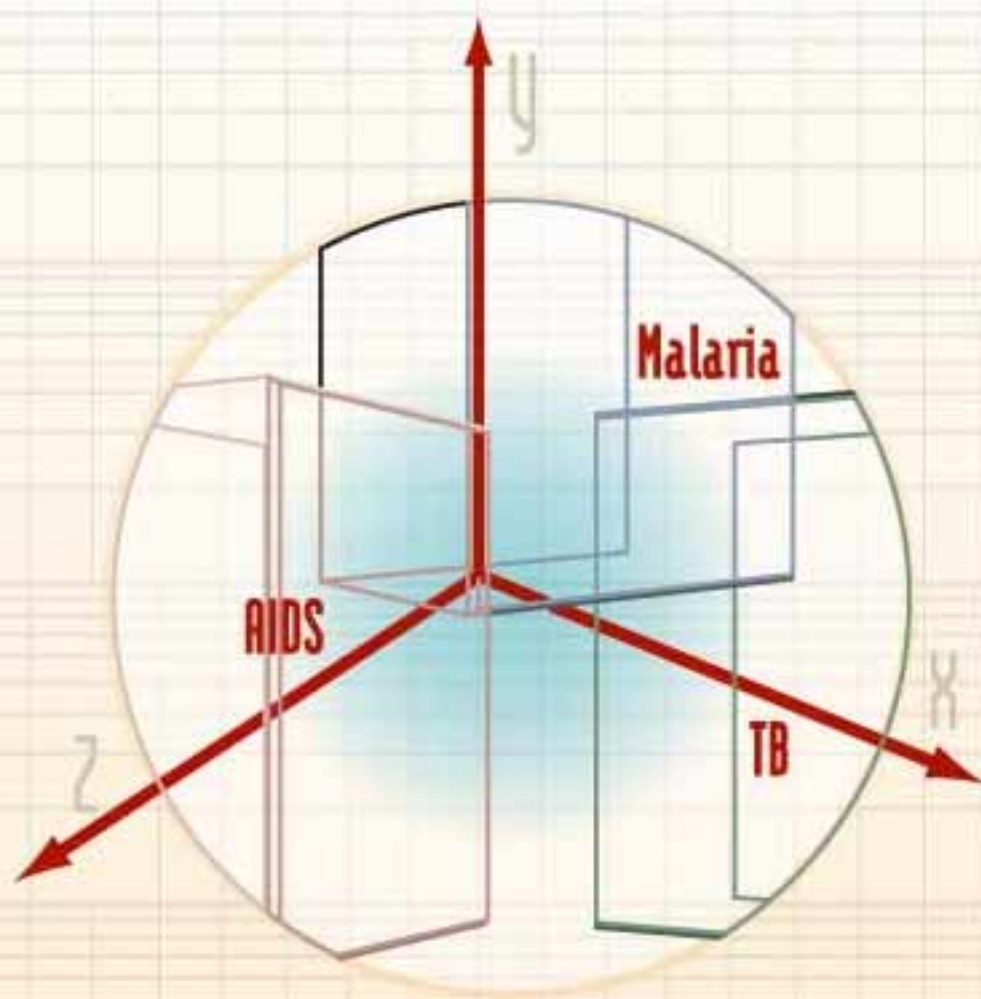


# Coordinates 2002

Charting progress against AIDS, TB and Malaria



Prepublication issue

**Writer:** Dick Thompson

**Technical editors**

- UNAIDS: Michael Bartos
- UNICEF: Matthew Hodge, Roeland Monasch, Annette Reinisch, Mark Young
- WHO: David Alnwick, Christopher Dye, David Heymann, Bernard Nahlen,  
George Schmid, Bernhard Schwartländer

**Cover-layout:** CDS Communications (AG/MKK)

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# Coordinates 2002

## Charting progress against AIDS, Tuberculosis and Malaria<sup>1</sup>

*Any effective effort to reduce the burden of disease faced by the world's poorest people must concentrate on AIDS, tuberculosis (TB) and malaria. Combined, these three diseases could account for 500 million or more illnesses a year and at least 6 million deaths.*

On humanitarian grounds alone, the world is called to respond. Other reasons argue for action. Evidence now confirms that development dollars are most productively spent lifting the burdens of disease because sick people cannot build healthy economies. Self-interest also motivates response. UN Secretary General Kofi Annan recently said that the earth's populations seem to him to be crowded into a "small boat" and, in that boat, what touches one – whether it is illness or anger – can touch us all.

*Coordinates 2002* is the first evidence-based, consolidated review of the three different but often interacting diseases spreading through this small boat. This report on the AIDS, TB and malaria epidemics summarizes the burdens of these diseases, assesses the tools used to fight them, and discusses the barriers to progress.

These diseases share several features. They all disproportionately affect the poor. They all further impoverish their victims and they will all require significant resources and political will to reverse their impacts.

This report, however, is not a comparison of the progress of one disease measured against another. These are distinct diseases that have vastly different biological, political and cultural contexts. For example, the first effective quinine-based treatment for malaria was given to Europeans in the early 1600s. Highly active antiretroviral therapy (HAART) did not become standard practice, in industrialized countries, until 1996. And while prevention efforts for malaria are aimed at encouraging parents to put their children under bed nets, the challenge in preventing HIV infections is to motivate young people to alter sex and drug use behaviours. It would simply not be helpful to ask why responses to HIV, which was only identified 20 years ago, are not as mature as for TB, a disease which public health has been battling in an organized way for more than a century.

While acknowledging their fundamental differences, it is hoped this coordinated review will reveal interactions among the diseases. A few are readily apparent. For example, despite income limitations, vast numbers of people with TB, malaria and AIDS spend money out of their own pockets trying to treat their disease. One study shows that 22% of the AIDS bill in Latin America is paid by individuals. But most of these people do not have access to effective treatments. Fewer than 5% of people in the developing world who would benefit from anti-retrovirals get them.

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<sup>1</sup> The report is based on the presentations given in Geneva on 27 January 2002 by UNAIDS Executive Director, Dr Peter Piot and WHO Director-General, Dr Gro Harlem Brundtland to the Global Fund to Fight AIDS, Tuberculosis and Malaria, Pre-Board Meeting.

Another insight confirmed from the coordinated data is that HIV makes TB more deadly and complicates control efforts. With weakened immune systems, people are much more vulnerable to TB than healthy people. In fact, TB and HIV are advancing in parallel. In Kenya, for example, HIV prevalence in adults more than doubled between 1990 and 1996. So did TB.

This report reaffirms the value of prevention. It is the most cost-effective intervention. Evidence is again reported here that prevention can work. With no cure and only limited access to therapies for AIDS, prevention efforts are crucial.

But prevention tools are little used. This has been known for some time in HIV/AIDS where the epidemic continues to spread despite known prevention methods. This report's coordinated view reveals prevention is not adequately used in malaria as well. For example, it is known that children sleeping under insecticide-treated nets can reduce childhood mortality by 20% or more. However, surveys of malaria-endemic countries in Africa show that, in most of these countries, fewer than 10% (often fewer than 1%) of children aged under five sleep under insecticide-treated bed nets.

Still, despite this coordinated view, many interactions remain obscure and need to be unravelled. For example, it is likely that HIV is playing a role in the rise of childhood deaths in the developing world and possibly in the increased prevalence and severity of malaria in pregnant women. If HIV's roles cannot be teased apart from deaths due to malaria, there is the risk of misjudging valuable interventions as less effective than they really are.

Some of the report's messages, like the results of the prevention surveys, are not good news. This is to be expected. Only now is the world scaling up responses to an AIDS epidemic that has no biological precedent, an epidemic that is exacerbating malaria and TB challenges. Action is demanded. But the only sure way to climb out of this abyss of suffering is by measuring the size of the problems, by analysing the obstacles blocking progress, and by monitoring to see which tools work and which do not. Only then can resources be deployed wisely.

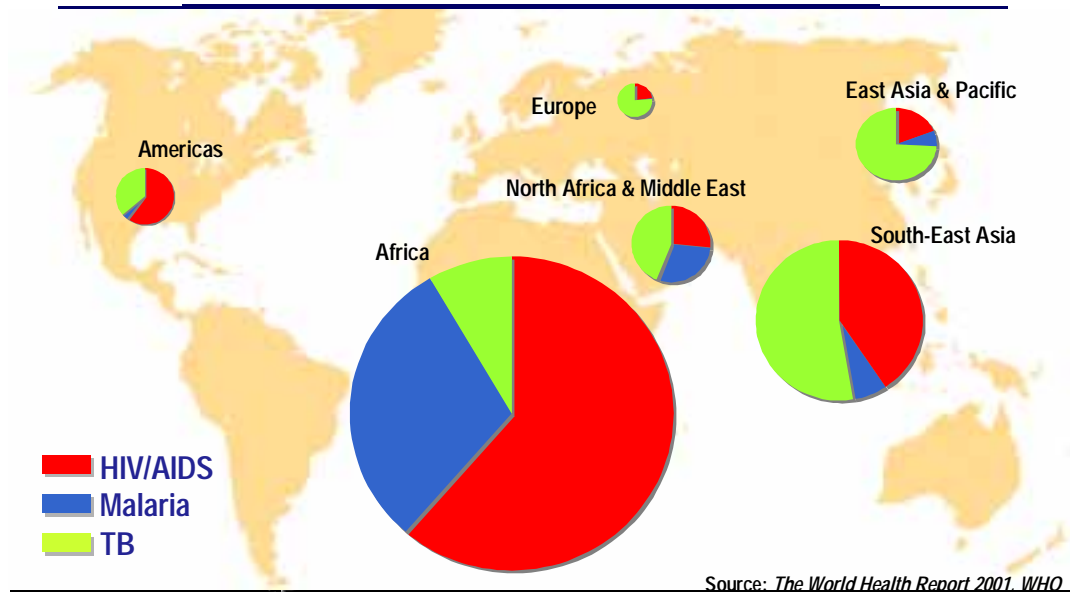
The good news is that the evidence confirms these diseases can be controlled. Interventions exist that can prevent, treat, and sometimes even cure these diseases. Many of these interventions are not expensive and the prices of others are rapidly falling. For malaria, bed nets cost under US\$ 5 in many countries and effective treatment can cost less than US\$ 1. Effective treatments for TB cost as little as US\$ 10.

The problem is connecting these tools to the people who need them most.

## 1. Burdens and trends

To a health economist, the impact of death can be measured in terms of years of healthy life lost (Lost Healthy Years of Life or Lost HLYs). By that measure, the losses to AIDS, TB and malaria are staggering. This is because these diseases hit so hard at the young. In 2000, TB accounted for 35.8 million years of healthy life lost; malaria cost another 40.2 million years; and AIDS wiped out 90.4 million years.

### HIV/AIDS, TB and malaria relative share of disease burden (Lost HLYs) by region, 2000

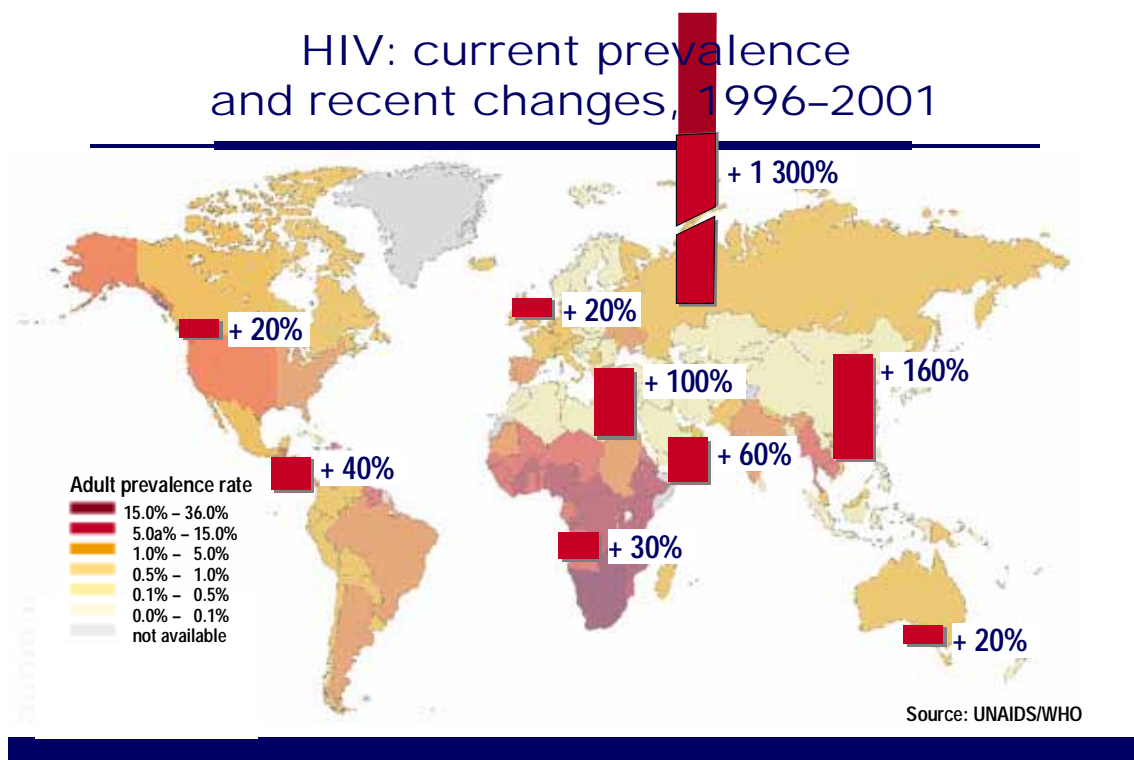


## AIDS

AIDS was first recognized in the early 1980s and, although it is almost completely preventable, AIDS has become a global epidemic.

Today, approximately 40 million people are infected with HIV and the number is growing. In 2001, some 3 million people died, while another 5 million were newly infected. Both infections and deaths are almost equally distributed between men and women. Half of all new infections – over 6,000 daily – are occurring among young people (15-24 year old).

The number of AIDS deaths is declining in most of the industrialized world and in some countries in Latin America. In sub-Saharan Africa, HIV prevalence is setting new highs in some places. The Caribbean is the world's second-worst affected region. The overwhelming majority of people living with HIV are in Africa, but the areas with the most rapid spread are in eastern Europe and central Asia. Eastern Europe experienced a 1300% increase in HIV prevalence over the last 5 years. Most new infections in this region are among injecting drug users.



Nearly 70% of all new HIV infections occur in Africa, south of the Sahara, where HIV is spread primarily through heterosexual activity. HIV infection rates among adults aged 15 to 49 range from a few percent in some countries in West Africa to over 30% in some countries in southern Africa. Last year alone, an estimated 800,000 children under 15 acquired HIV – over 90% were newborns infected through mother-to-child transmission, about 90% of those were in sub-Saharan Africa. About 20% of infected infants acquire the virus during pregnancy, 50% during labour and delivery, and 30% from breastfeeding.

Ignorance of the disease is widespread among young people, who are at the greatest risk. Half of all teenage girls in sub-Saharan Africa do not know that a healthy-looking person can be living with HIV/AIDS. A study in Mozambique found that 74% of girls aged 15 to 19 were unaware of any way to protect them from infection.

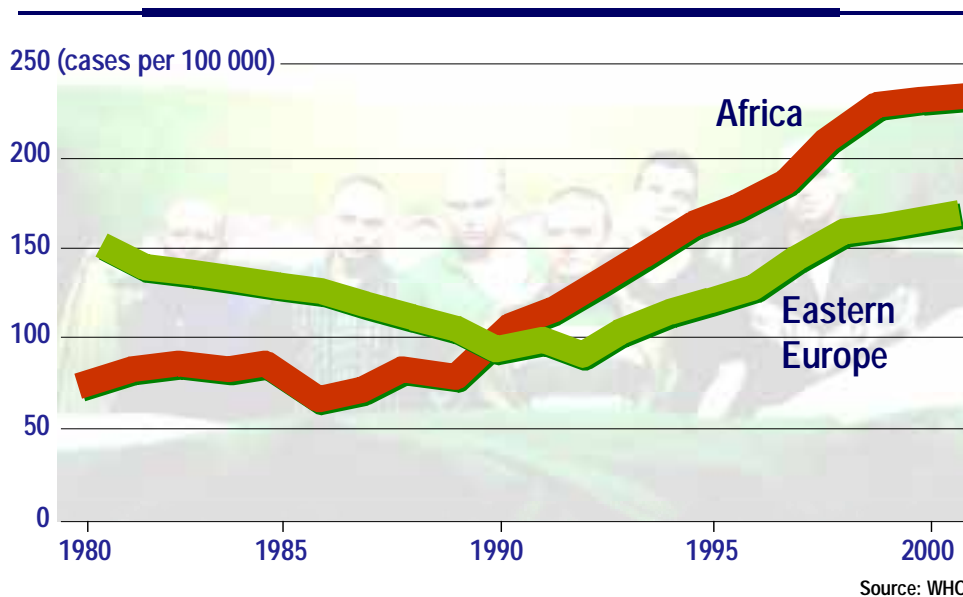
The vast majority of HIV-infected people are unaware they are infected.

## TUBERCULOSIS

The number of TB cases has been on the decline since 1980 in industrialized countries and still is. Cases have also remained stable in Asia and Latin America in the past few decades.

Nevertheless, new cases are increasing globally at an estimated rate of 2% a year. This is largely due to the spread of HIV in Africa and to the economic crisis affecting the newly independent states of central and eastern Europe and central Asia. Approximately 80% of all TB cases are found in 22 “high burden” countries with the largest number of cases in Africa and south-east Asia.

### TB trends in Eastern Europe and Africa



Today, one-third of the world’s population is infected with the TB bacillus. Of this pool of infected people, about 8 million become sick with TB every year and 2 million of them die. Current trends indicate that between 2000 and 2020, nearly one billion people will be newly infected, 200 million will develop the disease and 35 million of them will die. The rise in TB is so great that WHO’s World Health Assembly, in an unprecedented step, has declared TB a global emergency.

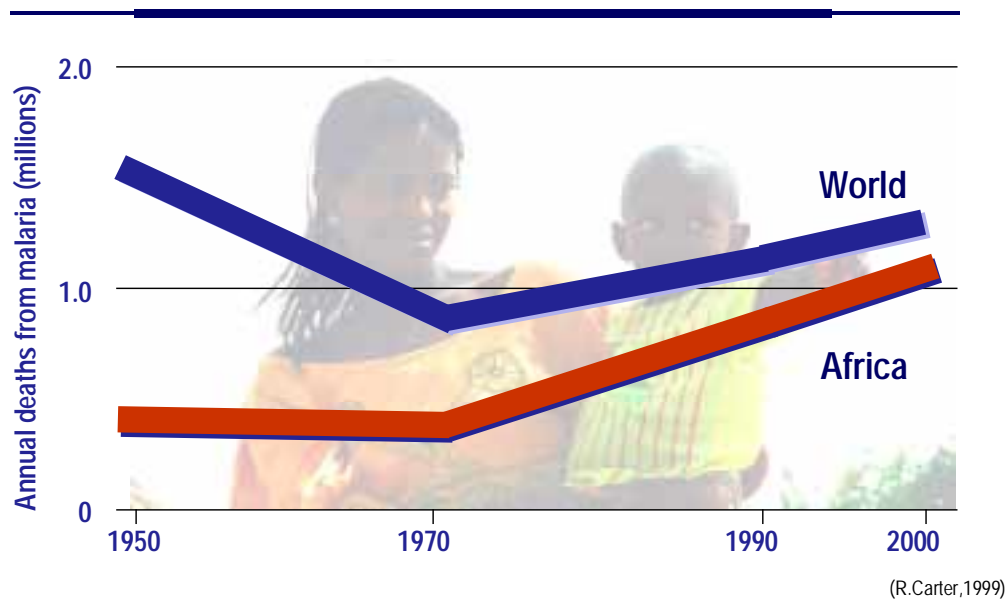
Together, HIV and TB form a lethal combination, each speeding the other’s progress. HIV decimates the immune system, releasing a previously restrained bacillus and simultaneously reducing the ability to fight the resulting disease. TB accounts for about 15% of all AIDS deaths worldwide. In Africa, HIV has been the single most important factor determining the increased number of TB cases in the last ten years.

## MALARIA

During the first half of this century malaria was an important health problem in all regions of the world including much of Europe and North America. In the late 1950s, it was believed that malaria could be completely eradicated. Through a combination of social and economic developments, prompt and effective treatment, and mosquito control, mainly the spraying of the inside of houses with DDT, it was eliminated from Europe, North America and much of the

Middle East by 1970. These measures also resulted in a dramatic reduction in malaria cases and deaths in much of Asia and Latin America. (However, little attention had been paid to the malaria problem in Africa.) A decline in funding, insect resistance to DDT and environmental concerns related to DDT led to the malaria eradication campaign being abandoned in 1972. Malaria has been rebounding ever since. It is now reappearing in some countries that had previously eliminated it.

## The malaria challenge



Estimates of the number of acute cases malaria cases are highly variable, and range up to 500 million. At a minimum, 1 million people die from malaria every year and malaria is likely to be a contributing factor in another 2 millions deaths. The majority of malaria deaths, at least 70%, are among young children living in sub-Saharan Africa.

Recent evidence indicates that malaria mortality is rising, especially among children. Today, 40% of the world's population – primarily those living in the world's poorest countries – is at risk of contracting malaria. In many parts of Africa, more than 80% of children can be infected with malaria parasites at peak transmission times and many children experience at least three life-threatening malaria infections by the age of one. Those children who survive malaria may suffer learning impairments or brain damage. Pregnant women and their unborn children are also at particular risk of malaria, which is a cause of perinatal mortality, low birth weight and maternal anaemia.

The rapid increase in drug resistance suggests that malaria deaths may either be understated now or they may be poised to rise sharply.

### **CONCLUSIONS**

The great burden of these three diseases falls on Africa, and most especially on children and young adults living in sub-Saharan Africa. There, AIDS, and TB linked to AIDS, and malaria are straining an already frayed public health infrastructure. Today, more than three quarters of AIDS deaths are found in sub-Saharan Africa, as are 22% of TB deaths and 90% of all malaria deaths. This is a stunning burden considering that sub-Saharan Africa contains just over 10% of the world's population.

## 2. Tools

*In the last few years, heads of state have agreed on the need to combat AIDS, tuberculosis and malaria. This political commitment has emerged as scientists have gathered evidence to determine which interventions are the most effective in combating each of these diseases. This convergence of political will and technical consensus has built broad support for existing intervention tools.*

### Effective evidence-based interventions

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- **HIV/AIDS** — prevention: *youth focussed interventions, sex worker, injecting drug user (IDUs), condoms, workplace, mass media, blood safety, preventing mother-to-child transmission (MTCT), reducing sexually transmitted infections (STIs)*  
— care (*palliative care, treatment & prophylaxis of opportunistic infection*)  
— treatment (*voluntary counselling and testing, highly active antiretroviral therapy–HAART*)  
— mitigation (*including orphans*)

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  - **Malaria** — reducing mosquito bites (*insecticide-treated bednets & spraying*)  
— prompt diagnosis and effective treatment  
— intermittent preventive therapy (IPT) in pregnancy

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  - **TB** — prevention (*BCG (children), education*)  
— treatment (*DOTS, management of multi-resistant TB*)

Source: UNAIDS/WHO

## AIDS

Experience with HIV/AIDS has evolved to the point where it is now possible to state with confidence that it is technically, politically and financially feasible to control the epidemic and dramatically reduce its spread and impact. Success in curbing the epidemic has come from government and civil societies working together, ensuring the epidemic is visible while at the same time decreasing the stigma associated with HIV/AIDS. In an increasing number of countries, partnerships bring together government and international resources with those of the community of interested activists: people living with HIV/AIDS, nongovernmental organizations, community-based organizations, religious and academic institutions, and the commercial sector.

These successes have come from societies committed to preventing the spread of HIV. Prevention of infection and care for those who are infected are both vital parts of a society's approach to HIV. The prospect of delivering state-of-the-art AIDS therapy to poor countries is, in the near term, uncertain.

Effective intervention against AIDS requires simultaneous efforts to reduce the risk of infection, reduce vulnerability to exposure, and alleviate the impact of HIV. Prevention tools are varied. To prevent sexual transmission, they include—abstinence, postponement of first sexual

intercourse, reducing the number of partners, condom use and treatment of sexually transmitted infections. To prevent injection drug use transmission, they include—abstinence, use of sterile needles (needle exchange programmes), cleaning of “works.” To prevent blood transmission, they include—screening of blood donors, use of sterile equipment, safe disposal of contaminated material. These tools of prevention have been shown to be successful even in some of the world’s poorest countries.

Two prevention programmes deserve special mention. Providing antiretroviral treatment to pregnant women to reduce the risk of infecting their unborn children is effective. Short treatment regimens reduce mother-to-child transmission by as much as 50% (but transmission to the infant through breastfeeding erodes this figure and the challenge is now is to find ways to reduce transmission of HIV through breastfeeding). Because STIs enhance the transmission of HIV by 3 to 20 fold (or more), providing accessible services for the treatment of STIs can help reduce the transmission of HIV, as well as help relieve the burden of STIs in a community. The challenges of both programmes are considerable in poor countries, because many have neither the infrastructure nor drugs needed to provide these services, which must be accessible to all, confidential, and nonjudgemental.

For people who are infected with HIV, steps can be taken to ease their burden and maintain health. Support to households and communities where HIV is having a major impact include direct support to minimize what is often a financial catastrophe; early support to children, especially those orphaned by AIDS, focusing on their health, nutrition and education; improved access to quality care including voluntary counselling and testing, essential drugs and commodities to treat opportunistic infections, antiretrovirals, and social support services. Less expensive antiretrovirals are becoming available notably within the *Accelerating Access Initiative*, a public-private partnership between the UN system and six pharmaceutical companies.

Maintaining the health of people infected with HIV may also reduce the emergence of opportunistic infections that are the main cause of death of people with HIV infection. Treating and preventing opportunistic infections can cost as little as a few cents a year. Simpler, less expensive antiretrovirals are becoming available.

## TUBERCULOSIS

Until approximately 50 years ago, there were no drugs to treat TB. Although drug regimens can be lengthy and complicated, the appearance of these therapies allowed TB epidemics to be brought rapidly under control.

However, no new drugs have been developed for TB in decades. So the challenge is to use these ageing tools more effectively.

The primary intervention against TB uses these drugs in combination in a programme known as DOTS. This is the WHO-approved strategy to treat the disease and control TB. DOTS has five components: political commitment, detection with smear microscopy, directly observed treatment with a standard short-course drug regimen (90% effective in new, drug-susceptible TB cases), regular drug supplies and standardized reporting.

Other interventions include BCG vaccination of young people to prevent TB and treatment of TB infection to prevent the disease from developing. Although BCG is efficacious against serious forms of the disease in children, protection is variable in adults.

As with primary TB infection, latent TB infection requires long-term treatment. Thus, treatment for contacts of active cases involves a daily dose of isoniazid for six to 12 months. Effectiveness in preventing TB varies between 40% and 90%.

## MALARIA

The main interventions to reduce the burden of malaria in Africa, where 90% of morbidity and mortality are concentrated, can be grouped into four areas.

The first is preventing parasite-carrying mosquitoes from infecting humans. This can be done either by killing the mosquitoes by sprayed insecticides or by using insecticide-treated nets (ITNs) which are both physical barriers and also kill mosquitoes. ITNs have been demonstrated to reduce malaria-related deaths in young children by an average of 20%. Other mosquito control tools include indoor residual spraying (also known as house spraying), larviciding, and environmental management.

The second tool is prompt access to effective treatments in or near the home. Prompt treatment is seen as essential because malaria can kill very rapidly and most deaths occur in or near the home.

Third, Intermittent Preventive Therapy or IPT is a strategy of providing anti-malarial drugs to symptom-free pregnant women in high transmission areas. This protects both expectant mother and child.

Fourth, epidemic response is designed to address malaria outbreaks. Malaria rates are always high in some countries while elsewhere malaria occasionally breaks out as an epidemic. It is estimated that 60,000 deaths result from malaria epidemics each year. The Roll Back Malaria (RBM) global partnership is supporting improved forecasting, prevention and response, including mapping areas at risk and providing technical support to improve country preparedness and country capacity to respond quickly and effectively to malaria epidemics.

## CONCLUSIONS

Prevention measures provide almost 100% protection against AIDS and are also very effective against malaria. Some limited protective measures exist for TB control.

The importance of health services is re-emerging as pivotal for their role in dispensing commodities and care and ensuring therapy adherence by people living with these infections. Health facilities must be revitalized, but it is also important to educate caretakers and communities to ensure an adequate first response where necessary (i.e. malaria). In all three diseases, treatments can benefit not only the person receiving treatment but also others in the household or community from being exposed.

Treatments are available for AIDS, TB and malaria, but there are limited options for each disease, and most treatments for malaria and TB are decades old. TB already has pockets of drug resistance. HIV drug resistance threatens the benefits that HAART offers. Resistance is a substantial problem now for malaria control that is causing Africa to rapidly lose the most effective and most inexpensive drugs. New combination therapies for malaria will likely delay drug resistance, but these therapies are more costly than most African countries can afford. The Stop Tuberculosis and Roll Back Malaria Partnerships are working to ensure that effective therapies for these diseases are available at affordable prices. Within the UN-private sector *Accelerating Access Initiative*, significant progress has been achieved in making antiretrovirals more widely accessible for people living with HIV/AIDS in developing countries. Without major efforts by industrialized countries, the price of these drugs will mean effective treatments will remain unused by the countries that need them the most.

### 3. *Targets*

*Health targets are often based on a combination of political aspiration and technical possibilities. For AIDS, TB and malaria, targets have been set in various political fora and summits. These goals have spawned a number of technical conferences that have further defined the health targets.*

World leaders meeting in September 2000 created an ambitious agenda for reducing poverty, both its causes and its manifestations. These “Millennium Development Goals” include halving extreme poverty and hunger, achieving universal primary education and gender equity. The Millennium Development Goals also set several health goals that included reducing under-five mortality rates, cutting the spread of HIV/AIDS, and slashing the incidence of malaria and other major diseases.

#### AIDS

**Targets.** In June 2001, a UN General Assembly Special Session on HIV/AIDS set in place a framework for national and international accountability in the struggle against the epidemic. As part of a comprehensive AIDS response, each government pledged to pursue a series of many benchmark targets relating to prevention, care, support and treatment, impact alleviation, and children orphaned and made vulnerable by HIV/AIDS,. Specific targets include the following:

- By 2003, to ensure that at least 90% of young people aged 15-24 have access to information, education and services necessary to develop the life skills needed to reduce their vulnerability to HIV;
- By 2003, to develop national strategies to strengthen health care systems and address factors affecting the provision of HIV-related drugs, including affordability and pricing. Also, to urgently make every effort to provide the highest attainable standard of treatment for HIV/AIDS, including antiretroviral therapy in a careful and monitored manner to reduce the risk of developing resistance;
- By 2003, to develop and, by 2005, implement national strategies to provide a supportive environment for orphans and children infected and affected by HIV/AIDS;
- By 2003, to have in place strategies that begin to address the factors that make individuals particularly vulnerable to HIV infection, including under-development, economic insecurity, poverty, lack of empowerment of women, lack of education, social exclusion, illiteracy, discrimination, lack of information and/or commodities for self-protection, and all types of sexual exploitation of women, girls and boys;
- By 2003, to develop multisectoral strategies to address the impact of the HIV/AIDS epidemic at the individual, family, community and national levels;
- By 2005, to reduce HIV infection among 15–24-year-olds by 25% in the most affected countries and, globally, by 2010;
- By 2005, to reduce the proportion of infants infected with HIV by 20%, and by 50% by 2010.

**Country Implementation Plans.** Only a handful of countries have not responded to AIDS. But about one-third of all countries with high levels of HIV/AIDS, particularly in Africa, still have a number of programme development challenges, especially when it comes to plans for fully costing and evaluating programmes.

**Monitoring.** AIDS surveillance is well developed in most of the world and HIV surveillance, often based on sentinel antenatal surveillance, has been extensively implemented, especially in Africa and other hard hit areas. As the diversity of HIV epidemics around the world is becoming ever more apparent, existing HIV surveillance systems are ill-equipped to capture this diversity, or to explain changes over time in mature epidemics. Efforts are now being made to build on existing systems, strengthening their explanatory power and making better use of the information they generate. Strengthened systems, dubbed “second generation surveillance systems”, are being developed to yield information that is most useful in reducing the spread of HIV and in providing care for those affected. That means tailoring the surveillance system to the pattern of the epidemic in a country. It means concentrating data collection in populations most at risk of becoming newly infected with HIV—populations with high levels of risk behaviour or young people at the start of their sexual lives. It means comparing information on HIV prevalence and on the behaviours that spread it, to build up an informative picture of changes in the epidemic over time.

**Feasibility of reaching targets.** The prevention and coverage targets set by the Millenium Development Summit and the UN General Assembly Special Session on AIDS are ambitious. HIV/AIDS, however, is an extremely serious threat to much of the world, and so ambitious targets need to be set.

## TUBERCULOSIS

**Targets:** TB’s targets for 2005 were endorsed at the World Health Assembly on 5 May 2000. TB’s targets for 2010 were proposed at the 2000 G8 summit in Okinawa. These targets are:

- By 2005, to detect 70% of all cases.
- By 2005, to successfully treat 85% using the DOTS strategy.
- By 2010, to reduce prevalence to half of the year 2000 estimate.
- By 2010, to reduce death rates by 50% of the year 2000 estimate.

**Country Implementation Plans.** All 22 high-burden countries have prepared a plan for DOTS expansion; 19 have developed budgets for one or more years 2002-2005.

**Monitoring.** Standard forms are now used in 210 countries to document numbers and types of TB cases notified, and treatment outcomes. TB monitoring is partially clouded because the private health care industry in some countries is not required to or, more commonly, simply does not report TB cases.

**Feasibility of reaching targets.** Most DOTS programmes have shown they can reach the target of 85% cure, but the case detection target is more challenging. Practical experience suggests that TB incidence will decline by 5% to 10% a year if national programmes can also achieve case detection rates of 70%, provided rates of HIV and drug resistance are not high. The HIV epidemic presents a massive challenge to global TB control.

## MALARIA

**Targets.** Over the decades, several targets have been set and missed for malaria. Since 90% of the world's malaria burden is in Africa, additional targets for Africa were defined on 25 April 2000 at the African Summit on Roll Back Malaria in Abuja, Nigeria. These targets include:

- By 2005, at least 60% of those suffering from malaria have prompt access to and are able to use correct, affordable and appropriate treatment within 24 hours of the onset of symptoms.
- By 2005, at least 60% of those at risk of malaria particularly pregnant women and children under five years of age, benefit from the most suitable combination of personal and community protective measures such as insecticide-treated nets and other interventions which are accessible and affordable to prevent infection and suffering.
- By 2005, at least 60% of all pregnant women who are at risk of malaria, especially those in their first pregnancies, have access to chemoprophylaxis or intermittent preventive treatment.
- By 2010, halve malaria mortality from 1998 levels.

**Country Implementation Plans.** Country Strategic Plans have been recently developed for 27 of 47 endemic countries in Africa.

**Monitoring.** Since 1962, the monitoring of malaria has focused on reported cases. More recently, population-based surveys have provided new data on the prevention and treatment of malaria. With this approach, which is more expensive, the data on intervention coverage are also improving. Even so, problems of determining accurate malaria burden (cases and deaths) remain. A large proportion of malaria deaths occur at home and frequently only a small fraction of the deaths are recorded. Consequently, experts tend to rely on “verbal autopsies” where health workers inquire about the nature of recent deaths. In villages where malaria is common, these “autopsies” have linked malaria to deaths when the deaths occurred with fever.

**Feasibility of reaching targets:** Many experts believe that cutting malaria mortality by 50% by 2010 is biologically possible but poses enormous operational challenges. Access to effective treatment, for example, will be increasingly problematic as drug resistance grows leaving fewer affordable drugs available. Effective treatment within a day depends upon symptom recognition skills, drug prescription policy, availability and affordability of treatment.

The effectiveness of insecticide-treated nets alone has been shown in several trials and pilot projects in endemic settings to reduce mortality in children under five by 20% in villages where 50 to 75% of all children sleep under the nets.

Finally, intermittent preventive treatment (IPT) for pregnant women has been shown to be effective. The use of antenatal care (ANC) services in sub-Saharan Africa is relatively high (estimated to be 64%). Therefore, prevention and treatment efforts linked to ANC may be more feasible to achieve, and they are effective. In Malawi, for example, when pregnant women received two doses of IPT, health workers saw a reduction in the rate of low birth weight babies of 50%. Treatment offered in antenatal clinics may serve as an effective entry point for promoting other interventions such as use of ITNs.

## CONCLUSIONS

Clear targets have been established and indicators identified for all three diseases. Consensus regarding interventions for their control is reasonably well-established. The likelihood of reaching any of these targets and indicators is dependent on funding and, equally important, local and international political commitment.

## 4. Results

*Even effective tools are useless if they do not reach the people who need them. To use resources wisely, it is important to know what tools are being employed, where, by whom and with what result. It is also important to understand if these tools are not being used or are being used inappropriately (perhaps leading to drug resistance).*

*For each of the three diseases, coverage measurements are divided at this time into prevention and treatment.*

### AIDS

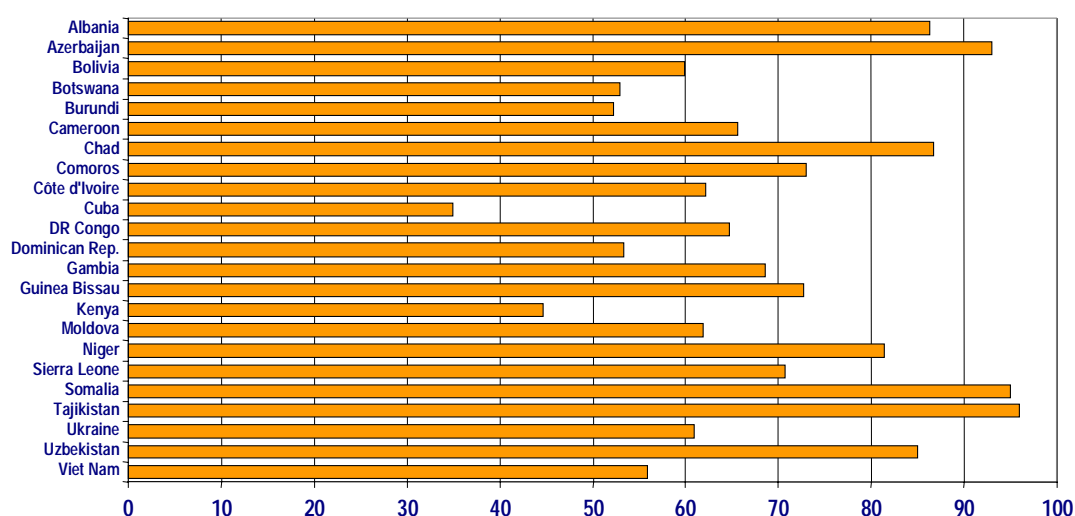
As with any other disease, preventing an HIV infection is always a better option than having to treat it. And it is far less expensive. Yet many years into the global epidemic, prevention efforts have far to go. This failure to widely establish prevention programmes which are visibly reducing HIV incidence reflects the difficulty of making sustainable change in deep-seated behaviours, continuing barriers of silence and denial, and the lack of resources. Without successful prevention programmes, however, high numbers of new cases will continue to occur and programmes that provide therapy and support to those already infected, even if they are greatly scaled up, will be overwhelmed. The challenges in both areas are enormous.

#### Prevention

The mainstay of HIV prevention, altering sexual and drug-using behaviour, is difficult. For prevention programmes to be effective, individual attitudes, community norms and social and structural vulnerability to risk must all be addressed.

Young people aged 15–24 represent half the total number of new HIV infections, and must be a priority for prevention efforts. Yet there are major gaps in reaching them.

### Proportion of young people (15–24) who have never heard about AIDS or who do not know that HIV cannot be transmitted through mosquitoes



Source: UNICEF / MICS, 2000

In studies of seven African countries, among sexually experienced adolescent women and men between 15–19 years of age, 40–87% believed they had little or no risk of getting AIDS. In the Caribbean and Latin America, surveys show that more than one-third of young people have received little or no sex education. In all surveys, young women know less than young men. A 22-nation survey recently organized by UNICEF found that among 15-24 year olds at least 30% in every country had either never heard of AIDS or mistakenly believed that nonsexual transmission, via mosquitoes, could occur. In 17 countries surveyed, over one-half of adolescents could not name a single method of protecting themselves against HIV.

In most societies, women have restricted abilities to control their sexual safety. Such restrictions come not only from traditional societal values, but also from physical, technological and economic realities. Further, in both genders, the lack of health services that are accessible and hospitable to young people, particularly concerning reproductive health, places a significant health care barrier between the needs of young persons and their ability to address those needs.

Although sexual transmission accounts for the large majority of the world's HIV infections, other behaviours must be addressed by prevention programmes. Injection drug use is the most common mode of infection in some societies, and generalized epidemics often begin with injection drug users. In other countries, use of nonsterile injection equipment or unsafe blood in health care institutions has played, and still plays, a significant role in HIV transmission.

But despite the challenges, there have been successes that provide lessons for moving forward.

In the 1980s, Australia prevented a major HIV epidemic among injection drug users by an active outreach programme, including clean needle exchanges. Its success undoubtedly also helps account for very low growth in the transmission of HIV through heterosexual sex in Australia.

Thailand's well-funded, politically-supported, and comprehensive prevention programme, including efforts directed at injection drug users and commercial sex establishments, decreased annual infection rates to an estimated 30,000 per year, from a high of 140,000 per year a decade ago.

Uganda's effectiveness in reducing its HIV prevalence over a period of 10 years was largely due to preventive education campaigns that mobilized leaders at all levels and in all sectors; importantly, this programme was decentralized and reached down to the village level. As a result, HIV prevalence among pregnant women in urban areas has fallen annually for eight years, from a high of 29% in 1992 to 11% in 2000.

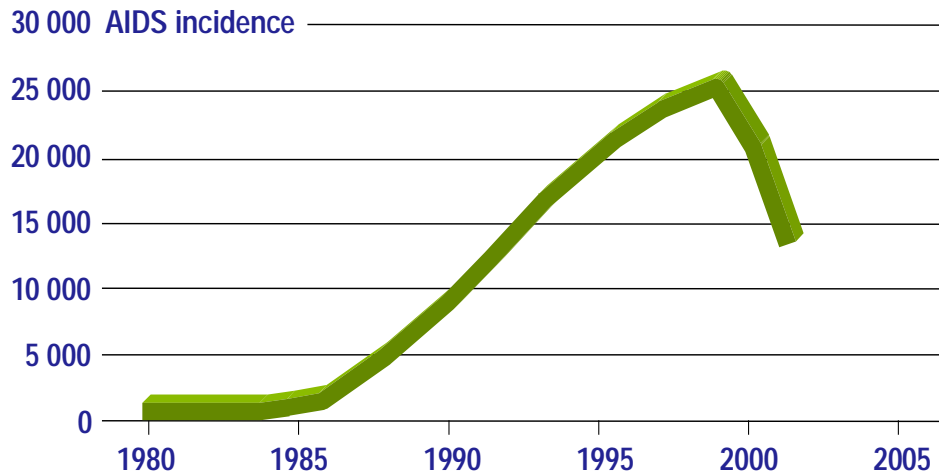
## **Treatment**

The provision of HIV care can extend life and markedly improve its quality. Mortality due to AIDS dropped markedly in high income countries after combination antiretroviral therapy became widely available in 1996. These benefits are yet to be realised in most of the world.

Although benchmark prices at which highly active, antiretroviral drug therapies (HAART) are made available to developing countries have dropped to less than US\$ 500 a year, they are not reaching all the people who need them. Fewer than 5% of people in the developing world who would benefit from antiretrovirals get them. There are clear challenges to the world, and individual countries and communities, to develop the resources to provide care programmes for HIV-infected individuals.

As with prevention, examples of successful programmes exist. Brazil guarantees state-funded antiretroviral therapy for those living with HIV/AIDS and the number of Brazilians receiving antiretroviral therapy through this system has risen to 105,000. The number of reported cases of AIDS dropped sharply in 2000 and 2001, largely as a result of individuals with HIV infection not progressing to AIDS.

## Impact of HAART on AIDS cases in Brazil



([http://www.aids.gov.br/final/biblioteca/bol\\_abril/artigo1.htm](http://www.aids.gov.br/final/biblioteca/bol_abril/artigo1.htm))

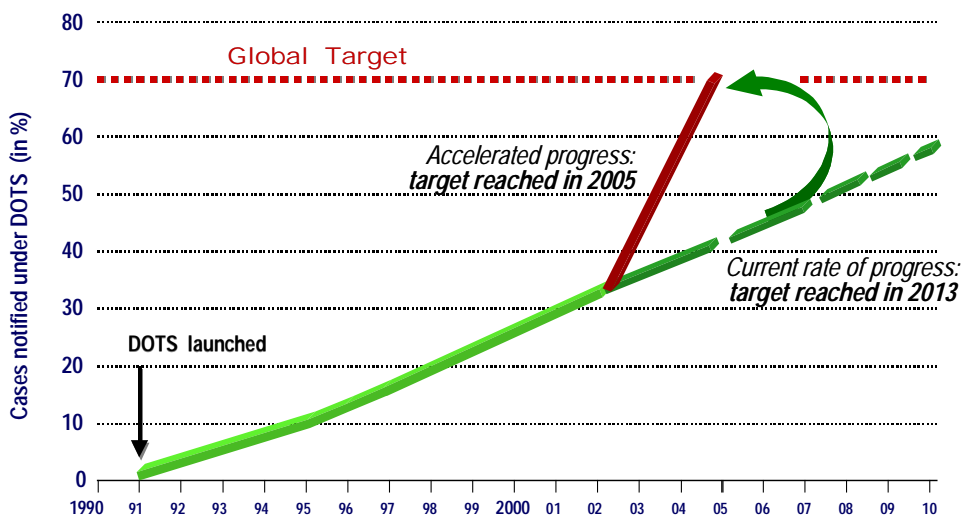
Delivering antiretroviral therapy on the scale that is needed requires commitment, innovation, and resources. National as well as international support will be needed. New data on the coverage of HIV-related prevention and care efforts will be presented at the International AIDS Conference in July 2002 in Barcelona.

## TUBERCULOSIS

### Prevention

BCG vaccination coverage over the past 25 years has reached approximately 92% of children in Europe and 62% in Africa. Treatment of latent infections has been neither directly quantified nor indirectly estimated.

## Progress towards targets for TB control



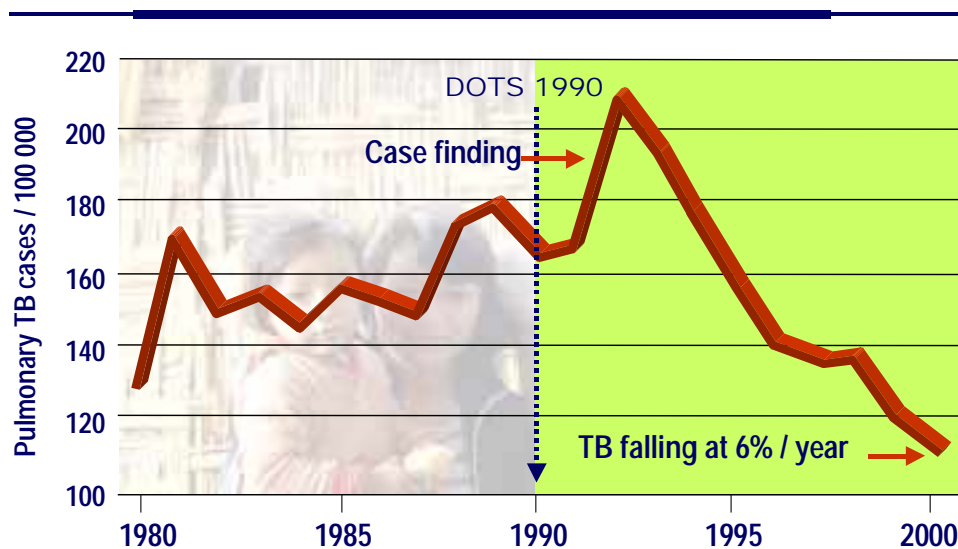
Source: WHO

## Treatment

In 2000, 148 countries reported using the DOTS strategy, offering access to about 55% of the world's population. This year, DOTS will likely treat its ten millionth TB patient.

In 2000, the DOTS programme identified approximately 1.02 million of the most infectious cases, those who are sputum smear-positive. This represents just 27% of all smear-positive TB cases that arose in 2000. Only Peru and Viet Nam among the high-burden countries have reached targets of 70% case detection and 85% cure.

## Impact of DOTS on TB in Peru



Source: J Infect Dis. v184, p 473, 2001

Between 1999 and 2000, the rate of progress in case finding remained little changed since 1994. As DOTS has expanded, an average of 133,000 additional new cases are being identified each year – compared to the extra 330,000 needed each year to meet the 70% target globally. Although 80% of all cases registered in DOTS programmes were treated successfully, this means that only 19% of all infectious TB cases received the best treatment.

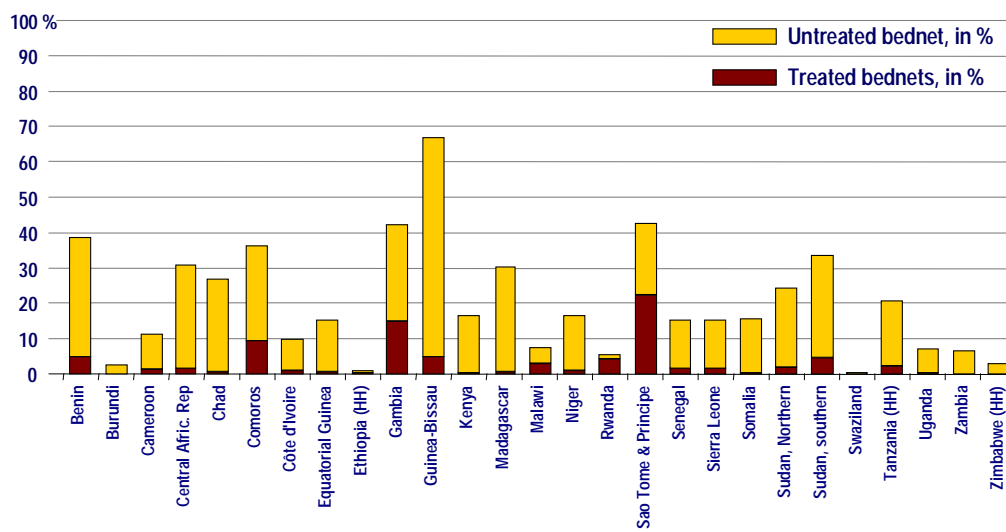
## MALARIA

Monitoring of malaria interventions in Africa, which has the greatest burden, is critical and yet it presents great challenges. Much of the current monitoring focuses on children because they comprise the largest percentage of malaria deaths.

## Prevention

*Mosquito Control/Bed net use* – Insecticide-treated net (ITNs) coverage of children in Africa is far from inadequate. A recent study of 28 African countries found that in all but two, the proportion of children under five sleeping under insecticide-treated nets was below 10%. The average use was only 1%.

## Proportion of children under 5 years of age who slept under a bednet or an insecticide-treated bednet the previous night, 1999–2001



\* HH: data based on number of households, not children

Source: UNICEF-MICS / DHS, 1999–2000

The effort to encourage the use of ITNs and to improve their availability to people at risk of malaria is being undertaken by a large number of nongovernmental organizations, faith-based organizations, local community groups and others throughout Africa. The RBM movement estimates well in excess of 5 million nets distributed to communities during the last few years.

*Intermittent Preventive Treatment (IPT) for pregnant women*—Data on the coverage of IPT are sparse although surveys in Malawi and Kenya found that up to 68% of pregnant women receive at least one dose of IPT.

*Mosquito control/Indoor Spraying* —Although there has been a reduction in the use of indoor residual spraying since the 1970s, it is still widely used. The effectiveness of spraying varies widely between regions depending on the type of mosquito present. In most of sub-Saharan Africa, ITNs are the primary intervention. Nevertheless, indoor residual spraying continues to play an important role in controlling malaria. The international community has recently acknowledged the critical contemporary role of DDT as a public health insecticide. Agreement has been reached to extend its use while affordable chemical and non-chemical alternatives to DDT are under development.

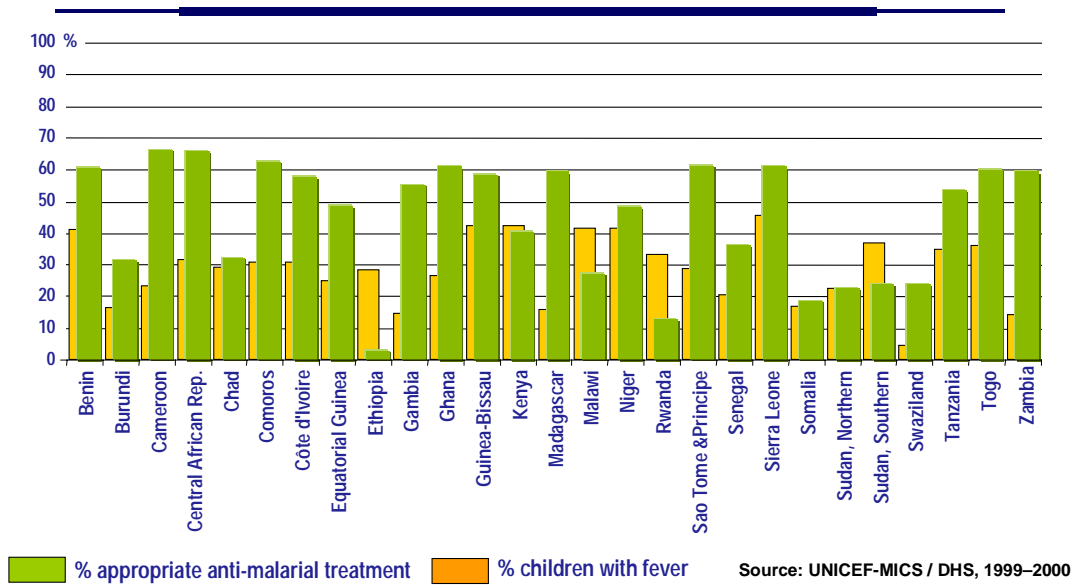
### Treatment

*Drug access*— Nearly 90% of all malaria treatment takes place at home. One measure of how often people are able to access drugs to treat malaria, and how often they get effective drugs, is to survey mothers seeking treatments for their children’s fevers. Recent surveys carried out by UNICEF across Africa found that access to any drug (antipyretic, analgesic, antimalarial) varied from a low of 22% in Ethiopia to a high of 93% in Gabon.

Even where the number of people accessing treatment is high, a significant percentage is not getting appropriate treatment. Surveys in 28 African countries found that in 14 of them, only 50% of the antimalarial treatments were appropriate. In many countries, the rates are much lower.

In northern Sudan, for example, only 23% received appropriate drugs. In Somalia it was 19%. What is more, these figures do not allow for late treatment, inadequate dosing or poor quality drugs. So the rates of effective drug use are likely to be significantly lower.

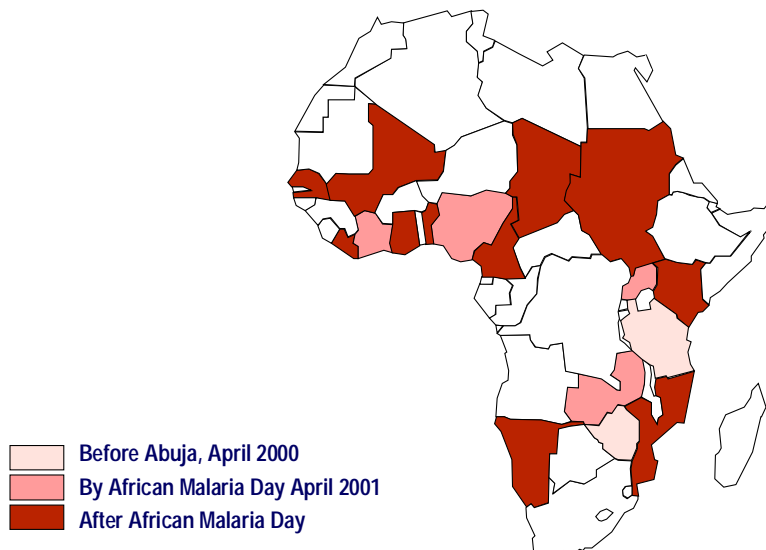
## Reported fever illness and use of antimalarial drugs in febrile children under 5 years of age, 1998–2001



*Drug resistance*—Resistance to chloroquine, the least expensive and most widely used antimalarial drug, is high in eastern and southern Africa and is increasing in West Africa. Resistance to the most widely used second line drug, pyrimethamine/sulfadoxine, is already high in parts of East Africa and is expected to spread rapidly across sub-Saharan Africa.

All this points to the growing need to improve coverage of available, cost-effective prevention tools. Barriers to increasing net coverage include the high taxes and tariffs which some malaria endemic countries impose and, thereby, increase the retail cost of the nets. Several countries in Africa have now reduced or waived taxes and/or tariffs on nets, netting and insecticides but the process has often been slow and cumbersome. Most of these changes have occurred relatively recently, since the Abuja Declaration in 2000.

## African countries taking action to reduce or waive taxes and tariffs on nets and insecticides



Source: WHO

## **CONCLUSIONS**

### **AIDS**

Addressing the challenges of HIV infection in all countries requires a mix of prevention and care programmes. As antiretroviral therapy becomes more of a reality, and the need for it becomes more starkly visible, programmes to care for ill individuals must be developed. As these programmes move forward, however, it is vital not to forget that prevention of infection is preferable – and far more cost effective – than caring for those who are already infected. Both are important.

### **Tuberculosis**

The DOTS strategy has proven its value across a wide range of countries, but at the present rate, targets are likely to be missed by eight years. Many obstacles stand in the way of the TB targets, but the most important may be funding.

### **Malaria**

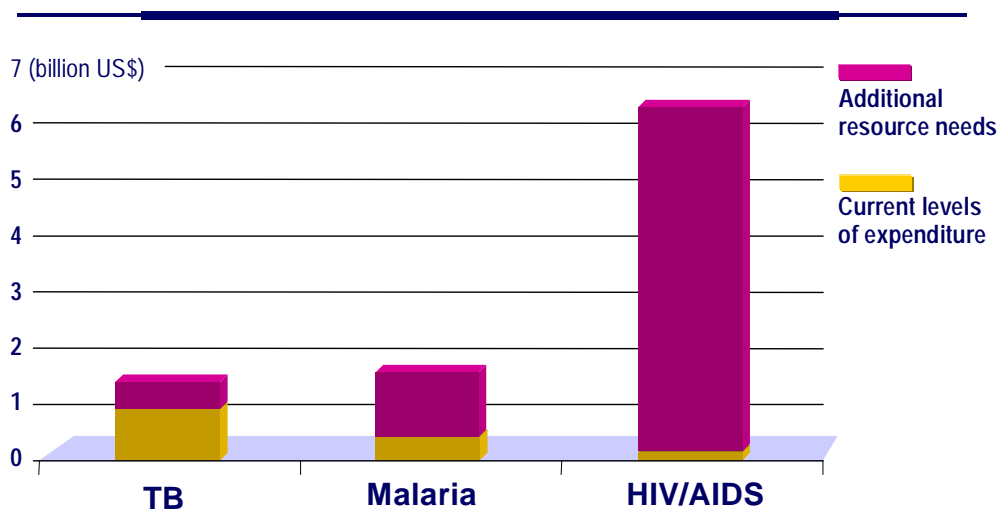
“Once a child has fallen ill with the high fever, a mother will pursue everything, including the most costly treatment, to prevent the death of her child,” concludes a recent study on malaria interventions. The present report has found that, despite the efforts of parents to protect the health of their children, fewer than half of children with fevers get appropriate anti-malarial treatment in 14 of 26 African countries. Home-based management programmes will begin to address some of the problems but, as cheaper drugs lose their effectiveness, treatment will place an increasing financial burden on poor households. Cost is also an impediment to using bed nets, and ITN coverage remains close to zero in many malaria endemic countries. Costs will also become increasingly important as inexpensive antimalarials lose their potency. Addressing this problem will require sustained commitment, on the part of international agencies and pharmaceutical companies, or government intervention to ensure effective drugs are sold at prices these countries can afford.

Although the data reported here contain little good news, they do provide a benchmark for measuring future progress in malaria control. The low coverage of the principal interventions against malaria underscores the importance of the RBM movement. The Abuja goals, 60% coverage for appropriate treatment, ITNs, and IPT in pregnancy, by 2005 are extremely ambitious. There is much to be done, all of it requiring focused attention, bold action and sufficient resources.

## 5. Funding gaps

*Evidence confirms intervention tools are effective and there is broad political consensus on health targets. The distance between the two is the measure of the need.*

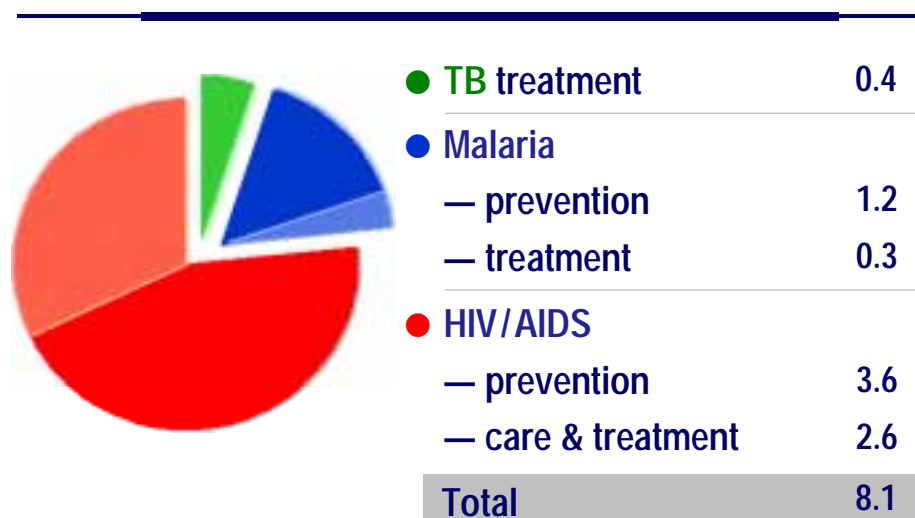
### Estimate of total annual resource needs



Source: *Commission on Macroeconomics and Health*, Kumaranayake, Kurowski, Conteh, 2001

In December, the Commission on Macroeconomics and Health provided a detailed, conservative estimate of those needs. For TB treatment, an additional US\$ 400 million is needed. Malaria control requires another US\$ 1.5 billion. For AIDS, the requirement is US\$ 6.2 billion. These are minimum estimates of funds needed.

### Additional annual resource needs (in billion US\$)



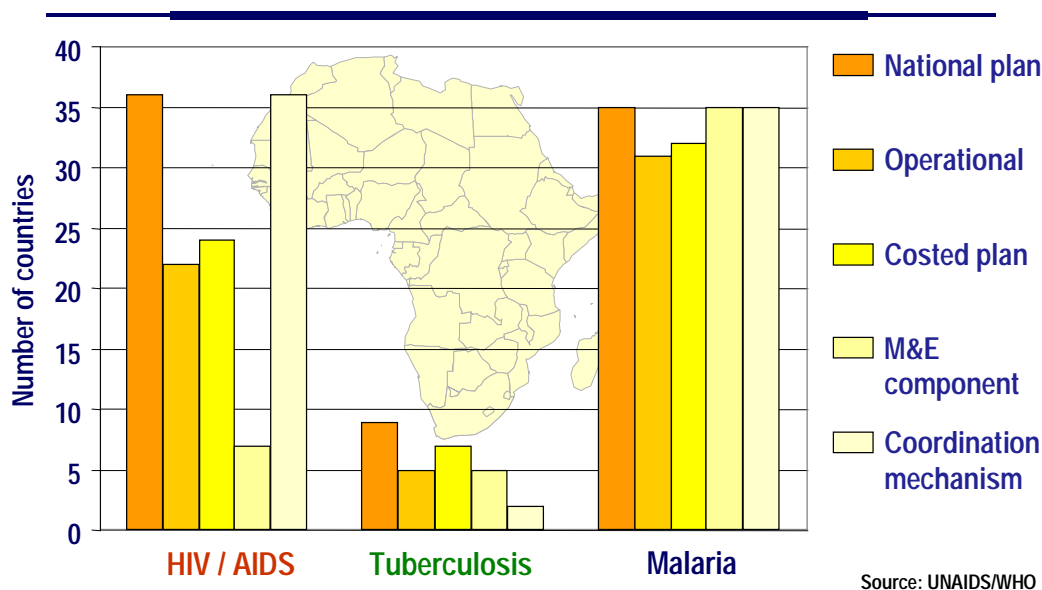
Source: *Commission on Macroeconomics and Health*, Kumaranayake, Kurowski, Conteh, 2001

In some cases, the job is close to being finished. The funding gap for TB is relatively small (below US\$ 400 million) compared to the overall budget of US\$ 1 billion for high-burden countries. These high-burden countries are demonstrating their commitment to TB control by financing 60% of the TB budgets themselves. As noted though, even at the current pace of funding, TB will not likely meet its target of 70% coverage until 2013, eight years late. But using the existing strategy, those targets could be reached on time, in 2005 with additional funds. The difference is not just eight years. The difference is tens of million of lives which can be saved or lost.

***How prepared are countries to use these funds?***

WHO and UNAIDS have finished a worldwide assessment of programme readiness. Each country's state of preparedness was scored according to a common checklist. WHO and UNAIDS determined if countries had a national strategic framework to address the disease; if there existed an operational plan; if the plan was costed; if monitoring and evaluation were established; and if there was coordination between government sectors, NGOs, civil society and donors.

The "Checklist" in Africa



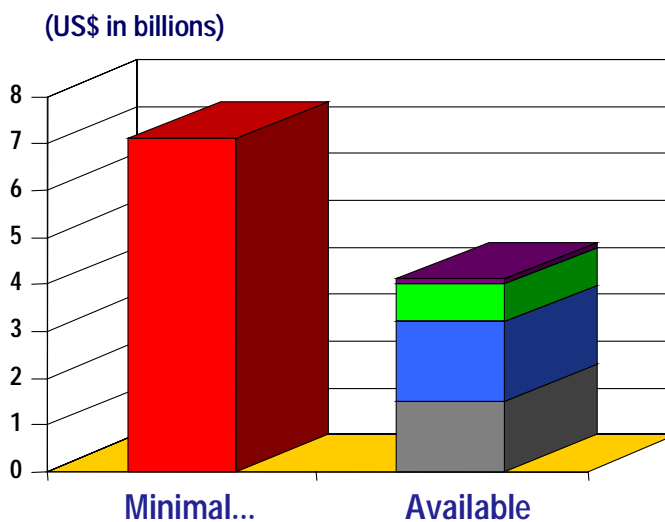
According to these surveys, a majority of countries have finished the strategic and operational planning necessary to expand their responses to AIDS, TB and malaria. (TB numbers look low compared to the other diseases in the chart because the Stop TB partnership is focusing on 22 high burden TB countries.)

## Global financial needs and availability for 2002

Current GFATM resources correspond to approximately:

- 33% of total 2002 international availability
- 20% of total 2002 availability
- 11% of total 2002 need

- Private/Other
- GFATM
- International
- National



Source: UNAIDS/WHO

Considerable programme development challenges remain in roughly a third of the countries assessed. This is particularly true in Africa, and most particularly true for HIV/AIDS.

Leaving aside new Global Fund resources, and assuming funding needs remain constant, this year's shortfall of US\$ 3 billion will, in two years, double.

## Conclusions

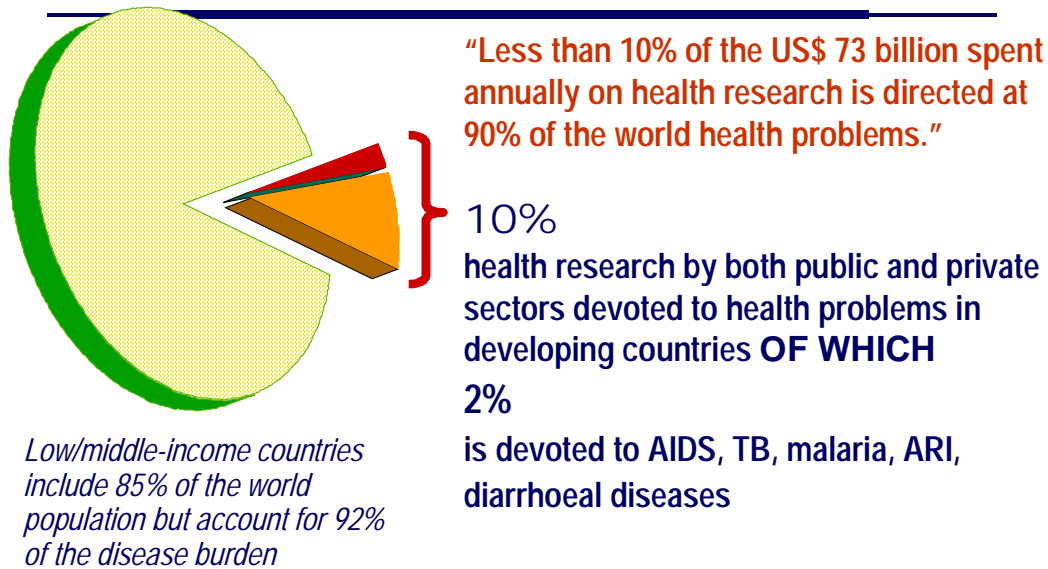
A worldwide consensus has emerged to respond to AIDS, TB and malaria. The momentum of political will arises at the same time as evidence has built a technical consensus supporting a limited range of effective tools to control these diseases. Targets have been set. Monitoring systems are being strengthened to identify progress and warn of failures. And the Global Fund to Fight AIDS, TB and Malaria has been established as new resource to fight these diseases.

Of all the tools, prevention provides the most value for the investment dollar. But in HIV/AIDS and malaria, prevention has proven to be a challenge. HIV/AIDS researchers are continuously analysing the prevention problem. If methods are found that can motivate those at risk to alter their behaviour, these methods may have an application in malaria and other health problems as well.

That is the hope. Today, poor people seeking help for themselves or their families frequently buy ineffective treatments. This drives households further into poverty. There is an urgent need to rationalize these purchases. It is hoped the Global Fund will help ensure that effective drugs are available to those who are now spending their limited resources for treatments.

While the existing tools are effective, there is a need for replacements. For example, drug resistance is a growing problem and while alternatives do exist, they often are more expensive than poor countries can afford.

## Health research budget worldwide: 90/10 gap



Global Forum for Health Research: Initiative on public-private partnerships for health

A lesson from the historical data teaches that confronting these diseases cannot stop until the job is done. Both malaria and TB have been beaten back before. Yet in many parts of Africa today, WHO has observed, the prevalence of malaria infection in children simply could not get much higher. And for TB, after decades of decline in the number of TB cases in the industrialized world, the trends changed direction in 1990.

While acknowledging that the response to AIDS has had far less time to scale up than the others, the AIDS community is examining closely how these responses have succeeded, wavered and failed.

When UN Secretary General, Kofi Annan, received the 2001 Nobel Peace Prize, he said: “We have entered the third millennium through a gate of fire.” He was referring to the attacks on New York’s World Trade Centers as well as the dozens of small and large wars which continue to rage, some for decades.

The 21<sup>st</sup> century does not have to be measured in body counts. Instead, wealth can be linked to compassion and the counts can be in lives saved, in new economic growth and most of all in the new opportunities provided to healthy children.

To do any of that effectively we need to know where we are, where we are going, and what tools we have to get there. This report is a step in that direction.