id21 insights

Hitting malaria where it hurts

Household and community responses in Africa

Each year at least 300 million cases of malaria result in more than a million deaths worldwide. Ninety percent of these deaths are in sub-Saharan Africa and most are children under five years old.

Preventing and treating malaria are now firmly on the international public health and global poverty agendas. However, despite a considerable increase in funds over recent years the malaria burden in much of sub-Saharan Africa shows little sign of decreasing.

Current strategies to control malaria include getting people to sleep under insecticide treated nets (ITNs) and increasing access to fast and effective treatment of malaria cases. These strategies depend on individuals and households protecting or treating themselves in particular ways – they rely on understanding how malaria is perceived and managed by households and communities.

Over recent years there has been emphasis on the idea that improving knowledge about malaria in communities will lead to better use of interventions. However, as demonstrated by **Lesong Conteh** in this issue of *id21 insights health*, there are other reasons why an intervention such as ITNs might not be more widely used. While there is much variation among households in The Gambia in the use of ITNs, most spend a lot of money to protect themselves against malaria. As

Lesong Conteh and **Collins Alhoru** show, the main barrier to use is not people's unwillingness: treated nets are costly and not always readily available.

Choice of care

In many communities the symptoms of malaria are widely recognised. Decisions about choice and order of treatment are often based on people's experience of the effectiveness of particular treatments and the availability and cost of medication. **Vinay Kamat** suggests that whilst some mothers with sick children in Tanzania do try to seek immediate care from a health facility, help is not always available or effective and mothers are forced to look elsewhere, to traditional healers for example.

Concerns about the effectiveness of the health sector are also raised by **Isaac Nyamongo**. He notes that treatment at health facilities in Gusii, Kenya is not always as effective as it could be: only 29 percent of children were examined for malaria. He also shows, however, that given information on the most appropriate antimalarial drugs, correct use of drugs at home (the most common first treatment step) can be significantly improved. Nevertheless, Isaac Nyamongo makes the important point that further progress is likely to be constrained by growing drug resistance and the rising cost and poor availability of effective drugs.

Bednets are re-treated during child health week in Peril, Zambia *(© 2005 Joy Human Development Centre, Courtesy of Photoshare)*

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The social reality of malaria

Since the late 1990s, funds to malaria control programmes have increased, in particular through the Global Fund to Fight Aids, Tuberculosis and Malaria (GFATM). Much of this money has been spent on trying to address affordability and availability through the purchase and provision to governments of ITNs and antimalarial drugs. Assisting governments to purchase these is essential, but the approach is still based on the distribution and causes of malaria. Very little attention is paid to the social reality in which malaria exists. The reality is firstly, the poor state of health infrastructure in many African countries and secondly, malaria has been a part of life and something people have had to face for thousands of years in many regions of sub-Saharan Africa.

Childhood can be a dangerous time with diarrhoea, malnutrition and respiratory infections contributing to the high number of child deaths and the perception that children are vulnerable. Malaria is serious and can be fatal for children. A child may suffer and recover from many mild fevers but without a test even doctors have difficulty in accurately diagnosing which fevers might be malaria.

Adults who had malaria in childhood and survived build some immunity against the disease. For adults in endemic areas, malaria is a mild 'flu like' illness. As **Rose Mwangi** describes, malaria is often perceived as a normal common illness that carries no shame and can be used to hide more stigmatising health problems. The perceived ▶

▶ normality of malaria is also reflected in Vinay Kamat's case study.

A disease of the vulnerable

Those that suffer most from malaria have very little social power, due to either their age, or as **Rebecca Marsland** writes, their gender. In her example from Tanzania, women are considered inferior to men in many aspects of life. Whilst men appear to use their power to contribute to malaria control, in reality this not only tackles the disease but also reinforces social rules.

Holly Williams highlights the huge problem of malaria among refugees: the most vulnerable but often forgotten community. She also points out that, as in settled communities, malaria is not the only problem that refugees face. Choices about when and what kind of help to seek are often are made on pragmatic grounds.

Research on managing malaria in

communities has been largely concerned either with individual perceptions about the causes and symptoms of the disease or with the implementation of specific interventions. It fails to provide essential information on the context in which communities and households cope with their day-to-day problems, including malaria.

Further research needs to:
● focus on the 'normality' of malaria and the social and political environments that influence how interventions are chosen and how they are used
● increase understanding of the social, economic, political and historical contexts that shape household and community beliefs and behaviours ■

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See also
'A critical review of behavioural issues related to malaria control in sub-Saharan Africa: what contributions have social scientists made?', Social Science and Medicine 59(3), pages 501-532, by Holly Williams and Caroline Jones, 2004

Buying the best?
Household malaria prevention in The Gambia

More effort is being made to promote the large-scale use of insecticide treated nets (ITNs) for malaria control. Yet many households still invest in other costly mosquito protection products instead of ITNs.

Funded by the Gates Malaria Partnership, research by the London School of Hygiene and Tropical Medicine and the UK Medical Research Council aimed to provide a better understanding of (1) how much households in The Gambia spend on malaria prevention, (2) how household expenditure fluctuates throughout the year and (3) why households spend what they do.

Studies show that poor people often spend a larger proportion of household income on malaria prevention than richer people do. Some experts say that malaria prevention methods can give some protection and may be of considerable health benefit. However, the scientific evidence to support these claims is sparse.

1,700 households were interviewed about their expenditure on malaria prevention over a two weeks period. Interviews were staggered over 12 months. Expenditure was compared across several forms of prevention including bed nets, treating and repairing bed nets, aerosols, coils, indoor spraying, smoke and other prevention strategies such as drinking herbs and cleaning the outside of homes.

Significant findings include:
● Households spent an average of 23.11 Dalasi (US$0.83) on malaria prevention fortnightly.

● Mosquito coils are the most common product and dominated expenditure all year round (see Figure 1).
● Mosquito coils, indoor sprays and aerosols represent 81 percent of total fortnightly health-related expenditure.
● Total expenditure on nets constitutes ten percent of total fortnightly expenditure.

The inability to afford an ITN is in some cases due to lack of financial resources and in others may relate to the low value people place on ITNs compared to their market price. In this sense, two thirds of people without an ITN could not afford to own one. These households, spent on average 18 Dalasi (US$0.65) a fortnight on other forms of malaria prevention. In four months, households spend around 140 Dalasi (US$5) on products such as mosquito coils and aerosols; the price of one ITN.

Why don't households choose to buy ITNs? The most commonly provided reason was that some families can't afford them (64 percent). Secondly, many households believe they do not need one (12 percent). In addition, other products and medicines are more accessible and affordable and in some cases considered more effective at preventing malaria and/or nuisance biting.

What influences expenditure on mosquito prevention?
● Wealth – wealthier households spend significantly more on prevention than poorer households.
● Age – households with children aged five to nine and adults aged 20 to 29 spend more on prevention than other age groups including those under five years.
● Occupation – household heads who were 'retailers' or 'businessmen' spent more on prevention.
● Location of residence – households in peri-urban areas spend significantly more on malaria prevention than those in rural and urban areas.
● Season – expenditure is 42 percent higher in the wet season (September to November).

Understanding the factors affecting household consumption choices as well as the actual amounts spent can inform the effective take-up of ITNs. It also shows how limited family resources could be used more effectively for better health.

Appropriate strategies are needed to encourage ITN use:
● Barriers to purchasing ITNs, such as their relative high initial cost, need to be addressed by the use of targeting, subsidies or voucher schemes.
● Households should be better informed about the health gains and potential savings from ITNs. Appropriate targeting strategies supported by government and at the local level can encourage ITN use, especially in children under five.

Households who cannot afford ITNs are nonetheless gaining at least partial protection from others products seen as more accessible and affordable ■

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See also
'Malaria prevention in The Gambia: patterns of expenditure and determinants of demand at the household level', Tropical Medicine and International Health 11(4), pages 419-431, by Virginia Wiseman et al, 2006

Figure 1: monthly expenditure on malaria prevention
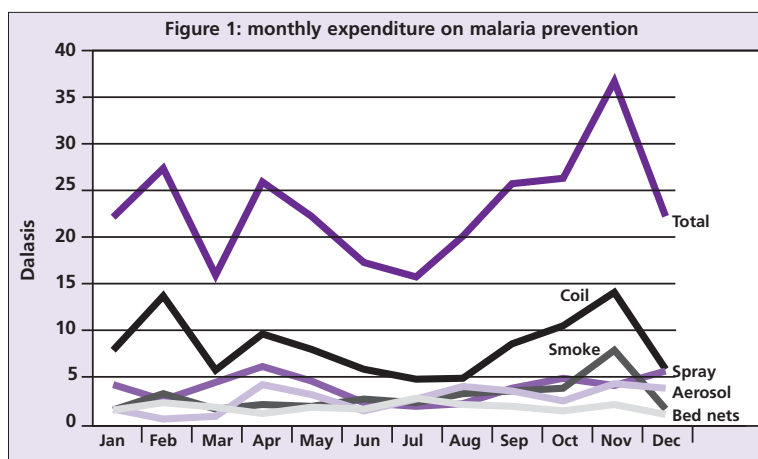
To buy or not to buy?
Communities and bed nets in rural Ghana

In some parts of Ghana, untreated bed nets to prevent mosquito bites are commonly used. Why do some Ghanaians choose these over more effective insecticide treated nets?

Although studies in Ghana have shown that insecticide treated nets (ITNs) are effective, this has not yet translated into an increased supply and use of ITNs across the country. A study in two rural communities, Obosomase (in the forest zone) and Galo-Sota (in the coastal savannah zone), looked at the factors which influence people's decisions to buy and use bed nets. Findings include:

- In Galo-Sota 98 percent of people, compared to only four percent in Obosomase, slept under untreated bed nets.
- Less than three percent of people in both communities used ITNs.
- All but one respondent in Galo-Sota had heard about ITNs on the radio or from clinic staff, and all except one person in Obosomase said they would like to own and sleep under an ITN if they could afford one.
- On average, residents of Obosomase were willing to pay Ghanaian Cedi 25,000 (US$2.75) for a family-sized ITN, while those in Galo-Sota were willing to pay Cedi 40,000 (US$4.37).
- Currently, a medium-sized ITN is sold for between Cedi 70,000 (US$7.64) and Cedi 80,000 (US$8.73) in large town markets. However, they are not available to people living in small rural towns and villages.
- The size of ITNs being sold to pregnant women at selected clinics at a subsidised price of Cedi 20,000 was

considered too small as children often sleep in the same bed as their parents. Whilst insecticides to treat bed nets are available in large towns and cities, they are not available in smaller towns and villagers where they are most needed. No shops in the study areas sold insecticide.

These findings show that residents in these two communities, but more especially those in Galo-Sota, recognise the value of ITNs and are willing to own and use them. However, they continue to face the challenge of where to find the right sized ITNs at prices they can afford. Findings from the study suggest that:

- there is a need to bridge stated willingness to pay and price through identifying further sources of subsidy for ITNs. The Global Fund offers one possible source. It is important that the subsidy is channelled so as not to undermine existing distribution channels, for example through urban shops
- use of ITNs might be increased if they were more accessible for purchase in small rural towns and villages. Strategies involving public and private distribution outlets, such as schools, clinics and small shops should be developed
- local manufacture of ITNs should be encouraged and supported by the government to adapt production to meet the social and cultural needs of local people in terms of the size, shape and colour of ITNs.

A poster at a primary health centre in Zanzibar describes the benefits of using mosquito nets to prevent malaria
(© 2005 Alfredo L. Fort, Courtesy of Photoshare)

The low use of ITNs in Ghana cannot be blamed on whether or not a community accepts their usefulness. Availability, affordability and the match between products offered and cultural factors like local sleeping arrangements influence households' purchasing of ITNs ■

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Forgotten people
Malaria control in refugee camps

Controlling malaria amongst refugees is a major challenge for host countries. In sub-Saharan Africa, most refugees live in areas where malaria is the primary cause of illness and death.

Yet malaria control is insufficient in many refugee camps for the following reasons:

- Limited national resources are stretched beyond capacity.
- Shrinking amounts of donor funding and high staff turnover.
- Chronically insufficient rations of both food and non-food items (such as clothing and blankets).
- Malaria treatment continues to consist of a single less effective drug (monotherapy) rather than the internationally recognised combination antimalarial therapy (ACTs) which agencies cannot afford.

In most camps, efforts are made to distribute insecticide-treated nets (ITNs) to the most vulnerable, although this rarely achieves complete coverage. Given the chronic shortages, refugees sell ITNs in exchange for food, clothes or blankets. They are forced to choose between having enough food to eat and preventing disease. For families, hunger appears more 'real' and immediate than the threat of malaria.

The Global Fund for AIDS, TB and Malaria (GFATM) is currently financing many national malaria control programmes to buy ACTs and ITNs. However, in most, if not all, recipient countries, funding is targeted at the national population, not refugees, causing unequal provision of malaria services.

National populations and refugees need the same malaria control policies. This will encourage the more equal distribution of limited resources. Refugees will continue to suffer needlessly until policies address these inequities. Policymakers on a global level need to:

- include refugees in all GFATM-funded malaria interventions
- ensure that malaria treatment guidelines

within camps reflect the policies of the host government, particularly if the host government has changed to ACTs
- increase food and non-food items to acceptable levels so that refugees do not have to choose between public health interventions
- provide adequate ITN coverage to both refugees and refugee-affected communities ■

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Forthcoming issues

Language
HIV and AIDS
Fisheries
Crisis states
Substance abuse

Seeking treatment for childhood fevers in Tanzania

In Tanzania, parents seeking treatment for children with severe, often malaria-related, fever vary in their choice of care. Their choice is influenced by a range of social and cultural factors that need to be better understood if children are to be successfully treated.

In urban and peri-urban areas of Tanzania, many parents believe their children suffer from 'degedege' – a local term for malaria-related childhood febrile (fever) illnesses. Parents and carers would prefer, in the first instance, to take their children to a biomedical facility. However, opening and closing times are not always convenient. Consequently, parents often have no choice but to seek out a traditional healer who can provide treatment and comfort at more convenient hours.

Many parents or carers of children with severe fevers do not necessarily follow one single approach to seeking treatment. Despite shared cultural knowledge concerning the causes of degedege, for example, parents deal with their children's illnesses in a variety of different ways.

It is the less obvious social and cultural dynamics of treatment management in households that influence how people seek health care in a crisis situation. These also interact with structural constraints and circumstances that influence how an illness is managed. Such constraints include:

- Physical, social and communication barriers at health care facilities, such as poor doctor-to-patient communication.
- A limited ability to use resources, including biomedical health facilities and social networks, due to poverty and social status.
- Little or no previous experience with the illness – especially young mothers.
- Bad timing of the illness, such as when health services are closed during a public holiday.
- the lack of social support and appropriate advice from members of ones social networks.

If malaria treatment strategies are to be successfully implemented, policymakers need to pay attention to:

Community health agents, Kinyak Odette and Foka Francoise, treat a mosquito net with insecticide and unfold it to dry in the sun in Lagdo, Cameroon
(© 2005 Rachel Hoy, Courtesy of Photoshare)

Fatuma's story

A pragmatic quest for treatment

Fatuma is a 24 year old single mother of two children. She lives in a village near Dar es Salaam. For two weeks she was preoccupied with Mariam, her nine month old daughter who had a constant fever.

The medical officer at the municipal dispensary diagnosed Mariam's condition as malaria and prescribed an antimalarial which didn't have any effect. Fatuma then bought an antimalarial syrup over the counter from a private pharmacy. She also saw a local healer in connection with another problem – Mariam's incessant crying and sleepless nights. The healer performed a divination and concluded that Mariam's illness was linked to visitation of spirits. To Fatuma's satisfaction he recommended ritual medicine.

Fatuma returned with her daughter to the dispensary the next day. A quick blood test revealed that Mariam's haemoglobin was dangerously low. Treating the situation as an emergency, a

Fatuma visits a Swahili healer to find treatment for her daughter's incessant crying and sleepless nights. Unknown to her, perhaps, these are signs of malaria
(© 2001 Vinay Kamat)

nurse gave Mariam an antimalarial injection, advising Fatuma to return with her daughter over the next five days to complete the dosage. The nurse also advised Fatuma to pay more attention to Mariam's nutrition as she had become anaemic.

Fatuma had by this time exhausted nearly all the local resources available. She had sought help from diverse and even contradictory medical traditions – modern biomedicine and a traditional Swahili healer. Yet the different problems are in fact signs of the same illness (in this case, cerebral malaria) from a biomedical point of view requiring a single treatment.

Fatuma returned to the dispensary with Mariam over the next five days to complete the prescribed treatment. However, malaria drug resistance meant the treatment was ineffective. Mariam was taken to a district hospital where she was treated with a more effective antimalarial.

- the subtleties of how poor households make health care decisions
- how uncertainties of life and every day contingencies influence poor people's health care decisions
- social change in poor communities, such as when new health care interventions like insecticide treated nets are introduced
- the politics of communication at public health facilities, such as when social status affects communication between health workers and mothers of sick children
- issues that go beyond the study of beliefs about the causes and origins of the illness like the politics of health care
- cultural models about the appropriateness of certain treatment seeking behaviours and practices ■

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See also
'"I thought it was only ordinary fever!" Cultural knowledge and the micropolitics of therapy seeking for childhood febrile illness in Tanzania', Social Science & Medicine 62(12), pages 2945-2959, by Vinay R. Kamat, 2006

Mosquito nets challenge tradition in Tanzania

New bylaws in 2002 legislating against 'misleading traditions' were passed in Kyela, southwest Tanzania. Although the bylaws were said to address malaria control, their formulation was influenced by local traditions.

One tradition concerned women who sleep outside at funerals. A new bylaw states that women are forbidden to sleep outside without a mosquito net. However, no bylaw addresses the common practice of men sleeping under the only net in a household, even though children and pregnant women are most at risk from malaria.

A second bylaw required young men to construct brick houses to stop mosquitoes, rather than building with bamboo or mud plaster. However, even brick houses can't prevent mosquitoes from entering through the roof or windows. It is much cheaper for households to buy mosquito nets for a whole family.

Failure to keep to the new bylaws risked a fine of 10,000 shillings (an average month's income in rural areas) or a sentence of six months in prison.

Clearly these bylaws are about more than just malaria control. Research revealed that:

- Mosquito bites are traditionally symbolic of a woman's suffering when in mourning.
- Sleeping under a net at a funeral or a son building a brick house for himself before he builds a home for his father results in punishment by witchcraft.
- The sexuality of women is thought to be dangerous to others when mourning: discussions about mosquito nets and funerals quickly led to men's concerns that women meet their lovers at night.
- Keeping a woman under a net at funerals is one of many ways in which men use symbols of 'modernity' to discipline women's behaviour.
- Political conflict between young and older men leads to an increase in accusations of witchcraft.
- By encouraging young men to build brick houses, older men are seen to be progressive and not practicing witchcraft.

Findings suggest that the bylaws probably originated from a study on belief and malaria in which local people took part. Policymakers need to be aware that the effects of such studies can extend far beyond their original remit. Research and policy recommendations include:

- broadening the concept of 'belief' from the extraordinary (funerals and witchcraft) to the everyday (men sleeping under nets instead of women and children, and brick houses protecting against mosquitoes)
- being aware that medical agendas can be hijacked by local issues
- recognising that for local people, concerns about the risk of malaria must be understood in the context of competing risks, such as witchcraft and AIDS ■

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Malaria
The acceptable disease in Tanzania

What are the social consequences of labelling mild fevers as malaria in Africa? Research in northern Tanzania highlights the social and cultural factors that influence women's experiences and attitudes to malaria and its diagnosis.

While the diagnosis of a disease is biomedical, the labelling of an illness involves social processes including the cultural norms regarding the accepted 'sick role' for a disease. If being tested for malaria is performing a social, as well as a clinical function, then changing the behaviour of both patient and provider requires an understanding of the symbolism of malaria diagnosis.

In sub-Saharan Africa, malaria is often perceived as a common illness, producing minimal disruption. Treating the tolerable signs and symptoms is considered the responsibility of the individual or family. Even among children, uncomplicated malaria is seen as a mild everyday illness.

Unlike AIDS or tuberculosis, people with malaria do not suffer social sanctions or emotional trauma from stigmatisation. In Tanzania, malaria is being used to hide stigmatising situations. Although associated
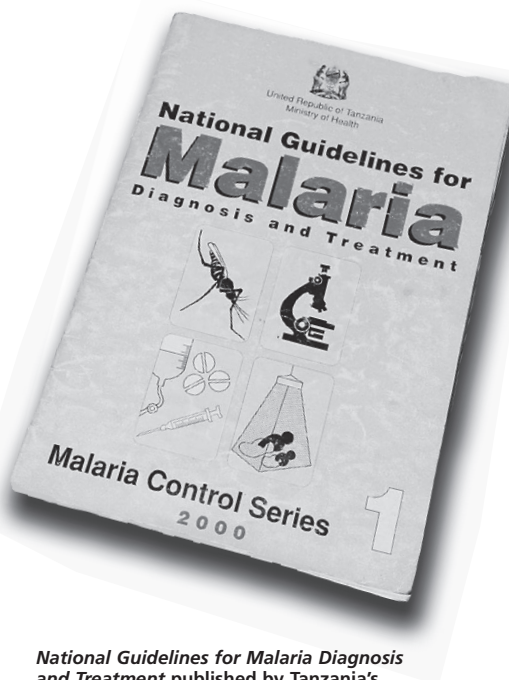
National Guidelines for Malaria Diagnosis and Treatment **published by Tanzania's Ministry of Health in 2000**
(© 2005 Alfredo L. Fort, Courtesy of Photoshare)

with poverty, malaria seems to be an acceptable label because it is not directly infectious and is 'invisible'.

A study in the Kilimanjaro and Mawenzi regions of Tanzania found that women:

- recognise the biomedical model of malaria and describe a broad range of 'malaria' illnesses, based on previous experiences, which cause different symptoms and affect different parts of the body
- who are sure they have malaria but had negative tests, visit a second

health facility for a repeat test. This is either because they believe the malaria could be 'hiding' or because they are looking for confirmation that they have malaria rather than a more serious illness

- use the term 'malaria', even when they do not feel sick, to conceal other problems such as menstruation, early signs of pregnancy, gynaecological problems, and to avoid sex with their spouses.

Women use malaria as an excuse to avoid duties, but at the same time a diagnosis of malaria is reassuring when women are feeling sick. As a consequence, women are prepared to spend money on unnecessary malaria tests and treatment.

Practitioners and policymakers need to consider how the term 'malaria' is perceived and used because:

- inappropriate malaria diagnosis can generate significant costs
- wrong diagnosis may lead to inappropriate treatment and/or result in the real illness being overlooked
- the willingness to adopt malaria as a label may reflect unmet social, rather than medical, needs.

The social construction of malaria calls for further investigation – especially given the costs of over diagnosis and overuse of antimalarial drugs ■

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Kenyan communities fight back against malaria

Over the past two decades malaria has become a growing problem in the highlands of western Kenya. In the Gusii highlands, malaria is now responsible for 33 percent of deaths and more than 60 percent of deaths in children under five.

Prompt and appropriate responses to malaria are critical for its effective management. Delays can lead to costly complications and even death. A swift response with appropriate treatment depends on many factors including cost of treatment and recognition of the danger signs of malaria. Many people choose, at first, to treat themselves at home with antimalarial drugs, sometimes incorrectly, leading to delays in accessing appropriate treatment.

To tackle this problem a number of malaria intervention programmes are running in Gusii. A baseline survey by Merlin, an international NGO, showed that community members were less likely to mention malaria danger signs than in areas where malaria is endemic. In response, Merlin started a programme in Gusii to help local people recognise signs of malaria and decide whether these are dangerous. The programme also focused on antimalarials and malaria prevention, such as the use of bed nets.

An evaluation of the programme reveals it was effective:

- The proportion of people who correctly used sulfadoxine-pyrimethamine (SP) antimalarial drugs increased from 21 percent to 91 percent.
- The proportion of individuals using antipyretics to control fever increased from 31 percent during the baseline survey to under 48 percent. Correct use of antipyretics increased from 40 percent to 74 percent over the same period.
- Mothers reported that 80 percent of children were examined for malaria at the local health centre, compared to only 29 percent in the baseline survey.
- About 60 percent of the community recognised fever as a key sign of malaria (an increase from 55 percent reported during the baseline survey). However, it is important to note that in this area, there are other health conditions, such as typhoid fever, that mask the use of fever as a key sign for malaria. Gusii is unlike other areas where over-identification of fever and malaria is common.

These findings show that there is potential to enhance the capacity of communities and local health services to deal with changing malaria patterns. This can be achieved through providing customised information to communities, which is sensitive to local conditions. By helping communities to recognise and respond to malaria, the impact of the disease can be promptly and effectively managed.

However, with malaria parasites' growing resistance to many antimalarial drugs, the Kenyan government has shifted its policy to the more effective artemisinin combination therapy (ACT). The drawback is its high cost which is likely to discourage people from accessing appropriate treatment unless it is subsidised ■

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See also
'Health care switching behaviour of patients in a Kenyan rural community', Social Science and Medicine 54(3), pages 377-386, by Isaac K. Nyamongo, 2002
'Home case management for malaria: an ethnographic study of lay people's classification of drugs', Tropical Medicine and International Health 4(11), pages 736-743, by Isaac K. Nyamongo, 1999

Useful web links

Asian Collaborative Training Network for Malaria
www.actmalaria.org

Gates Malaria Partnership, London School of Hygiene and Tropical Medicine, UK
www.lshtm.ac.uk/gmp

The Horn of Africa Network for Monitoring Antimalarial Treatment
www.hanmat.org

Liverpool School of Tropical Medicine, Malaria Knowledge Programme, UK
www.liv.ac.uk/lstm/majorprogs/malaria

Malaria Consortium
www.malariaconsortium.org

Malaria Foundation International
www.malaria.org

Malaria Journal
www.malariajournal.com

Multilateral Initiative on Malaria, Wenner-Gren Institute, Stockholm University, Sweden
www.mim.su.se

NetMark: Public-Private Partnership for Sustainable Malaria Prevention
www.netmarkafrica.org

TARGETS Programme, London School of Hygiene and Tropical Medicine, UK
www.lshtm.ac.uk/dfid/targets

The Roll Back Malaria Partnership
www.rbm.who.int

Special Programme for Research and Training in Tropical Diseases: Malaria
www.who.int/tdr/diseases/malaria

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