Africa, where night-biting mosquitoes transmit the disease.

Despite the demonstrated efficacy of ITNs, most households in Africa—particularly lower-income households—do not own mosquito nets, leaving the vast majority of children under five unprotected. Where nets are used, they are mostly of poor quality (providing an inferior barrier against malaria-carrying mosquitoes) and very few are treated with insecticide (which doubles a net’s effectiveness in preventing malaria).

The Africa Summit to Roll Back Malaria held in Abuja, Nigeria in April 2000 set a target of 60% ITN coverage of pregnant women and infants in Africa by 2005. Achieving this target will require that 32 million ITNs be put into use each year.

Social Marketing Provides the Means
Social marketing has become an important means to deliver health products and services to low income people, and to motivate their use. PSI is the leading social marketing organization in the world, working in more than 60 countries in HIV/AIDS prevention, family planning, and maternal and child health.

As practiced by PSI, social marketing involves the promotion and sale of needed health products and services primarily through existing commercial infrastructures. A key element of successful social marketing is effective communication to encourage the adoption of appropriate health practices. This is done by brand-specific advertising as well as by generic educational campaigns, using a mix of channels, including mass media and interpersonal communication.

Social Marketing of ITNs
PSI has been a pioneer in using social marketing to introduce ITNs to consumers in Africa. PSI launched the world’s first ITN social marketing program in the Central African Republic in 1994. Today, PSI and its affiliates manage ITN projects in 18 countries in Africa, South America and Asia.

A nurse at a public health clinic in Malawi discusses ITNs and malaria prevention with a young mother.
PSI’s approach to social marketing ITNs has evolved from replication of traditional social marketing models to a more sophisticated approach that considers market contexts, inequities in access to products and information and the potential for the commercial sector to meet demand in higher income segments. PSI’s ITN strategies include promotion and distribution of branded products; partnerships with mosquito net and insecticide manufacturers to ensure efficient market segmentation and expansion of commercial markets; subsidy targeting through a range of methods that benefit the poor; and coordination with local governments so as to help them achieve national priorities.

Expanding Commercial Markets in Tanzania
In Tanzania PSI has helped stimulate the emergence of a vibrant commercial trade in mosquito nets through large-scale advertising, and advocacy for reduced taxes and tariffs on ITN products and raw materials. Now in its third phase, funded by the U.K. Department for International Development (DFID) and the Royal Netherlands Embassy, the project is breaking new ground through a unique relationship with the commercial sector to increase access to ITNs and bundle all ITN brands in Tanzania with the Ngao re-treatment kit.

The main thrust of this phase is to increase the penetration of the manufacturers’ “net-kits” into under-served rural markets. PSI will be providing incentive-based marketing and distribution support to the Tanzanian net manufacturers. With assistance from DFID and the Tanzanian Ministry of Health’s ITN Cell, the team has already achieved one of the main aims of the three-year project — commitment from all of the Tanzanian net manufacturers to bundle their domestic production with PSI’s re-treatment kits, the first time this has been achieved anywhere in the world.

Meanwhile, the Ngao name is rapidly becoming synonymous with a social movement involving the Ministry of Health, donors, non-governmental organizations, the research community, net and insecticide manufacturers and the commercial trade in the fight against malaria.

Creating a Net Culture in Kenya
In Kenya, DFID has contracted PSI for an intensive five-year effort to stimulate the emergence of a mosquito “net culture.” Launched in early 2002, the program has rapidly scaled up the commercial trade in ITNs by introducing a heavily promoted social marketing brand to what had been a fragmented, under-developed ITN market.

The project has sold more than 500,000 ITNs through commercial channels (at commercial prices that are slightly higher than Tanzania) in less than a year. This represents a substantial increase over the pre-existing commercial sales. The project has also sold 250,000 re-treatment kits at subsidized prices. PSI was able to scale-up its program rapidly by building on an existing social marketing platform with strong relationships with government, the commercial trade, local NGOs and marketing agencies.

The project will increasingly focus on the significant challenges of expanding retail access in rural areas and reaching the poor. To address these challenges, PSI is introducing a lower-priced product in rural areas through partnerships with local entrepreneurs who receive support to start up ITN-selling kiosks. PSI is also exploring with the Kenyan Ministry of Health the introduction of a voucher system to further increase consumer demand among the poor and vulnerable while expanding commercial distribution networks.
Over the long term, the project will provide a significant boost to the unsubsidized commercial trade in ITNs by building consumer awareness, increasing demand, and developing distribution networks that extend into rural areas where most Kenyans live. PSI works closely with Kenyan mosquito net manufacturers to minimize “crowding out” in the short term. Part of the project’s procurement of mosquito nets is reserved for local manufacturers, and subsidized re-treatment kits are made available and sold packaged with local brands. PSI is also developing and airing promotional spots in collaboration with the commercial firms that package their nets with re-treatment kits.

**Reaching High-Risk Groups in Malawi**

In Malawi – which has virtually no commercial market for ITNs – PSI is supported by the U.S. Agency for International Development and UNICEF to work with the public sector to segment the ITN market by selling two different ITNs at different prices through different outlets to different target groups. PSI sells blue conical ITNs through commercial sector channels at a cost-recovery price, and green rectangular ITNs through public sector antenatal clinics to pregnant women and caretakers of children under five at a heavily subsidized price (less than US$ 1.50). Having started in one district in 1998, the project will expand to national scale in 2003.

As it is in much of Africa, antenatal clinic (ANC) attendance is high in Malawi at over 90%. As a distribution outlet, antenatal clinics provide the opportunity to target price subsidies to those most at risk of malaria — pregnant women and infants. Furthermore, district-level ANCs complement the supply of ITNs through the otherwise limited number of rural commercial outlets, which tend to stock fewer nets on account of the high capital costs and lower turnover relative to other products. The project invests heavily in training to improve nurses’ capacity to promote ITNs to pregnant women during consultation.

Resale of subsidized products at higher prices on the open market (called “leakage”) is a significant risk. Working with public sector health management teams, PSI has virtually eliminated leakage through training of clinic staff and frequent follow up. Nurses stamp registration cards of pregnant women and children under five thus limiting distribution to one ITN per eligible person. A team visits each clinic every month to restock nets (according to the number sold), collect cash (leaving an incentive payment for the nurses), monitor record keeping, and provide ITN promotion support.

Project sales have increased each year, exceeding 170,000 in 2001 and 350,000 in 2002. Population-based surveys indicate that from 1998 to 2000 household ownership of nets in Blantyre district increased from 13% to 44% in urban areas, and from 5% to 15% in rural areas. Other critical knowledge indicators have also increased: 50% of respondents reported mosquito nets as the best way to prevent malaria (up from 12%); 82% had heard of treating nets (up from 3%); and 77% stated malaria transmission as the principal threat from mosquitoes (up from 12%).

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**ITN programs are cost-efficient.**

In contrast to other NGO ITN projects where costs can range from $15 to $50 per net delivered, PSI’s average cost per net delivered in 2001 was roughly $6. This represents the full donor cost per unit sold, including all promotional, administration and overhead expenses. Malawi’s program is particularly efficient, with unit costs having dropped each year to reach $2.52 in 2001. This translates to a cost per person year of malaria protection of less than $1.25.

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**Person-Years of Malaria Protection (PYMPs) provided by PSI programs**

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<tr>
<th>Year</th>
<th>PYMPs (in millions)</th>
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<tbody>
<tr>
<td>1998</td>
<td>1</td>
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**PSI’s Core Values:**

- Bottom Line Health Impact
- Private Sector Speed and Efficiency
- Decentralization, Innovation, and Entrepreneurship
- Long-term Commitment to the People We Serve