The Booster Program for Malaria Control: putting knowledge and money to work

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In April, 2005, the World Bank launched a Global Strategy & Booster Program for malaria control.[1] Our mission in this programme is to help developing countries reduce their human misery and economic losses from this entirely preventable and treatable disease. "On the basis of initial demand from clients, the working assumption is that a total commitment of US$500 million to $1 billion is feasible over the next five years."[1] World Bank Group President, Paul Wolfowitz, has put the full weight of his leadership behind the Bank's renewed commitment to malaria, with a strong emphasis on results. We are confident that strong country leadership and effective collaboration with our partner agencies will accelerate impact on a larger scale than before.

Here, we reflect on the Bank's history of support for malaria control, its ongoing efforts, and plans for the future. We also take the opportunity afforded by *The Lancet* to respond to various allegations made in this same issue by Prof Amir Attaran and co-authors.[2]

The Bank rededicates itself to fighting malaria

It is a tragic fact that malaria kills an African child every 30 seconds, despite available methods to both prevent and cure the disease. The disease impairs health and economic development in many parts of the world. At the macroeconomic level, annual economic growth in malarious countries between 1965 and 1990 averaged 0·4% of gross domestic product per head, compared with 2·3% in the rest of the world.[3] These analyses are not proof that malaria reduces aggregate growth, but the disease must be considered a significant factor,[4] and the human tragedy behind the numbers compels action. In addition to lost lives and productivity, malaria also deprives children of their education and sets back social development through lost days at school and neurological disabilities.

Countries that have made strides in controlling malaria indicate that strong political leadership, community involvement, and the right tools can make a difference. Technologies for a successful strategy of prevention and treatment include insecticide-treated bednets, indoor residual spraying, other methods of vector control, and effective antimalarial drugs. The combination of measures needs to be tailored to fit local contexts.

The Bank has come a long way since co-founding the Roll Back Malaria Partnership in 1998. While we contributed to successes in malaria control in parts of Brazil, Eritrea, India, and Vietnam,[1] the overall efforts by the Bank in malaria control were understaffed and underfunded.[1] The new strategy, which incorporates the lessons of the past years, is a results-driven plan that is backed by money and staff.

Response to Attaran and colleagues' claims

Before describing the new approach under the booster programme, it is worth correcting some of the inaccuracies and misunderstandings presented by Attaran and colleagues in this issue of *The Lancet*.

Accusations of financial concealment are untrue

We begin by examining an accusation by Attaran and colleagues that the Bank has concealed the amount of its commitments to malaria control. The facts are simple and readily understandable with a careful look at how programmes are financed. Analyses and practical experience indicate[5,6] that aid is often better coordinated through large programmes, rather than smaller stand-alone projects. These programmes usually provide budget support for country-led development strategies at the national level, or support the health sector through sector-wide approaches (SWAps). The dual challenge is to reduce transaction costs for recipient countries, allowing more of a country's often scarce capacity to be devoted to implementation activities, while ensuring a strong emphasis on results. The ultimate use of aid resources disbursed in this way cannot easily be traced to specific inputs from individual donors. Therefore emphasis is shifting from the attribution of inputs to individual donors to a collective responsibility to help countries achieve agreed outcomes. This emphasis is compatible with the business model of the booster programme.[1]

In this evolving context, it is not easy, and sometimes not even possible, to know exactly how much input from a specific donor went to a specific activity, be it malaria control or any other disease-control effort. Similarly, support for general sector-development and health systems, including the improvement of supply-chain management, personnel training, pharmaceuticals, and supplies, cannot be specifically linked to a particular disease even if that support contributes to its control.With that caveat, we are making efforts to track allocations and disbursements in malaria-specific operations and to get the most informed estimate of inputs into those parts of health-system improvement that are closely associated with malaria control.

Subject to the successful completion of programme preparations, negotiations with the governments of our client countries, and approval by the Bank's board, the expected new commitments for malaria control in the Africa and south Asia regions amount to more than $500 million in fiscal years 2006–08, the period for which confirmed concessional resources are available. This is consistent with our commitment under the Global Strategy & Booster Program report of 2005.[1]

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Choice of antimalarial treatment in India

Attaran and colleagues further claim that the World Bank has supported what amounts to "medical malpractice" in malaria treatment.[2] However, a careful look at WHO's guidelines for the treatment of malaria,[7] and data from the Government of India, leads to a very different conclusion.

According to WHO, *Plasmodium vivax* is the second most important species causing malaria in human beings—it accounts for about 40% of malaria cases worldwide.[7] In India, 52·5% of 1781336 laboratory-confirmed cases of malaria in 2003 were due to *P vivax*.[8]

WHO's guidelines for the treatment of malaria[7] state that: "*P. vivax* is still generally very sensitive to chloroquine, although resistance is increasing in some areas, notably Oceania, Indonesia and Peru. For chloroquine-sensitive vivax malaria (i.e., in most places where *P. vivax* is prevalent) the conventional oral chloroquine dose of 25 mg base/kg body weight is well tolerated and effective."

India is a large country with varied agroclimatic conditions, and the distribution of *P falciparum* malaria and patterns of its resistance to chloroquine are not homogeneous. Therefore, the Government's policy on use of antimalarial drugs is based on local situations within the framework of an overarching national policy, guided by evidence and expert advice. The type of parasite, resistance pattern, and cost and availability of drugs are important issues for any changes in drug policy. India has established institutional arrangements to monitor sensitivity to malaria drugs and to regularly update drug policies and implementation strategies in line with the changing situation within various states. These arrangements would be further strengthened under a proposed new Bank-financed operation, the Vector-borne Disease Control Project,[9] now under preparation.

On the basis of information from the Indian Government, *P falciparum* resistance to chloroquine is now emerging in the country, most notably in the north east. So far, 236 primary health-care centres in 19 states or towns have been identified as chloroquine-resistant areas. The first phase of the Government's response has been to ensure sulfadoxine-pyrimethamine therapy is available in place of chloroquine in areas where the efficacy of sulfadoxine-pyrimethamine remains high.

According to the Government, it has begun to supply substantial quantities of artemisinin-based therapies to resistance-affected areas to replace the use of chloroquine for the treatment of *P falciparum* malaria. Financed in part by a credit from the World Bank, the Government is now supplying artesunate, a form of artemisinin (to be combined with other drugs) and combined blister-packs of artesunate and sulfadoxine-pyrimethamine tablets, for the treatment of chloroquine-resistant *P falciparum* malaria.

In summary, whilst there are regional variations within India, *P vivax* causes about 52% of the country's confirmed malaria cases. Chloroquine is still generally an effective treatment for *P vivax*. The Government's enhanced Malaria Control Project, financed in part by World Bank credit, procured chloroquine for use in the country for treating *P vivax* and *P falciparum* where it was still effective, as well as artemisinin-based combination treatments. Chloroquine is 10–20 times cheaper than such combinations. On the basis of available information, India stood to get good value for money by spending scarce resources wisely in accordance with local realities. This tailoring of drug-treatment policies to match variations within the country is to be distinguished from a one-size-fits-all policy, which would be inappropriate in the context of India.

Cooperation between World Bank and GFATM

Attaran and colleagues also suggest that the World Bank funds for malaria control be put in a trust fund for the Global Fund for AIDS, Tuberculosis and Malaria (GFATM). As a trustee and a development partner of GFATM, we take this opportunity to reiterate our close cooperation, and to clarify some misperceptions by Attaran.

The GFATM was established as a source of additional funds for the control of malaria, tuberculosis, and HIV/AIDS. Indeed, according to the Fund, it "only finances programs when it is assured that its assistance does not replace or reduce other sources of funding, either those for the fight against aids, tuberculosis and malaria or those that support public health more broadly. The GFATM actively seeks to complement the finance of other donors and to use its own grants to catalyze additional investments by donors and by recipients themselves."[10]

Even if GFATM could be a conduit for funds from the International Development Association (IDA), there is a limit on the amount of grant financing that IDA can provide to countries. IDA operates largely as a revolving credit-fund; most of the IDA-eligible low-income countries access Bank funds in the form of soft loans, not grants. GFATM works through grants, not credits. The IDA of the World Bank Group, through which low-income countries access funds for development projects, including for malaria control, supports its member countries by providing them with access to concessional finance. IDA financing is made available to its member countries. The IDA is accountable for the use of its resources at the country level and GFATM does not have—and is not seeking to develop—the country presence necessary to provide the needed supervision and implementation support. The use of GFATM resources to supplement those of the IDA, in funding country-led programmes for malaria control, would be most welcome, and in line with the additional nature of GFATM resources.

A recent report commissioned as a joint review evaluated the comparative advantages of the Bank

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and GFATM, and provided useful recommendations on future collaboration.[11] The Bank and the Fund are reviewing these recommendations to determine how best to complement each other to achieve the greatest impact. In addition, as part of an effort to foster greater cooperation, the Bank hosted a meeting with GFATM and the US Agency for International Development in January, 2006, to review progress in efforts to control HIV/AIDS, tuberculosis, and malaria, and to reduce constraints on programme implementation for the control of the three diseases.

The Bank will continue to work closely with GFATM to increase synergies, and to avoid wasteful overlaps and gaps. In this process we will take into account the Fund's mandate as an additional source of financing and the Bank's comparative advantage in development economics, financing, system-wide development, capacity building, and experience in implementation support. Together with GFATM and other partners, we will continue to support the implementation efforts of national malaria-control programmes.

Statistics on malaria control in India

Attaran and colleagues also focus attention on India and the progress against malaria in some challenging settings.[2] They draw attention to the surveillance data from the National Vector Borne Diseases Control Programme. However, these aggregated state-level data do not tell the whole story. As would be expected in a site-by-site review of reported district-level data, we were able to see clear and measurable improvements in districts where the Bank-supported malaria-control project was implemented.

The India Malaria Control Project,[12] which became effective in September, 1997, and closed in December, 2005, used clearly defined criteria to ensure better focus on the poor and inaccessible groups (such as areas with more than 25% tribal populations) and areas with high malaria burden (annual parasite incidence more than 2 per 1000 population and reported deaths). Table 1 shows the scale and distribution of the Bank-supported project, which covered 100 project districts.[13]

State	Number of districts	Number of PHCs	Population (millions)
Andhra Pradesh	10	79	2·7
Jharkhand	10	108	10·8
Gujarat	8	239	7·8
Madhya Pradesh	18	155	11·3
Chhattisgarh	9	91	5·6
Maharashtra	14	181	5·5
Orissa	21	158	13·6
Rajasthan	10	34	4·9
Total	100	1045	62·2

Table 1: **Distribution of districts and primary health-care centres (PHCs) covered by India Malaria Control Project[13]**

The project helped shift emphasis to a broader mix of effective interventions, including early detection and prompt treatment, use of insecticide-treated bednets, selective use of indoor residual spraying as well as environmentally friendly measures such as the breeding of larvivorous or mosquito-eating fish in bodies of water. In addition, the introduction of combination blister-packs of chloroquine and primaquine improved the quality of treatment, and rapid diagnostic kits expanded access to treatment in remote areas. During the life of the project, the number of health workers increased from 200 000 in 1997 to 850 000 in 2004 in the targeted districts.

World Bank reports draw mainly on the Indian Government's data from 100 districts with the highest burden of malaria within states that benefited from the Bank-supported project. According to the Government, despite the higher burden, reported malaria cases declined much faster in those project districts than in India as a whole. The performance gap was even larger for falciparum malaria, the deadlier form of the disease. Table 2 shows the impact of the project, with data from 1045 primary health-care centres in these districts.[13] Total cases of malaria dropped by 45% between 1997 and 2004.

Accelerating a more effective campaign against malaria

On the basis of the 2005 Global Strategy and Booster Program framework, the Bank's Africa Region has launched a booster programme for malaria control in Africa which, in collaboration with key partners, aims to assist countries to reach the goal set by the Roll Back Malaria Partnership of halving malaria mortality by 2010. The programme combines an emphasis on outcomes with a menu of flexible options for projects that suit each country.

The booster programme in Africa is well underway, starting with a 3-year (2005–08) intensive phase. Since the launch of the programme, the World Bank has approved malaria-control operations in the Democratic Republic of Congo for $30 million,[14] Eritrea for $2 million,[15] Niger for $10 million,[16] and Zambia for $20 million.[17] The project structure and funding instruments vary across countries. In addition to these approved operations, the Bank and partner agencies are working with Benin, Burkina Faso, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, Senegal, and Sudan to develop programmes to strengthen malaria control. Furthermore we are incorporating a major malaria

Area	Reported cases	1997	1998	1999	2000	2001	2002	2003	2004	Decline
India	Total malaria	2·66	2·22	2·28	2·03	2·09	1·84	1·86	1·84	31%
	Falciparum cases	1·01	1·03	1·14	1·05	1·01	0·89	0·86	0·88	13%
Project districts	Total malaria	1·19	1·23	1·26	1·09	0·93	0·83	0·75	0·65	45%
	Falciparum cases	0·72	0·8	0·85	0·76	0·63	0·57	0·52	0·41	43%

Table 2: **Trends in reported malaria cases (number of cases in millions)[13]**

component of about $40 million into a larger subregional water and infrastructure project that covers the Senegal River Basin. Senegal, Mali, Mauritania, and Guinea will benefit from this project, which will focus on reducing the prevalence of water-borne and vector-borne diseases, including schistosomiasis, intestinal worms, and malaria.

Internal resources and staff for malaria control

In the Bank's Africa Region, there are currently 13 project teams working on malaria programmes in 13 countries, either as stand-alone projects or as part of a broader health-portfolio programme. These teams are backed by a dedicated Malaria Implementation Resource Team (MIRT) recently established to support programme preparation, implementation, monitoring and evaluation, and coordination with external partners. MIRT has three full-time professionals working on malaria (a fourth is being recruited), in addition to support provided by specialists from other departments in the Bank. In fiscal year 2006, the Africa Region of the Bank has provided additional funding to accelerate the work of MIRT.

Focus on results

Our approach is driven by results. We have constructed a matrix for target countries to track financial commitments and disbursements by major development partners, and to monitor progress towards interim targets and final goals. For example, by 2007, the Bank will have readily available a database that will show, as a matrix, how much the Bank is providing to countries for malaria control together with available information from partner agencies. For each country in the booster programme, the database will also show information on progress made toward the malaria-control targets of the Roll Back Malaria campaign. The database will help to identify areas where results are lagging, providing an opportunity to take action and accelerate progress.

Donor coordination

We will continue to expand on work with partner agencies in malaria control. For example, the Bank is collaborating with the Bill & Melinda Gates Foundation to support the Malaria Control and Evaluation Program[18] in Africa. With this programme, the Foundation will provide $35 million over 9 years in Zambia to support implementation and to monitor the effect of malaria reduction on socioeconomic and health indicators.

The Bank is also working closely with WHO, the UK Department for International Development, GFATM, and the US President's Malaria Initiative,[19] as well as our developing-country partners and the private sector, to ensure complementarity of interventions and harmonisation of efforts.

To hold ourselves accountable to results, we are putting in place comprehensive and tailored monitoring and evaluation plans in the initial design for each Bank-supported malaria programme. In addition, we are exploring opportunities to strengthen the results framework with other partners, including Exxon-Mobil in the private sector. Indeed, we are working to ensure that a strong monitoring and evaluation framework is included at the early stages of programme design in each country, to be able to measure results.

Conclusion

The Bank is dedicated to alleviating the suffering of the 500 million people who are afflicted by malaria each year. Malaria is both a health and a development challenge. In addition to avoidable deaths, poor health caused by this disease prevents people from achieving their potential and leading productive lives. We have a responsibility to provide financing and implementation support that will contribute to significant progress in controlling malaria. Depending on local circumstances, results will vary over time and from one country to another, but we are committed to learning from our shortcomings and to sustaining our efforts. We welcome constructive criticism that is based on well-documented facts and scientific evidence, because it helps us all to perform better. By joining forces with other dedicated partners, we will support countries to reduce the human misery, preventable deaths, and the sting of poverty, which all too often accompany malaria. This is what the Global Strategy & Booster Program is all about.

Conflict of interest statement
We declare that we have no conflict of interest.

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