

# Malaria

CORE STORIES  
FROM THE FIELD

## *Casting A Wide Net:*

How NGOs Promote  
Insecticide-Treated Bed Nets

**Tanzania NGO Alliance Against Malaria**

**May 2004**



CORE

The Child Survival Collaborations and Resources Group (**The CORE Group**) is a membership association of more than 35 U.S. private voluntary organizations that work together to promote and improve primary health care programs for women and children and the communities in which they live. The CORE Group's mission is to strengthen local capacity on a global scale to measurably improve the health and well being of children and women in developing countries through collaborative NGO action and learning. Collectively, its member organizations work in over 140 countries, supporting health and development programs.

The **CORE Malaria Working Group** assists CORE member organizations and others to improve malaria prevention and case management programs through the following country-level activities: 1) establishment of NGO secretariats to enhance partnerships and collaborative action, 2) organization of workshops for learning and dissemination, and 3) documentation of innovative practices and lessons learned.

The CORE Group-supported **Tanzania NGO Alliance Against Malaria (TaNAAM)** was founded in May 2003 to coordinate the activities of nongovernmental organizations (NGOs) on Roll Back Malaria and Integrated Management of Childhood Illness initiatives. Founding members include Africare, the African Medical and Research Foundation, CARE, Ifakara Health Research and Development Centre, International Rescue Committee, Médecins Sans Frontières, Plan International, Population Services International, and World Vision. TaNAAM works to strengthen collaboration between member NGOs, accelerate implementation and expansion of best practices, and document and disseminate promising innovations. It also facilitates partnerships between the NGO sector and the Tanzanian government, the World Health Organization, UNICEF, and private sector organizations. *For more information about TaNAAM, contact Beatrice Minja at e-mail: [bminja@care.or.tz](mailto:bminja@care.or.tz).*

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This publication was made possible by support from the Bureau for Global Health, United States Agency for International Development (USAID) under Cooperative Agreement FAO-A-00-98-00030. This publication does not necessarily represent the views or opinion of USAID. It may be reproduced if credit is properly given.

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## Acronyms and Terms

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AMREF	African Medical and Research Foundation
ITN	insecticide-treated bed net
MCSP	Mlali Child Survival Project (Africare)
MICAH	Micronutrient and Health program (World Vision)
NGO	nongovernmental organization
RBM	Roll Back Malaria
Tsh	Tanzania shillings
USD	U.S. dollars

## Foreword

# M

alaria kills one million people in Africa each year and is the leading cause of mortality and morbidity in Tanzania. Every year between 14 and 18 million cases of malaria occur in the country, resulting in more than 100,000 deaths, though the disease is both preventable and treatable. Of these deaths, as many as 70,000 occur in children under five years of age. The disease burden from malaria consumes about 4% of Tanzania's gross domestic product and about \$120 million in treatment costs<sup>1</sup>.

The Tanzanian government is working in partnership with the United Nations and development agencies, civil society, nongovernmental organizations (NGOs), the private sector, and research institutions to achieve the Roll Back Malaria (RBM) program goal of reducing the world's malaria burden by 50% by the year 2010. Unfortunately, much of this work goes undocumented, and many success stories and lessons learned are left untold.

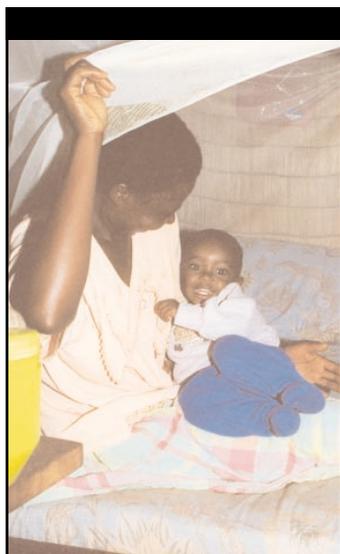
Academic journals present the latest findings from well-funded studies on malaria prevention and treatment. But what happens when these new approaches are implemented in real life, with few resources, little training, and in the face of complex behavioral questions? What issues do on-the-ground programs encounter as they work to mobilize, inform, and support community-based efforts to control this disease? What are the key barriers, successes, and areas to scale up? Rarely do we hear the responses of local outreach workers, nurses, birth attendants, traditional healers, and community leaders to these questions.

In December 2003, the Tanzania NGO Alliance Against Malaria organized a unique ten-day documentation and capacity-building workshop to examine some of these questions and better understand the perspectives of the communities that its member organizations serve.

Workshop participants—made up of representatives from six of the alliance's member organizations (Africare, the African Medical and Research Foundation

(AMREF), CARE, the Ifakara Health Research and Development Centre, Médecins Sans Frontières, Plan International, and World Vision Tanzania)—sought to learn what community members, village volunteers, health care providers, and government officials thought about NGO efforts to combat malaria in Tanzania. We visited each other's projects in northeastern and coastal Tanzania in search of best practices and important challenges in preparation for the country's scaling up of the Roll Back Malaria campaign.

This "story from the field" is the result of ten days of interviewing, observation, and focus group discussion in these communities. We hope it will make a powerful contribution to NGO and policymaker understanding of malaria prevention among those most at risk for the disease.



## Laying the Groundwork: Tanga Region

“

rdinary fever. Boils fever. Mosquito fever. We have them all,” said the old woman. She was a traditional birth attendant in the Tanga region of Tanzania.

“Mosquito fever? Do you mean malaria?” asked the interviewer from the Tanzania NGO Alliance Against Malaria. They stood in the doorway of the woman’s mud brick house. The red mud of the brick matched the red of the earth, both a shade darker from the recent rain. Water still dripped from the thatch.

“Yes, mosquito fever is common here. Children are especially prone to it. It comes in the rainy season and gives you the chills and a headache.”

“What causes it?”

“Tiny parasites in the blood. Mosquitoes pass them from one person to another. Or sometimes a mosquito picks up the tiny parasites by drinking stagnant water.”

“What is *degedege*?”

“Oh... people used to think that convulsions from malaria were a separate disease called *degedege*. When a child has *degedege* she burns with fever and trembles, and her eyes roll. Sometimes the child even foams at the mouth. For a long time, we thought it was caused by evil spirits sent by people who wished us harm. We’d take the child to a traditional healer to remove the spirit poison from its body. Some people still do that. But since MICAH started a few years back, many people have come to understand that *degedege* is really a dangerous symptom of severe malaria, and that it is a hospital disease.”

“Hospital disease?”

“Yes: you should go to the health center to have it treated. We also learned from training with the Micronutrient and Health (MICAH) program that you can prevent mosquito fever and *degedege* by using a bed net treated with insecticide.”

“Do you have a bed net?”

“No. What use would an old woman have for a bed net? When my children were young, I was frightened of *degedege*, but didn’t know that mosquitoes caused it. So even if we had bed nets back then I don’t think I would have used one. I guess this is still a problem for some people.”

“Are there other reasons people don’t use bed nets?”

“Well, they can’t afford them. And people say that during the hot season they are insufferable. Others say the nets look like shrouds. Who wants to sleep in a coffin?”

The birth attendant’s native region, Tanga, was the site of a successful NGO program to fight both malaria and micronutrient deficiencies, one that laid the groundwork for greater collaboration among all NGOs working to control malaria in Tanzania.

Food insecurity in Tanga is a major problem. Most of its inhabitants are subsistence farmers who regularly contend with low food production, drought, and inadequate food storage facilities. Iron deficiency, or anemia, is widespread and a major cause of maternal and neonatal mortality. The deficiency can result in low birth weight, which can affect a

“People say that during the hot season they are insufferable. Others say the nets look like shrouds. Who wants to sleep in a coffin?”

—A traditional birth attendant, Tanga Region

child's physical and mental development. Malaria, diarrheal diseases, and other conditions deplete micronutrients in the body.

To improve women's and children's health, Tanga needed a program targeting micronutrient deficiencies like anemia, and related diseases such as malaria. But that was not enough. The program also needed to be designed with local needs and customs in mind, and local residents had to be able to sustain the program on their own. In 1997, World Vision responded to this need by implementing the MICAH program in the Handeni and Korogwe districts of Tanzania's Tanga region.

"Before MICAH" and "after MICAH" are expressions often heard from villagers in the Tanga region. Using music, dance, and skits—Tanzania's traditional forms of mass communication—the program raised community awareness about malaria and diarrheal diseases. Concurrently, the program organized community committees to improve environmental sanitation, construct latrines, secure clean water sources, and promote the use of insecticide-treated bed nets (ITNs). These methods, in addition to educational services for traditional birth attendants and healers, helped reduce the incidence of malaria, anemia, and undernourishment among women and children in Tanga. The committees provided a new, trusted source of health information in the region.

In 2002, several NGOs, including World Vision, met with representatives of Tanzania's National Malaria Control Programme to discuss NGO involvement with an award from the Global Fund to Fight AIDS, Tuberculosis, and Malaria. It quickly became clear that there was insufficient coordination among NGOs, duplication of effort, and myriad challenges hindering public-private partnerships in malaria control. The CARE Malaria Program Manager responded by organizing a task force, which, with the support of the Child Survival Collaborations and Resources (CORE) Group, became the Tanzania NGO Alliance Against Malaria.

Founding members of the Tanzania NGO Alliance Against Malaria included Africare, AMREF, CARE, Ifakara, International Rescue Committee, Médecins Sans Frontières, Plan International, Population Services International, and World Vision. The Alliance works to strengthen collaboration between member NGOs, accelerate implementation and expansion of best practices, and document and disseminate promising innovations. It also facilitates partnerships between the NGO sector and the Tanzanian government, WHO, UNICEF, and private sector organizations.

## Sleeping in a Coffin: ..... Overcoming Doubts About Bed Nets

**M**alaria kills one million people in Africa each year, with young children and pregnant women among the most vulnerable. It is the leading cause of mortality and morbidity in Tanzania. Because the *anopheles* mosquito that transmits malaria bites exclusively at night—primarily between 11 pm and 5 am—ITNs are a powerful, cost-effective way to prevent malaria. The insecticide repels or kills mosquitoes before they can find a way under a net or through a hole in a torn net. If a community uses ITNs for at least 12 months, the prevalence of anemia can be reduced up to 50 percent in malaria endemic areas. **Regular ITN use in a community with low or high but seasonal malaria can reduce overall child mortality by 15–33 percent.**<sup>2</sup>

Despite their effectiveness, simply making ITNs available doesn't guarantee that people will use them. As MICAH staff learned, many people in Tanga did not link mosquito bites to the deadly convulsions known as *degedege*. Educating lay people, as well as traditional birth attendants and healers, about the link between mosquitoes and severe fever and convulsions was imperative. However, learning about mosquitoes and parasites—like learning about high cholesterol—is one thing, while making changes in everyday life is another.

In Tanga, many people thought the nets resembled burial shrouds, and that to sleep under one would be like sleeping in a coffin. Other people worried that since foreign donors seem very interested in family planning, the insecticide might contain a birth control agent. Mothers became concerned when they were told to use plastic gloves when treating the nets with insecticide. If this is poisonous, they wondered, what will it do to my baby? Seeing colorful posters of a baby sleeping contentedly on a bed protected by a splendid pink mosquito net, some villagers thought the ITNs were for rich people with beautiful wooden beds and not for “people like us” who sleep on mats.

Even those who buy and use the nets often abandon them during the hot dry season, when the nets can be unendurably stifling. People believe that there are fewer mosquitoes during the dry season, and thus less need to protect against them. In fact, the population of *Anopheles gambiae*, the most efficient transmitter of the parasite that causes malaria, is significantly reduced during the dry season. However, another strain, *Anopheles funestus*, becomes the main transmitter during this period. *Funestus* is a smaller, lighter mosquito that prefers to feed at a slightly later hour and has a ‘gentler’ bite. Nets are carefully folded and put away, “until the rainy season, when mosquitoes will not let you sleep—now that's the time to use bed nets.”

When a child has a potentially fatal disease like the convulsions of *degedege*, these everyday doubts and hesitations intensify. Parents consult grandmothers, mothers-in-law, and traditional birth attendants. Should they cool the child down with compresses? Give her aspirin? Should they take her to a traditional healer or to the hospital?

People have heard that severe malaria can cause convulsions, and that the health center can cure this condition. But sometimes a child becomes reinfected, or the parasites are re-

sistant to the medication given. After two or three trips to the hospital, a family might wonder if this really is malaria, or a traditional disease best treated by a traditional healer. Some people believe that an injection—as might be given at a hospital—can kill a child with *degedege*. The two can clash in the body, causing death. Health center staff admonish that while a child is taken to the traditional healer, anemia caused by malaria can weaken her and the delay can be fatal.

### **Mosquito Theatre**

The village of Sandani gathers under a massive mango tree. All are focused on two girls sleeping under the tree. A small boy scurries through the crowd. His hands are held together in front of his nose to represent a mosquito's funnel-like mouth. He buzzes past the sleeping girls several times before settling down beside the smaller one. He leans over, looks around slyly, and pretends to bite her. He takes a deep drink of her blood, wipes his mouth with satisfaction, and buzzes away.

"Cock-a-doodle-doo!" someone calls out. Morning has come. The smaller girl is still in bed. She's moaning and feverish and starts into convulsions. Her father—like the others, played by a young actor from the Kweisasu Primary School—puts his hand to her forehead. He calls his wife, who hurries in.

"She needs to go to Mr. Minja," says the father. In real life, Mr. Minja is the name of a local traditional healer.

"Wouldn't it be better to take her to the health center?" asks the mother.

"Absolutely not! I saw ghosts lurking around the house last night. This is MY child! She will be taken to Mr. Minja."

In the next scene, the family sits on a mat in front of the healer, who consults the stars to divine the cause of the child's illness. He then directs the parents in a chant, but as he does, the child dies. The mother begins to weep. Then the entire children's performance group huddles around them and wails.

The play continues. That evening, the mosquito returns and bites the second daughter, and she, too, becomes feverish. A family friend visits, tripping over bushes and buckets of stagnant water in the family's unkempt yard. "Take her to the health center quickly," he says upon seeing the sick girl. The father wants to go back to Mr. Minja. "You just lost one daughter this way; do you want to lose another?" argues the friend. The father relents and agrees to go to the health center.

At the health center, the doctor takes a blood sample and checks the daughter's temperature. He explains the symptoms of malaria, tells the parents to clean their yard, and prescribes medicine. "Most importantly," he says, "protect your daughter with a bed net." That night the mosquito returns. He tries and tries, but can't get through the bed net. The child regains her health. The band (a wooden drum, tin cymbals, and handmade maraca) strikes up and all the children begin to sing a song about malaria. Several children step forward in pairs and begin dancing to the music. The women in the audience whistle loudly and ululate in approval.

The year before this performance, a MICAHA outreach worker heard about the Kweisasu Primary School Health Club and asked if they would like to help deliver important health messages. MICAHA took the club to health centers and dispensaries. "We learned about malaria, HIV/AIDS, immunization, and nutrition," the boy who had played the father told an interviewer. "We meet every Wednesday and Saturday for practice, and make up the songs and skits together. We sing at village health days, holidays, and all kinds of celebrations!"

A small boy scurries through the crowd. His hands are held together in front of his nose to represent a mosquito's funnel-like mouth. He buzzes past the sleeping girls several times before settling down beside the smaller one. He leans over, looks around slyly, and pretends to bite her.

## **Village Committees**

People love performances. But health education is rarely as simple as presenting information in a compelling way. Countless people are well informed about the dangers of smoking, but continue to smoke. As one MICAH outreach worker pointed out, “The performances are wonderful for creating awareness, but community organizing is what really leads to effective action.”

With collaboration from the district health center, MICAH staff trained village development committees, village health workers, and others in the early detection of malaria, signs of anemia, reasons for timely treatment, and the importance and use of ITNs. Each group trained others in turn, so that the information spread widely along existing community networks.

Malaria control committees that had been initiated earlier were strengthened. MICAH organized village health days, mobile outreach clinics, and house-to-house visits by program staff and village health workers. The program also created revolving loan funds for the purchase of bed nets, and supplied the nets at subsidized prices. Eventually, MICAH announced that although it would continue to provide support in the form of training, transportation, and resources, its staff would no longer organize events such as the village health days.

In virtually every community, local leaders, village health workers, and community committees took up the reigns of the micronutrient and malaria program, and steady success followed. Laboratory tests carried out three years after the initiation of the program showed that the percentage of children carrying the malaria parasite had dropped from 35 to ten. Among women of childbearing age the percentage dropped from 18 to three. The prevalence of anemia in children under five years of age decreased from 95 percent to 86 percent, and in pregnant women from 87 to 72 percent. This reduction in anemia, while not sufficient, encouraged the committees to continue.

## **Healers and Diviners**

An important part of MICAH’s work is building cooperation with traditional birth attendants. In addition to birthing services, traditional birth attendants give advice and, sometimes, herbal remedies. Usually elder village ‘grandmothers,’ they are greatly trusted and often the first to be consulted about a child’s illness. As they may refer cases either to the health centers or traditional healers, their cooperation is crucial to the success of MICAH’s malaria control program. MICAH invited traditional birth attendants to workshops in which they were tutored on the identification and referral of malaria cases, as well as the use and retreatment of ITNs.

“Before MICAH, only a few people went to the dispensary,” said one traditional birth attendant. “When pregnant women got malaria, they just stayed at home and took herbs. They often became anemic. We lost so many children during delivery because of this. Since training with MICAH,” she chuckled, “I’ve become a nag about mothers getting their children bed nets.”

Many people in Tanzania consult traditional healers. The healers provide herbal remedies, divination, bone setting, birthing, faith healing, and other services. There is at least one traditional healer for every 146 rural residents in Tanga, as compared to one medical doctor for every 33,000 residents nationwide. Their relative availability is a huge draw for local people. However, since the time of colonial rule, doctors, nurses, missionaries, and government officials have discredited the work of traditional healers.

MICAH sought to work with the various types of traditional healers, but, as one community outreach worker said of traditional herbalists, “It’s been a real challenge working with them. We believe that knowledge about health should be shared. But many of them are secretive with their knowledge. You might have three traditional healers trying to treat one child, but they won’t cooperate with one another in this. We’re trying to get them to work as a team.”

In the case of diviners—traditional healers who work to discern the supernatural origins of vulnerability to disease—incompatibilities were so great as to preclude collaboration altogether. “People go to them in secret,” said one MICAH outreach worker. “We haven’t tried to recruit them for this project. When we hear that someone has treated a child with malaria incorrectly, like putting him in a smoke-filled room, we give the family the best information we have on proper treatment. Then we organize a meeting of those herbalists who are working with us and talk to them about helpful and harmful practices. During this discussion, we’ll bring up the case we’ve heard about as an example. But we never point fingers at a particular healer.” As an afterthought, the outreach worker added, “We don’t speak the same language as the diviners. We talk about parasites and vectors and they talk about spirits and rituals.”

“We don’t speak the same language as the diviners. We talk about parasites and vectors and they talk about spirits and rituals.”

—A MICAH outreach worker

Distrust and competition between biomedical and traditional practitioners—especially those with a strong supernatural component to their work—is longstanding. However, the influence of traditional healers in many parts of Africa has been equally enduring, making collaboration a necessity for public health efforts. In projects sponsored by other organizations, with time, mutual respect, and learning on both sides, biomedical practitioners and diviners have learned each other’s ‘languages’ and developed working systems of cross-referrals.

The Tanga AIDS Working Group has pioneered such a collaboration for the last 15 years. The group began when Waziri Mrisho, an 84-year-old healer, offered to treat a hospitalized AIDS patient. This evolved into a multifaceted collaboration between traditional healers and biomedical personnel. Traditional healers now provide health education and HIV/AIDS counseling in their communities, distribute condoms, refer patients to health centers, and take increased precautions against HIV infection in their work. Physicians collaborating with the group have used the traditional healers’ herbal remedies to increase the appetites of people with HIV/AIDS and treat opportunistic skin infections.

### Radio Theatre

“Have you heard about malaria?” a man asks a young couple standing before him.

“Malaria?” they respond.

“Yes, malaria! Everyone’s talking about it,” he exclaims, opening his arms wide to include all the audience gathered around him. “They’re even talking about malaria on the radio!” he says. “Listen.” He turns on a toy radio cradled in his left arm. As he does so, a chorus of 28 women behind him starts to sway. “Malaria is dangerous!” the women sing. “But together we can defeat it.” The couple moves closer to the radio, each with a hand cupped to an ear to hear better. A small three-piece band joins in on homemade marimbas, drums, and cymbals. The tune is catchy, and three small girls in the audience start dancing, mimicking the movements of the chorus.

“This disease affects mothers!” This disease affects our children!” says a woman as she steps forward from the chorus. The man points to the radio and asks the couple, “Did you hear that? Malaria affects mothers and children.” The singers place their right hands to their cheeks in a sign of woe while their feet move easily in the bare earth. Transfixed, the

“If this is so poisonous, how can you expect me to let my children sleep under it?” asks the young wife.

—from a Malaria radio theatre skit

three little girls in the audience do the same. The singing is rich with clear, harmonized voices. The air is fresh from a downpour earlier in the day. In the audience, children stand in the front with women and men behind—females on the right, males on the left.

Another woman moves forward from the chorus. “Malaria can cause convulsions. Go to the hospital immediately,” she implores the audience. “If not, your baby might die.” The chorus begins to wail, imitating the sounds of a funeral. “But there’s good news!” calls another member of the chorus. “Bed nets treated with insecticide can prevent malaria.”

“Did you hear that?” the man says, pointing to the radio again. “Did you hear that? Insecticide-treated nets can prevent malaria.” The women’s dancing changes into an upbeat jouncing, and they smile as the song comes to an end. The man pulls out a bed net and shows the couple how to treat it with insecticide. He emphasizes the importance of using the plastic gloves that come with the insecticide.

“If this is so poisonous, how can you expect me to let my children sleep under it?” asks the young wife. “Once the net has dried, the insecticide is no longer harmful to humans,” he explains. “We’re all affected by malaria,” he calls out to the audience. “Either we fight it or we keep on crying.”

## Shillings and Chickens: Making Bed Nets Affordable

After a strong round of applause, the crowd broke into small groups as people walked back toward their homes. Some members of the chorus stayed under to the mango tree to talk to visitors from the Tanzania NGO Alliance Against Malaria.

“It was impressive,” said one visitor. “We were taken by your performance.” The women smiled appreciatively. “Did you write the songs and material?”

“Yes,” said the oldest of the women. She was about 40 years old, with clear, dark eyes. “Our group leader, Asha Rose, and Fatma, come up with the basic tunes,” she added, nodding her head toward two of her colleagues. “Then we all pitch in with the musicians to work out the rest of the lyrics, the musical arrangement, and the skit.”

“We get the main messages from our visits to dispensaries and from the MICAH workshops,” said Asha Rose. “It’s especially important that we clearly show how to hang the bed nets and retreat them with pesticides. I used to work as a village health volunteer,” she added, “but it’s much more fun to educate people this way, together, than it was going alone from house to house.”

“Do you have bed nets?” the visitor asked Asha Rose and Fatma. The two women shook their heads.

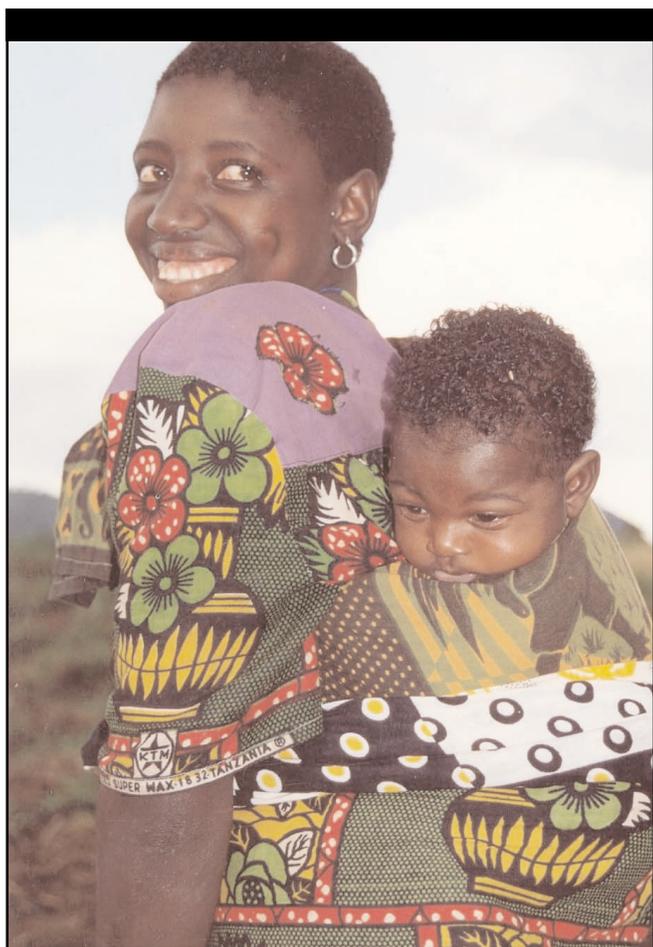
“We can’t afford them,” said Fatma with an embarrassed smile. “We want to protect our children. We want to practice what we preach. But the only nets we have are the ones we carry with us for demonstration. The long rains were weak this year. The short rains didn’t come at all. Many of us are struggling just to buy food for our families.”

“It’s tough for many of the people here,” said the older woman who had started the conversation. The nets aren’t available in this community, and even if they were, they are too expensive. Even MICAH’s subsidized price is a lot for us.” MICAH’s price of Tsh. 2,500 is equal to about \$2.50 USD.

“Do *any* of you have nets?”

Only one woman raised her hand. “My first child got malaria and almost died,” she said. “The doctor told us to protect him with a bed net. We saved for nine months and bought one. Then my second and third children were born one right after the other. With three children it’s not easy to make ends meet. We finally bought another net, but it took us a year more.”

“When a man has two wives it’s even harder,” said Fatma. “‘How can I afford a net for all these children?’ they say.”



**“I don’t budget,” says Lazaro. “How can you budget when most of the time you don’t have money? But I know what my family priorities are. Food is number one. Then there is kerosene, soap, medicine, and maybe a little local brew.”**

It is common for health center staff to argue that if people can pay a chicken or even a goat for treatment from a traditional healer then they can certainly afford to buy a bed net. However, research carried out in collaboration with the Ifakara Health Research and Development Centre, a member of the Tanzania NGO Alliance Against Malaria, suggests that traditional healers often use a sliding scale based on ability to pay. The researchers also found that diseases involving spirits—precisely those for which a traditional healer would be consulted—were seen as a threat to the entire extended family. Consequently, such diseases mobilize family resources that would not be available for the treatment of a disease with “natural” causes. Furthermore, paying in kind with a chicken or quantity of maize is often far easier for villagers, especially women, than paying in cash.

In rural Tanzania, men usually control the bulk of household cash. “Taking the children to the clinic is seen as women’s work by many men,” said a dispensary nurse. “If a man brings his child in for treatment his friends might laugh at him. So when we see a child with malaria, it’s the mother we end up talking to about ITNs. And it’s the mothers who come in for the antenatal clinics where we demonstrate the use of the nets. We educate the women, but it’s the men who decide how the family money is spent.”

The decision to buy a bed net can involve protracted negotiations between husband and wife. “I told my husband that we needed a net for our baby,” said a young mother from the Mkuranga region, where AMREF is promoting bed net sales as part of its child survival program. “It took me a month to persuade him. I brought the subject up every morning until he finally went out and bought a net.” Both AMREF and Africare found that home visits by community health workers were an excellent way to get men involved. The health workers encouraged men to go with their wives to the clinics. Eventually, clinic staff began to see men bringing their children to the clinics on the backs of their bicycles.

The money a woman makes—from weaving or gardening, for instance—is her own. Some women use these funds to purchase bed nets for their children. “My husband said that even if our children get malaria three or four times a year, buying aspirin at the store is cheaper than purchasing a net,” said another mother. But she knows that the aspirin from the store isn’t the same as the medicine she gets from the dispensary. “So I began saving the money I earn from raising chickens until I had enough to get a mosquito net for our youngest child. But then the chickens caught a virus, and I haven’t been able to buy a one for our second child.”

### **Beer and Khangas**

Cost was the primary reason for not having a bed net in most of the rural areas members of the Alliance team visited. Staff from four member NGOs (Africare, AMREF, Ifakara, and Médecins Sans Frontières) investigated the question of the affordability of bed nets. Village leaders recommended lowering the subsidized price to Tsh. 1,500, or \$1.50 USD—less than half the commercial price. NGO staff and health officials argued that this just wasn’t possible. Not only was it not sustainable, but it would undermine the Roll Back Malaria strategy of encouraging private sector participation in the distribution and sale of insecticide-treated nets. Some NGO workers were simply not convinced that Tsh. 2,500 was beyond the reach of rural households.

“I fail to understand why more people aren’t using nets,” complained one rural outreach worker. “Our malaria education is compelling. People love the performances. The village health workers follow up with in-home education. But when it comes to buying a net, people aren’t serious. They say they don’t have money, but they could buy nets if they wanted. Most of these men buy their wives *kitenge* or *khangas* (cotton cloth used for

women's garments) at Christmas or at the end of Ramadan. A *khanga* costs at least Tsh. 3,000. That's more than a subsidized net. Which should be a higher priority?"

Lazaro Fanuel Lyimo has a family of seven in Chiguluka village, Dodoma. He grows millet and groundnuts. He also works on other people's farms when such employment is available. Lazaro knows what a bed net is. He understands the link between mosquitoes, malaria, and convulsions. But he doesn't have a bed net in his house.

"How was the harvest this year?" asks a visiting member of the Alliance.

"Poor. When I get work as a laborer I make sure to buy maize for my family."

"How would you break down your family budget?"

"I don't budget," says Lazaro. "How can you budget when most of the time you don't have money? But I know what my family priorities are. Food is number one. Then there is kerosene, soap, medicine, and maybe a little local brew."

"Do you buy your wife khangas?"

"I buy her a pair of khangas for Christmas. She also buys some herself when she sells a mat she's woven."

"What do you do for entertainment?"

"In the evenings my friends and I gather under that tree and drink a little local brew."

"How do you buy the brew when you don't have money?"

"Your friends pay when you don't have money. And then you pay when they're broke. We live like that. We depend on each other. That's the essence of good friendship."

Are Lazaro and his wife 'unable' or 'unwilling' to pay? The budgeting principles of those who live completely within the cash economy are often inapplicable to those who live on its fringes. If Lazaro were to stop participating in his evening gathering with his friends, he might save some of the cash he spends on beer, but he would probably also lose access to crucial resources—advice, information, lines of credit, help in a crisis—available through his network of friends. A new *khanga* might have similar import for membership and participation in social support networks. Can policymakers and professionals accurately determine what is affordable for the poor?

In recent years, commercial sales of treated nets in Tanzania grew from 200,000 to over one million nets per year. Increased competition brought increased availability. Prices came down in rural markets and now range from Tsh 3,000 to Tsh 6,000. Is this low enough for people like Lazaro? Should a program accept in-kind payments for ITNs? Allow people to buy on credit? How do such subsidies affect the development of commercial markets? NGO efforts in Tanzania shed some light on these questions.

### **Revolving Funds: Dodoma Region**

Africare, one of the Alliance's founding members, has promoted the use of revolving funds for ITN purchases as part of its Mlali Child Survival Project (MCSP). The MCSP began in Kongwa, Dodoma, in August 1997. The project recruited and trained community volunteers from 25 villages. The volunteers work to reduce maternal and child morbidity and mortality by improving nutrition, malaria control, and the provision of family planning and reproductive health services.

Malaria is endemic in Kongwa district and continues to be the leading cause of child morbidity and mortality. The MCSP volunteers educate their neighbors on the basics of malaria and bed net usage. The community-based distributors sell bed nets at the subsidized price of Tsh 2500. Each distributor started out with a stock of ten nets. They make a commission of Tsh 500 per net, and turn over the remainder to Africare for the purchase of more stock. They sold over 3600 nets in the first three years.

The distributors at first sold some nets on credit, with the promise that the debt would be paid off after the harvest. “This worked for the most part,” says Tatu Mtambalike of Africare. “Most of the debts were paid off. But some of the communities are very isolated and without access to markets, so the distributors accepted containers of maize or groundnuts, which Africare staff sold at market.” This approach allowed more people to buy nets, but it also burdened Africare funding, staff time, and distribution systems.

“When you provide credit everyone will buy a net,” said Jerome Boniface, of the Chipanga Health Education and Safe Motherhood project, a program whose revolving fund committee stopped offering credit after too many loans went unpaid for too long. “But how can a person pay off this debt when they don’t have enough food at home for their children? If you sell the bed nets on credit you’ve got problems. People avoid you. You lose friendships. So we sell ITNs strictly on a cash basis.” Mr. Boniface did allow people to buy nets on a layaway plan, a common method for rural Tanzanians buying non-essential items. A villager paid a deposit and Boniface set aside a net until it was paid off in installments. The Chipanga project sold over 6,000 nets through its revolving funds over the last two years.

These experiences show that the management of revolving funds is time-consuming, and that such funds may collapse once external funding is discontinued. The approach does not appear promising for large-scale implementation at the regional or national level. Furthermore, in Dodoma, the sale of subsidized nets appears to have dampened the commercial market in all three program areas. Storekeepers said they wouldn’t stock bed nets while they were available from the programs at the subsidized rate. Nevertheless, Africare and the Chipanga project have shown that revolving funds can help with partial cost recovery, and simultaneously advance equity and coverage in the distribution of bed nets.

### **Discount Vouchers: Kibaha District**

In 2002, the Tanzanian Ministry of Health received a grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria to make low-cost ITNs available to pregnant women through a discount voucher scheme. The vouchers, to be distributed through Mother and Child Health antenatal clinics, would be worth Tsh 2,500 towards the cost of a bed net at a local store (ranging from Tsh 3,000 to 5,000). Storekeepers would redeem the vouchers with nearby redemption agents. The women would also receive free insecticide re-treatment kits at the time of their child’s third DPT/measles vaccination at the clinic.

In anticipation of nationwide implementation in 2004, UNICEF funded a six-month pilot voucher scheme in Kibaha, a district in the Pwani region of Tanzania with a population of about 132,000. Administratively, the pilot was designed to resemble the national scheme, with oversight by the Ministry of Health, local management through a district council, and logistical support from NGOs. In Kibaha, CARE Tanzania assisted the Kibaha District Council and its District Medical Officer with training, bed net promotion, voucher redemption, and monitoring and evaluation. Staff from CARE and Plan International, both founding members of the Tanzania NGO Alliance Against Malaria, went to Kibaha to document the strengths and constraints of the pilot program.

The Kibaha District Council distributed the vouchers to all health facilities providing antenatal services. The District Medical Officer supervised the training of village health workers, community malaria committees, and vendors on the voucher system, malaria in pregnancy, and the use of treated nets. The project initially trained ten vendors and wholesalers. Within two months, all but one had dropped out because they were unable or unwilling to make the initial investment to procure the first allotment of bed nets. The

CARE team and district staff recruited and trained a new wholesaler and nine vendors located either near the center or in remote areas of the district. These vendors were able to successfully redeem the vouchers and rapidly recoup their initial investment. Seeing this, another fifteen retailers registered to participate in the scheme.

### Getting the Word Out

Community education was a key component of the Kibaha pilot program. A number of methods were employed to reach the primary audience—pregnant mothers and their partners. Nurses at the Mother and Child Health clinics are among the most trusted sources of health information in Kibaha. They devoted some of their informational talks, a routine feature of such clinics, to discussion of the voucher scheme, the use of bed nets, and the effects of malaria in pregnancy. Village health workers made home visits to teach proper handling and retreatment of the nets. One health worker, Tabitha Kasimu, invited Alliance team members to join her as she visited homes in the village of Picha ya Ndege.

Tabitha's first stop was at a well-kept mud and thatch house. It was early afternoon and a quiet breeze blew through the palm trees. Tabitha knocked on the door. "Welcome!" said a young mother cradling a newborn as she welcomed the visitors into her house. She motioned towards the two seats in the living room and went to the bedroom for another chair. Tabitha introduced the team.

"My name is Prudensiana," said the young mother in response.

"Do you have a little time?" asked Tabitha.

"No problem, you are all welcome." She started to smile, but the baby began to cry and momentarily distracted her.

"Where did you go for your antenatal check ups?" Tabitha asked.

"Tumbi Hospital."

"Did you get a discount voucher?"

"No. My sister asked me the same question. I wasn't told anything about the voucher system. So my sister explained it to me. When I went for another check up I got confused about which comes first, giving the money or getting the voucher. I didn't have money at the time, so I just let it go."

"But you have a net in the house, don't you?"

"Yes."

"May we see it?" As they followed Prudensiana into the bedroom Tabitha explained to the visitors that she knew Prudensiana well, otherwise she usually didn't ask to see the nets. This might offend some people. Prudensiana had the old net hanging over her bed. It was worn and had a number of visible holes.

"Have you treated it with insecticide?"

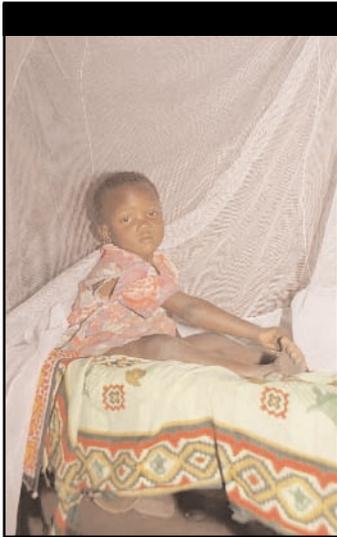
"No. I don't know how."

"I showed you how to do it."

"Yes, but... maybe it's my laziness...."

"No, no. It's easy to forget. We'll go over it again," said Tabitha gently. The insecticide will not do anything about the holes, but it will provide more protection.

The pilot program developed an effective partnership with local youth groups. In Kibaha, these groups perform at celebrations and produce a weekly newspaper that they post at markets and bus stands, on large trees in village centers, and in other gathering spots. In one village, a youth group produced a lively edition about the voucher scheme and the malaria training the teens received. Local drama and dance groups also helped to spread the message, performing at "Discount Voucher Days" when CARE staff organized



games and events alongside health education activities. UNICEF-produced pamphlets were also distributed at such events, although they were not as lively and local in focus and did not attract as much interest as the youth groups' newsletters.

The voucher scheme vendors provided another effective channel of communication. Herbert Kitende owned a one-room store called "No Limit Stop" on a busy street in Mlandizi ward. Its shelves were tightly stocked with a variety of items such as soaps, clothing, bananas, and mosquito coils. Insecticide-treated nets of various sizes and colors were displayed prominently on the back wall. Their large hand-printed price tags ranged from 3,000 to 4,000 Tanzanian shillings.

"When a pregnant woman with a voucher buys one of the Tsh 3,000 nets, she has to give me the voucher and pay an additional Tsh 500. I explain how to hang the ITN and how to treat it with insecticide," he said.

"How are the ITNs selling?" asked one of the visitors from CARE.

"Slow, but steady," answered Mr. Kitende. "My store is on the health center list. This has brought me new customers. I've even had people without vouchers come in and buy ITNs at the regular price."

"How many have you been selling a month?"

"Don't let me give you the wrong impression. ITNs are not my best-selling item. Sometimes they can move very slowly, especially during the dry season. The peak selling period for bed nets is the rainy season, when mosquitoes are a nuisance. Also, many women wait for some time before redeeming their vouchers. Cash is hard to come by here, so some people need to save up the money."

### **Scheming with the Scheme**

Nurses, village health workers, and village chairmen all contributed to the everyday monitoring of the voucher scheme. Nurses recorded the number of women attending antenatal clinics, vouchers issued, preventive treatments given, and the number of pregnant women diagnosed and treated for malaria. This data was passed on to the District Malaria Coordinator who tracked malaria-related morbidity and mortality among pregnant women and children under 18 months.

Village health workers kept data on the number of pregnant women receiving vouchers and the number who went on to purchase an ITN. They tracked the number of women who received malaria prophylactics and the frequency of fever attacks during pregnancy. They also asked women whether they were retreating the nets with insecticide, and if not, the reasons for not doing so.

CARE was responsible for monitoring the redemption process and evaluating the pilot program as a whole. Due to lack of cooperation from district staff, the CARE team was unable to access the voucher distribution list during the first two months of the program. A few of the district employees had already started to misuse the vouchers and resisted releasing the documents for the fear of being caught. In August, after finally gaining access to the clinic distribution registers and used voucher stubs, CARE was able to uncover a number of problems in program implementation.

Voucher distribution was improperly recorded at some clinics, and voucher books were missing. The number of vouchers redeemed in the district was far greater than the number of vouchers given to pregnant women at the antenatal clinics. One dispensary issued three full books of vouchers although they did not offer antenatal services. While heavy workloads and weak supervisory skills among clinic staff accounted for part of the problem,

abuse of the voucher scheme by district officials, health center staff, and vendors was the major source of discrepancies in voucher distribution and redemption.

One district employee filled out 75 vouchers with imaginary names and took them to a vendor for eventual redemption. The CARE redemption officer became suspicious when he noticed that the handwriting on 75 vouchers was the same. He visited the health facility to find that there was no record of antenatal services provided that month. Other vouchers were illegibly or incompletely filled out, making it difficult to track their origin.

Under a previous UNICEF-funded program in Tanzania, bed nets were given to some clinics to sell for Tsh 3,000 to women coming for antenatal services. One of these clinics did not inform pregnant women of the voucher scheme. Instead, some Maternal and Child Health clinic staff members sold the nets from the previous program for only Tsh 500. They then filled out vouchers with their patients' names and brought them directly to a vendor, splitting the profits.

The CARE redemption officer and the Coordinator of the Tanzania NGO Alliance Against Malaria met privately with each person caught embezzling from the scheme.

"We confronted them with the facts we had gathered," said one of the people involved.

"We tried to get them to see the voucher scheme as a precious opportunity to save lives. We made it crystal clear that they were being monitored and that they would be prosecuted should this happen again. If someone makes a mistake and learns from the mistake, then everyone gains."



The CARE staff then organized workshops to retrain the health care providers, village health workers, vendors, and local NGO partners. Training was based on the candid sharing of experiences with the scheme during the initial months. Participants discussed problems in depth and developed action plans to address them. For example, health center staff decided that, in the future, vouchers would be handled only by the nurse-in-charge, using the same procedures as for government cash. Nurses would ensure that vouchers and clinic records were filled out completely, accurately, and legibly to facilitate tracing.

The vendors agreed to put a tick on each woman's antenatal card and make sure the number tallied with the number written on the voucher by the maternal/child health nurse. They also agreed to buy many of the nets remaining in clinics from the previous UNICEF scheme, which would help prevent confusion and misappropriation. In the course of participatory discussions, vendors realized that by ordering together and sharing transportation costs, they could reduce the wholesale, and, by extension, the local retail cost of bed nets. Some vendors admitted to removing the insecticide packets from the bundled nets to sell separately. They agreed to end this practice and to stock insecticide packets in their shops. If a packet were missing, the woman would be issued one free.

In meetings with district officials, the CARE staff pointed out that weak management created an opportunity for abuse of the voucher system and that the abuse went unnoticed because CARE monitors were prevented from viewing district data. The officials agreed to work toward improved cooperation and to begin random spot-checking of voucher distribution and redemption. It was also decided that vouchers could be more easily traced if they were cross-referenced with the antenatal cards issued to pregnant women. For its part, CARE began educating women about their rights and what they should expect to get from the voucher scheme.

### **Results of Voucher Scheme**

A survey carried out by village health workers at the end of the third month showed increased ownership and use of ITNs among pregnant women and the community at large—82 percent of women in more populated areas and 55 percent of those in more remote wards were using treated nets. All but 17 percent of these nets were acquired through the voucher scheme. Equally important, the number of women attending antenatal clinics in Kibaha District had increased during this period.

### **Falling through the Net**

The poorest and most remotely located women—those least likely to seek antenatal care—are also those most vulnerable to malaria, anemia, maternal death and infant mortality. Even if they do visit the health center and get a voucher, they are often unable to afford the co-payment on the net. To make matters worse, bed net prices are often higher in remote villages.

Deocrasia Kasubiri lives in Soga village, where there is only one bed net vendor, who sells nets for Tsh 1,000 more than the vendors in more competitive districts. Ms. Kasubiri is eight months pregnant. Her husband cultivates cassava, groundnuts, and maize. When Alliance interviewers arrived at her house, she was sitting under a tree feeding her two-year-old boy. The visitors asked if she had a moment to talk. She nodded and smiled graciously. When asked about the voucher system, Deocrasia went into her house and brought out an envelope. She opened it carefully and pulled out a voucher.

“How long have you had this?” asked one of the visitors.

“About three months,” she answered, reaching into a bowl. She scooped cornmeal porridge onto her fingers and brought it to the child’s mouth.

“Why haven’t you bought a mosquito net yet?”

“We haven’t had the cash,” she answered. She rubbed her lips against the boy’s forehead and kissed him gently. “Maybe after the harvest,” she added thoughtfully.

In Tanzania, unsubsidized commercial sales of ITNs have risen 20 percent each year since 1994. In 2000, private vendors sold more than 1.5 million nets. When implemented nationwide, the voucher scheme should promote further market growth. The widespread provision of free or highly subsidized ITNs would most likely destroy this market. It might also foster further dependence on foreign donors. For these reasons, some observers suggest that combining public and private efforts—as in voucher programs that rely on commercial vendors—is the best approach.

The most vulnerable people, those like Ms. Kasubiri, fell through the safety net of the pilot voucher program. Insecticide-treated bed nets reduce the mosquito population. When enough people use them, they protect not only their users but others in the community as well. Some suggest, therefore, that bed nets, like vaccines, should be provided for free or at highly subsidized rates in rural areas with a high malaria burden. One group of observers questions the wisdom of any “strategy that relegates African children to being protected from malaria only if their parents can be persuaded to pay.”

“We haven’t had the cash,” she answered. She rubbed her lips against the boy’s forehead and kissed him gently. “Maybe after the harvest,” she added thoughtfully.

—A mother in Soga village



## Afterword

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alaria is often called a disease of poverty. The malaria control programs described in this field story are confronting the full implications of this fact. They have found that simply presenting ‘the facts’ about malaria transmission and the importance of using an insecticide-treated net do not always lead to action. The disease’s complex epidemiology and symptom pattern provide fertile ground for competing theories of causation. Furthermore, uncertain access to food, employment, and security often weaken a community’s ability to effectively promote the use of ITNs.

The CORE Group and the member organizations of the Tanzania NGO Alliance Against Malaria continue to work closely with the communities we serve to overcome these formidable obstacles. We have seen significant success: more and more, villagers understand that convulsions are dangerous and require immediate treatment by a health worker. Parents are using hard-earned savings and forgoing comforts to buy mosquito nets to protect their children.

With the growing collaboration between members of the Tanzania NGO Alliance Against Malaria, the Tanzanian government, the World Health Organization, and UNICEF come the possibilities both for spreading these community-based successes more widely, and for the realization of new successes. The most pressing challenge to bed net promotion that this partnership must now confront is how best to ensure equitable distribution of bed nets. The answer will most likely include a mix of market development, the long-term use of subsidies, and the free provision of bed nets to the most vulnerable rural populations. While such an approach carries within it questions of financial sustainability, the cost of an insecticide-treated net cannot be allowed to prevent those most at risk—pregnant women and young children in rural areas—from owning and using this life saving commodity.

### *Endnotes*

- 1 Malaria Consortium for the Department of International Development, 2003 Report on the Profile and Productivity of the National Malaria Control Program. Dar es Salaam: Ministry of Health.
- 2 Phillips-Howard, Penelope A., et al., “The Efficacy of Permethrin-Treated Bed Nets on Child Mortality and Morbidity in Western Kenya I. Development of Infrastructure and Description of Study Site,” *Am. J. Trop. Med. Hyg.* 68 (Suppl 4), 2003, pp. 3–9, April 2003, American Society of Tropical Medicine and Hygiene.

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