

MALARIA

Malaria kills over a million people a year – mainly young children. Most deaths occur in sub-Saharan Africa, where the disease accounts for one in five of all childhood deaths. Women are especially vulnerable to malaria during pregnancy, when the disease can lead to life-threatening anaemia, miscarriages, and the birth of premature, low birthweight babies.

More rapid and effective treatment of malaria with antimalarial drugs could prevent malaria

deaths. Meanwhile, many child deaths from malaria can be prevented through the widespread use of low-cost insecticide-treated bednets. But only an estimated 1% of African children today sleep under a bednet at night.

One fifth of the world's population is at risk of malaria – mostly in developing countries. Malaria acts as a major brake on development in the poorest countries – accounting for millions of days of lost productivity and missed schooling.

Malaria control strategy

The Roll Back Malaria (RBM) partnership is committed to halving the global burden of malaria by 2010.

The strategy for improved malaria control includes:

- access to rapid diagnosis and treatment at village/community level
- preventive treatment for pregnant women
- multiple prevention measures (including insecticide-treated bednets and vector control)
- a focus on mothers and children – the highest risk groups
- better use of existing malaria control tools
- research to develop new medicines, vaccines, and other tools
- interventions such as the Integrated Management of Childhood Illness (IMCI) to reduce child deaths from malaria
- improved surveillance to improve epidemic forecasting and response.

Viet Nam reduces malaria death toll by 97% within five years

Government commitment to malaria control in Viet Nam, largely through the supply of free insecticide-treated bednets and the use of locally produced, high quality antimalarial drugs, has reduced the malaria death toll by 97% within five years.

The concerted drive against malaria has involved major investment in training and disease reporting systems, the use of mobile teams to supervise health workers in malaria-endemic areas, and the mobilization of volunteer health workers.

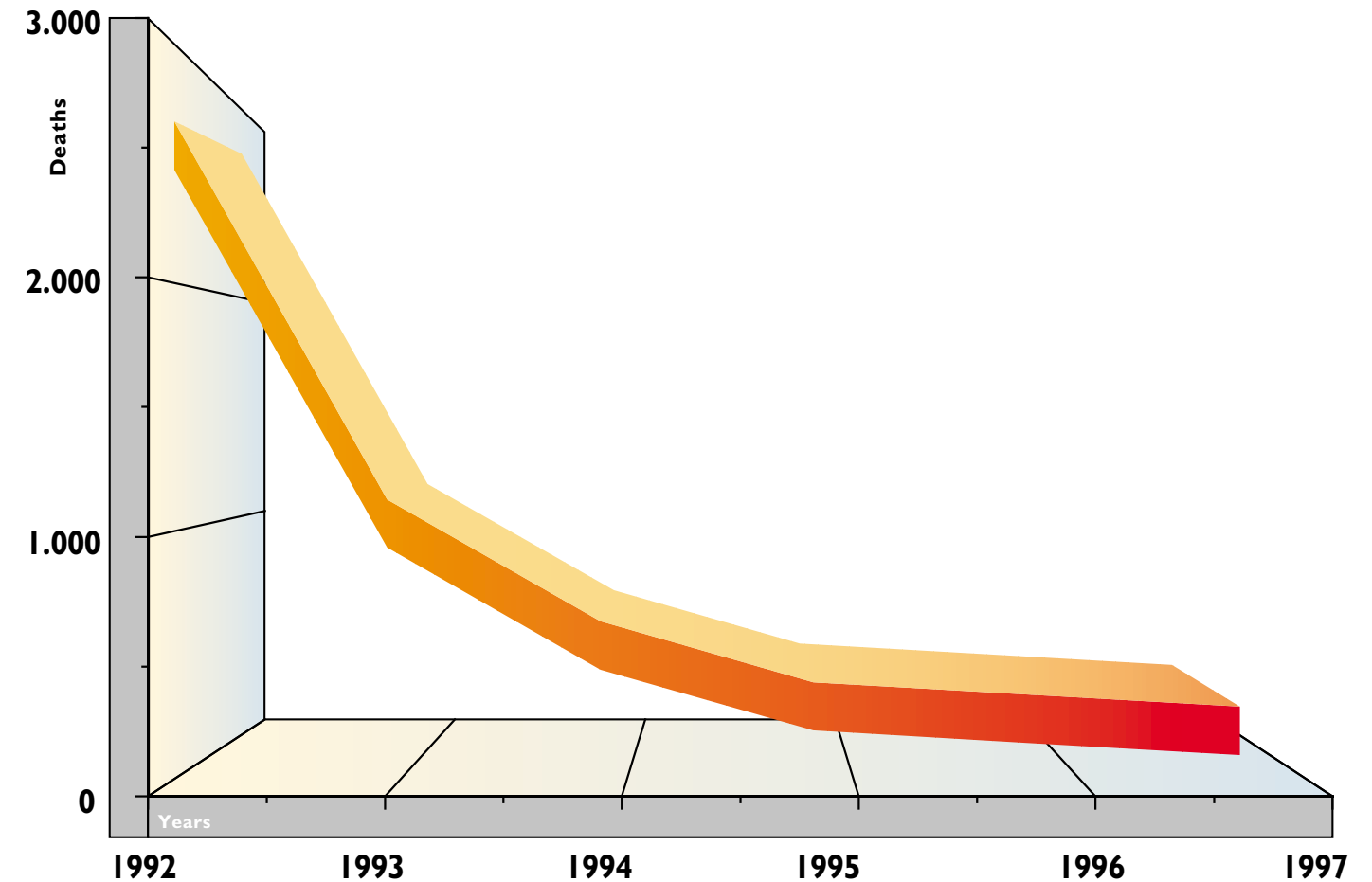


A CONCERTED DRIVE AGAINST MALARIA IN VIET NAM – largely through the country-wide provision of insecticide-treated bednets, indoor spraying with insecticides, and the use of locally produced high quality drugs – has had a dramatic impact on malaria deaths and cases. Over a five-year period from 1992-97, the death toll from malaria was reduced by 97% and the number of cases fell by almost 60%. Meanwhile, epidemics of malaria declined by over 90%, with only 11 small outbreaks recorded during 1997.

A decade earlier, the prospects for malaria control were far from promising. Primary health care and malaria control networks were weak and malaria control was ineffective in many areas. The country was in the grip of an economic recession, donated supplies of insecticide had dried up, and migrant workers were carrying malaria into areas where it had once been eliminated. In 1991 alone, there were 144 epidemics of malaria. Over one million people were affected. To make matters worse, the drugs used to treat malaria were rapidly losing their effectiveness. Resistance to first-line malaria drugs was reported in all southern provinces and in some northern provinces as well. Malaria threatened to spiral out of control.

Then in the early 1990s, the Vietnamese Government took advantage of an upturn in the economy – increasing its investment in malaria control and identifying the drive

Free treatment & insecticide-treated nets reduce malaria deaths in Viet Nam



Source: National Malaria Control Programme, Viet Nam

against malaria as a national priority. Coordination of malaria control efforts was stepped up and village health care networks improved. There was a major investment in training and supervision and mobile teams were set up to supervise health workers in malaria-endemic areas. Volunteer health workers were mobilized at community level. Disease reporting and epidemic forecasting systems were strengthened and supported by 400 mobile teams.

The first major breakthrough was the development and manufacture of a “new” drug – artemisinin – to treat severe and multidrug-resistant cases of malaria. The antimalarial drug, extracted from the indigenous Thanh Hao tree, had been used in traditional Chinese and Vietnamese medicine for centuries. It was rediscovered by Chinese scientists in the 1970s. In Viet Nam, collaboration between industry and researchers led to local production of high quality artemisinin and other derivatives at low cost. The new drugs had a major impact on severe and complicated cases of malaria and helped reduce the number of deaths.

At the same time, there was a major expansion in efforts to prevent malaria. The number of people protected from mosquito bites by indoor



house spraying with insecticides increased from 4.3 million in 1991 to 13 million by 1997. Meanwhile, the number of people sleeping under insecticide-treated bednets soared from 300 000 to over 10 million by 1997. Insecticide treatment of bednets is provided free of charge for people living in malaria-endemic areas.

Despite the recent successes, continued vigilance will be needed to prevent a resurgence of malaria in Viet Nam. More than one-third of the population – over 26 million people – live in malaria-endemic areas. The country is prone to natural disasters, including drought, typhoons, and most recently storms and floods – all of which can spark off epidemics of malaria. Today the malaria control programme is working in close collaboration with malaria researchers in efforts to improve control measures and develop new drugs and treatment regimens for malaria. And Viet Nam has also joined a regional initiative – under the umbrella of Roll Back Malaria – aimed at reducing malaria deaths throughout the Mekong region by at least 50% between 1998 and 2010.



Public-private partnership in Azerbaijan helps reverse malaria epidemic

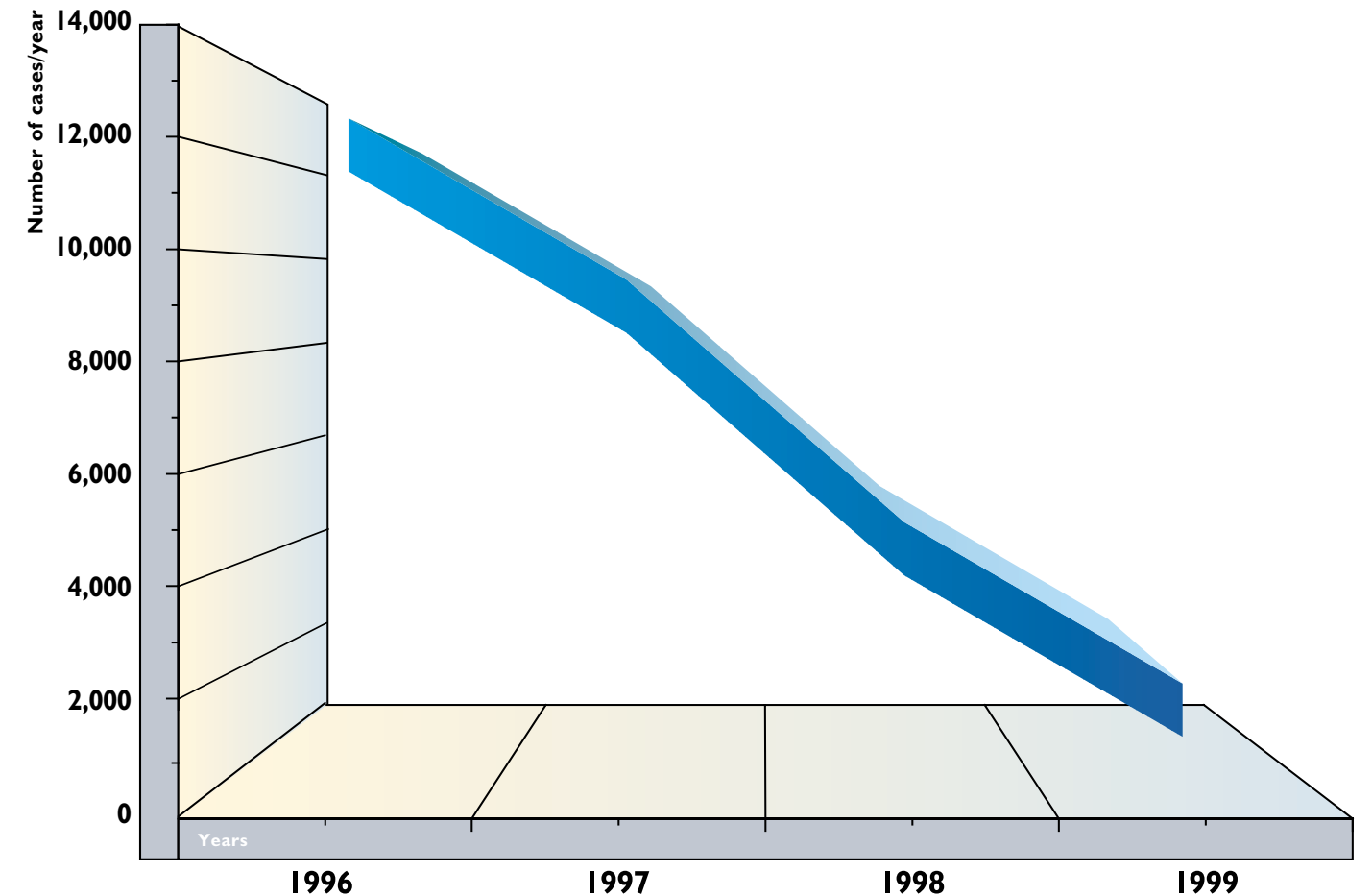
**Azerbaijan has reversed
an alarming upsurge in malaria cases.
During its first year of operation
the malaria programme,
funded by a private sector
multinational company and supported
by international and other UN agencies,
helped reduce malaria cases by over 50%.**

AN ALARMING UPSURGE IN MALARIA CASES IN AZERBAIJAN during the mid-1990s is being reversed through the efforts of a public-private partnership brokered in 1998 by the Roll Back Malaria global partnership.

A 3-year malaria control programme to support the Ministry of Health within the partnership agreement with WHO is being funded by a US\$ 760 000 contribution from the Italian oil company Eni. The company, which operates out of Baku, has already supported other development projects, including vector control activities. The programme, which is intended to reach about 1.5 million people, aims to reduce the incidence of malaria to only sporadic cases by the year 2004 and to avoid the social and economic impact of the malaria burden. RBM partners committed to rolling back malaria in Azerbaijan include the International Federation of Red Cross and Red Crescent Societies (IFRC), Médecins Sans Frontières Belgium, UNICEF, and other UN agencies.

The new venture is in response to the resurgence of a disease that was all but eradicated in Azerbaijan more than a quarter of a century earlier. In 1967, only three indigenous cases of malaria were reported. Then, in 1991, the break-up of the former Soviet Union severed traditional

Insecticide spraying & effective case management reduce malaria cases in Azerbaijan



Source: WHO/EURO

links with the former USSR republics which had provided support and expertise for malaria control activities in Azerbaijan. To make matters worse, the Nagorno Karabakh conflict erupted in the south-west of the country – sparking off massive population movements. By 1996, about one million refugees and displaced persons were living in refugee camps and other makeshift dwellings in malaria-endemic areas in the south. As the economic situation deteriorated, the health sector was unable to buy adequate supplies of medicines and equipment from abroad. Environmental management was abandoned. Irrigation and drainage systems collapsed through lack of maintenance. The mosquito was back in business. And with a vengeance.

As the number of cases rose from 667 in 1994 to over 13 000 in 1996, the government struggled with limited funds and international assistance to bring the epidemic under control. Agricultural production was threatened and there was concern that the epidemic would spread to neighbouring countries. The government established a special malaria epidemic control board headed by the Minister of Health. In 1997, about one sixth of the population – including those at highest risk of infection – were given weekly chloroquine treatment



to prevent malaria. The government also provided widespread health education about malaria. Meanwhile, WHO worked with UNICEF and NGOs to ensure that malaria control measures were in place in camps for displaced persons and refugees. Within a year, the number of cases had dipped below 10 000. By the end of 1998, only 5175 cases had been reported. The tide had begun to turn.

In an effort to accelerate and sustain this downward trend, the public-private partnership programme was established in 1998. The aim is to improve the capacity for and ensure wider access to early diagnosis and rapid treatment for malaria, to improve surveillance and epidemic response, to promote cost-effective and sustainable vector control, and to strengthen operational research capacity within the Ministry of Health.

Today, a new generation of doctors are being trained to recognize and treat malaria. And laboratory technicians are being provided with the equipment they need to ensure accurate screening of large numbers of blood samples during the high transmission season. Meanwhile, weekly visits are made to refugee camps and resettlement areas during the malaria season to detect and treat malaria cases.

Elsewhere, efforts are under way to reduce the density of mosquitoes through the use of insecticides in the highest risk areas – especially refugee camps – and through the introduction of larva-eating fish in mosquito breeding grounds such as stagnant waters and slow running streams.

During 1998, 400 000 people at risk of malaria were given preventive malaria drugs and case detection was actively carried out throughout the country. As a result, the number of cases was slashed by over 50%.

In the longer term, efforts will be needed to find a permanent solution to existing water management problems that encourage the proliferation of mosquitoes. To achieve this, close collaboration will be needed between the government ministries responsible for health, agriculture, and water management as well as the private sector, and other sectors of the economy.



Home as the first hospital

In the Tigray region of northern Ethiopia, where less than half the population live within easy reach of a health centre, over half a million people are treated for malaria every year by a network of over 700 volunteer health workers. Meanwhile, a pioneering scheme involving the recruitment of mothers to teach other mothers how to diagnose and treat malaria in the home has led to a 40% reduction in overall death rates among children under five.

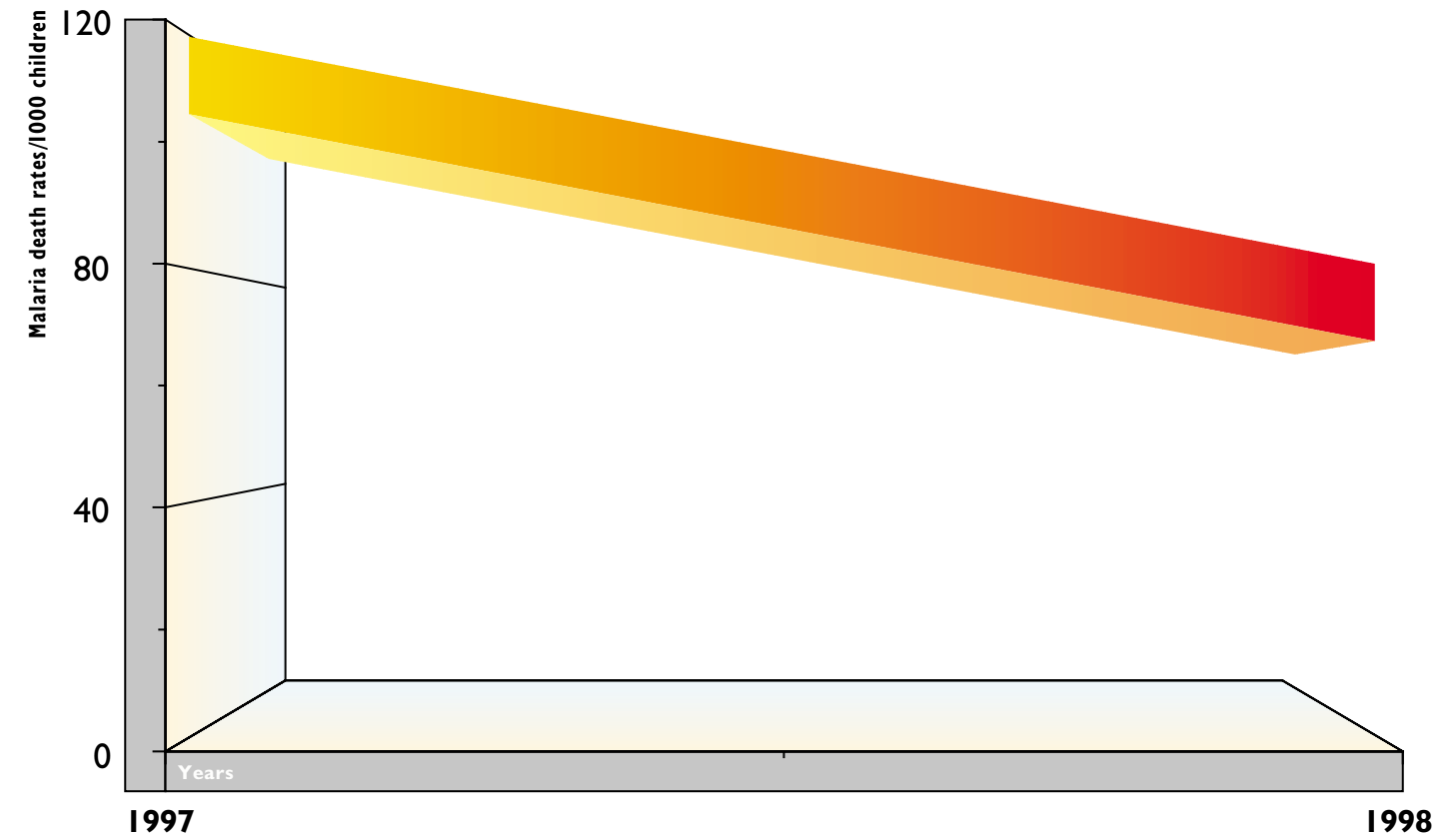


A PIONEERING COMMUNITY HEALTH SCHEME in northern Ethiopia – in which mothers are recruited to teach other mothers how to treat malaria in the home – has led to a 40% reduction in overall death rates among children under five. Meanwhile, among the children who died, death rates from malaria are estimated to be a third of those in villages outside the scheme.

Since 1992, village networks of community health volunteers – mainly subsistence farmers and, more recently, traditional birth attendants and mothers – have helped improve the diagnosis and home treatment of malaria in the Tigray region of northern Ethiopia. The aim is to ensure that malaria drugs are available to treat the disease before it becomes life-threatening, especially in very young children. In addition, the community health volunteers provide health education at the village level, supervise the regular supply of preventive malaria drugs for pregnant women, and help organize vector control activities, including insecticide spraying and environmental management to prevent the build-up of mosquito breeding sites. After an initial 7-day malaria training course, each volunteer is expected to spend about two hours a day on malaria work. In practice many work far longer hours.

The Community-Based Malaria Control Programme was launched by the Tigray Regional Government in collaboration with WHO and with financial assistance from

Training mothers reduces malaria death rates in northern Ethiopia



Source: RBM/WHO

the Italian Cooperation. The volunteer scheme grew out of the region's well-established social system and strong commitment to community involvement. Ethiopia's long-running civil war had a severe impact on the region's health system infrastructure. When it ended in 1991, Tigray experienced large population movements – of returning refugees, demobilized soldiers, and economic migrants – and an outbreak of malaria in the south in which over 500 people died. Almost 75% of Tigray is malarious and more than half the population is at risk.

Although established health services are still thin on the ground in this region (in 1998, less than half the population lived within 10 kilometres of a health centre) almost half a million people are treated for malaria every year by a network of over 700 volunteers. The volunteers – all elected by their own communities – are trained to recognize the symptoms of malaria and dispense antimalarial drugs (until 1999 chloroquine, and since then, because of chloroquine resistance, sulfadoxine-pyrimethamine). Severe cases of malaria are referred for treatment within the health services.

Almost all community health workers (98%) were men. Women were initially considered unsuitable due to the low level of literacy (in 1994, only 7% were literate), cultural expectations, and their heavy workload in the home. But in some districts women are now increasingly becoming involved as volunteers. The aim is to help boost the disappointingly low number of women and young children who use the services of volunteer health workers for malaria treatment. An assessment of the programme in 1994 found that two-thirds of those treated each month were over 15 and only 40% of patients were female. In response, some districts have recruited traditional birth attendants to do malaria work. In addition, mothers are being recruited as volunteer coordinators to train other mothers. This scheme is now being extended in response to the dramatic fall in death rates, including malaria deaths, among the under-fives in villages with mother coordinators.

Efforts are also under way to increase the acceptance of preventive therapy during pregnancy. In 1994, an investigation into low uptake rates among pregnant women – a high risk group for malaria – found that chloroquine is

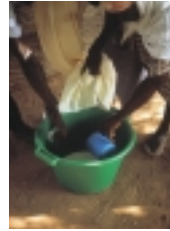
widely believed to induce abortion. Continuing education at the community level is being used to counter this belief and underline the danger of contracting malaria during pregnancy.

Elsewhere, in western Tigray, a community financing scheme has been established to supply bednets for use by returnees and demobilized soldiers in resettlement areas with high rates of malaria. Each of the communities involved agreed to accept responsibility for financing and managing the initiative. Bednet committees were elected to open community bank accounts and to collect and manage the money from the sale of imported bednets and insecticide for re-treatment. Through this system, 58% of the real costs of bednets have been recovered and deposited in community bank accounts. A study on the impact of bednet use over three years in the villages involved found a 45% reduction in the overall death rate among children under five, compared with a 33% reduction in villages without bednets.



Employer-based bednets scheme prevents malaria among workers in Kenya

In Kenya, an innovative scheme involving a community bednet-sewing industry, workplace promotion of bednets, and payroll purchasing schemes has helped reduce malaria cases and slashed overall health care costs. The public-private partnership venture has led to an increase in the use of bednets, higher profits for the community sewing industry, reduced absenteeism at work, and increased productivity among the employers involved.



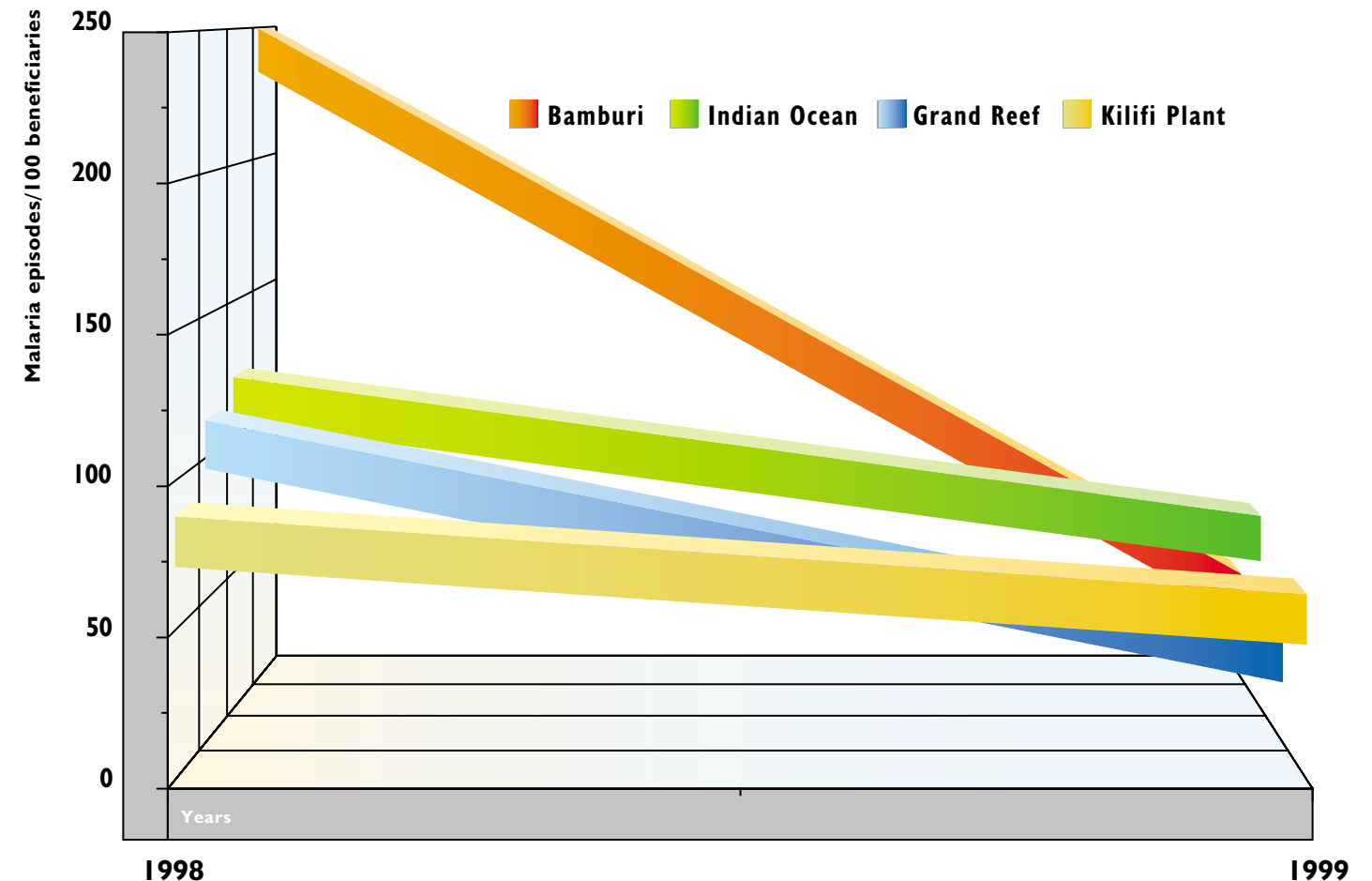
IN WESTERN AND COASTAL AREAS OF KENYA, a public-private partnership venture, involving workplace promotion of bednets and payroll purchasing schemes for employees, has helped reduce malaria cases as well as overall health care costs.

In one of the companies involved – a cement company in coastal Kenya – the number of malaria episodes among workers was reduced by over 80% between 1998 and 1999 and overall hospital admissions fell by almost 90%. Meanwhile, overall health care costs fell by over 20%. Elsewhere, the number of malaria episodes among workers was reduced by up to two-thirds, with related savings in health care costs.

The scheme, devised and managed by the Nairobi-based African Medical and Research Foundation (AMREF), has capitalized on the earlier success of a community bednet-sewing industry. The income-generating activity was launched by AMREF, with funding from Glaxo Wellcome, in an effort to encourage people to sleep under insecticide-impregnated bednets at night. At the time, supply and demand for bednets was very low in Kenya – especially in rural areas – mainly due to the high cost of imported bednets. Over 70% of the population are at risk of malaria, which accounts for 30%-50% of all childhood deaths.

In order to increase the supply of bednets and keep costs down, AMREF supplied community groups with sewing machines and netting material and launched a health

Insecticide-treated nets reduce malaria cases in coastal Kenya



Source: AMREF/Kenya



promotion campaign to encourage sales. Over a 4-year period, the bednet-sewing industry took root – producing over 5000 bednets for sale and fostering a growing practice of sleeping under bednets at night.

Then, in an effort to boost sales and increase bednet use still further, AMREF persuaded local private sector employers to purchase bednets from the community groups and offer them for sale to their employees through a company credit scheme or payroll deductions. The employers also agreed to involve their workers' health committees in efforts to promote the use of bednets and the need for regular re-treatment with insecticide. The initial 14 companies – employing on average 1000 people – included a brewery, a paper mill, a hotel chain, a mining company, and several sugar cane plantations. In the second phase, a further 14 companies have joined the scheme.

The arrangement suits everyone involved. As bednet sales increase – over 13 000 had been sold by October 1999 – a growing number of people are protected against malaria. With reduced absenteeism among the workforce, employers enjoy increased productivity and make savings on employee health care costs. And the community groups boost their income through increased sales of bednets.

This follow-up project, launched in collaboration with the Kenyan Government and funded by the UK Department for International Development (DFID),



got off to such a successful start that demand rapidly overtook supply. And AMREF had to buy in ready-made bednets until production caught up. AMREF works closely with the bednet-sewing industry to improve products and encourage their distribution through sales representatives, pharmacies, and other retail outlets.

Experience has shown that one of the key factors determining the rate of sales to the workforce is the involvement of senior management in implementing the scheme. In some cases, frequent change of management has had an adverse effect on uptake. Elsewhere, especially in the sugar belt, employee purchasing schemes have been slow to get off the ground. Another problem has been the low rate of re-treatment of bednets – due largely to the widespread misconception that the net alone provides adequate protection against mosquitoes.

AMREF hopes to ensure that the bednet-sewing industry is self-sustaining and can meet the increasing demand for bednets. Project funding and technical assistance ends in 2003. AMREF will continue to provide input up till then, whilst gradually transferring management of the project to the Kenyan Ministry of Health.

