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Breaking the Cycle: Saving Lives and Protecting the Future

The UK's Framework for Results for malaria in the developing world

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December 2010

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Foreword

Last year, nearly 800,000 people, the vast majority of them children, lost their lives to the wholly preventable and treatable disease of malaria. In our generation we can stop this needless loss of life.

Where malaria does not kill, it weakens, increasing susceptibility to other diseases and conditions, including HIV and under-nutrition. It is also a major cause of maternal and newborn death, perpetuating the cycle of loss and devastation within communities.

Malaria is a blight on a country's future. It stunts the development of young children and robs them of the education that would help lift their families out of poverty. It stifles business development and economic growth.

With leadership and resources, however, countries can tackle the toll of malaria. Concerted action by Senegal has seen child deaths drop by nearly a third, while in Zambia, malaria-related deaths in hospital have fallen by around two thirds. These benefits go beyond mere prevention and treatment – investments in staff and better ways to deliver drugs can help tackle other illnesses too.

Our Coalition Government is determined to play a full part in helping to achieve the international targets for malaria by 2015. We have committed to helping halve the number of malaria-related deaths in at least ten of the worst affected countries. This Framework sets out what we will do to achieve our goal and how our progress will be measured.

Our focus will be four-fold. First, we will work with countries and communities so they have the right mix of good quality prevention, diagnosis and treatment.

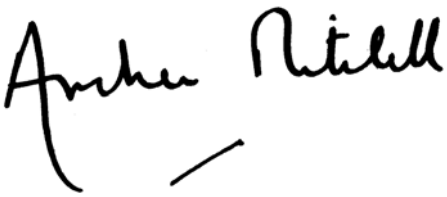
Second, we will make sure that those who most need help, receive it. We will remove barriers that prevent the poor, in particular, from getting the support and care they need.

Third, we will invest in the future, including in developing new treatments and new prevention approaches so that, one day, countries can free themselves from malaria for good.

Fourth, we will focus on results. This is no empty promise. We will be held to account against internationally accepted progress measures. We will publish our own spending and project information to demonstrate that we are achieving value for money.

We will work with national governments, international organisations, the private sector, civil society and the academic community. In short, we will work with whomever is best placed to support countries to achieve the best outcomes. Together with our partners we will explore new ways to reach more people more effectively. The really exciting thing is that we know we can make a difference. Lifting the burden of malaria saves lives and helps people and countries to raise themselves out of poverty.

This document is a framework to deliver results. It focuses on what works. I urge all our partners wherever they may be to work with us in implementing it. With common resolve and a united front we can beat malaria and leave future generations with a transformative legacy to treasure; a world where no one dies of malaria.



Andrew Mitchell
Secretary for State for International Development

Summary

Vision and Rationale

Our vision is that illness and death from malaria are dramatically reduced and controlled over the long-term in the countries currently most affected.

There are two strategic priorities to achieve this:

- reduce the burden of illness and death
- sustain and expand gains into the future.

Investing in tackling malaria is highly cost-effective and can drive improvements in health more generally, household prosperity and economic development.

Results by 2015

We will contribute to at least halving malaria deaths in at least ten high burden countries by 2014/15.

Framework for Results

Four pillars support the achievement of these objectives and ensure value for money:

- **Improve the quality of services:** support evidence based and context appropriate mixes of malaria prevention and treatment interventions that are part of broader programmes to deliver maximum health benefits and value for money.
- **Expand access and increase demand:** support approaches to ensure all men, women and children are able to access responsive malaria and related health services irrespective of where they live or their ability to pay. Ensure services are accountable to communities and delivered through an appropriate mix of public, private and non-profit service providers.
- **Support innovation and global public goods:** support strong global technical leadership and effective international organisations that support countries to achieve malaria and broader health goals. Support coordinated action to address important global needs including: the containment of drug and insecticide resistance; the development of new products and delivery approaches; efficient markets for malaria commodities; and a strong evidence base for informed responses.
- **Focus on impact and results:** strengthen country ability to conduct routine monitoring, reporting and use of data on malaria. The UK government will be transparent in providing information on the implementation of the Framework for Results, with a mid-term review published in 2013 and evaluation in 2015.

Achieving Results

The UK government will:

- **invest up to £500m each year by 2014/2015**, where results can be delivered and value for money demonstrated
- **work through its country programmes**, using appropriate funding approaches in each case, to support countries and communities to achieve malaria and broader health goals
- **improve the effectiveness and efficiency of the global response** through international institutions, partnerships and global civil society
- **invest in global public goods** including tackling resistance, building and sharing evidence and supporting market efficiencies
- **harness UK expertise** through better partnerships with academics, civil society, professional bodies and partnerships with other UK government departments to help deliver this framework.

Key indicators for tracking progress

Impact indicators

(1) All cause under-five mortality rate (the number of children who die by the age of five, per thousand live births)

(2) Malaria-specific deaths per 1000 persons per year[i]

Outcome indicators

a) % of children under five who slept under an insecticide treated net (ITN) the previous night

b) % children under 5 years who received appropriate antimalarial treatment – including Artemisinin Combination Therapy (ACTs) – within 24 hours of onset of fever in the last two weeks[ii]

c) % of children under 5 with fever in the last two weeks receiving finger/heel stick diagnostic test for malaria

d) % of women who received at least two doses of Intermittent Preventive Treatment (IPTp) during Antenatal Care (ANC) visits during their last pregnancy (in settings where IPTp is recommended)

e) Number of health workers per 10,000 population disaggregated by rural and urban settings and by cadre

f) Average availability of 14 selected essential medicines in public and private health facilities, plus a first line ACT for treatment of uncomplicated malaria

g) Average unit price (Free Carrier)[iii] of highest volume Long-Lasting Insecticide Treated Nets (LLINs) procured by (or on behalf of) a country.

[i] Malaria-specific deaths will initially be modelled from local malaria data and coverage rates of malaria interventions, drawing on advice from WHO and RBM regarding the most appropriate models to use. Over time, improvements in data for confirmed malaria cases and stronger routine country reporting will supplement modelling with more direct measurement of malaria deaths.

[ii] Indicators are being developed for "case management" (diagnostic testing and appropriate treatment), which will considered for inclusion in this framework during its mid-term review in 2013

[iii] INCO term [see http://www.iccwbo.org/incoterms/id3040/index.html]

Where possible and relevant, we will track results separately for men and women, the poorest 40% of the population and people living in rural and urban areas.

Annex A sets out how this Framework will be monitored and evaluated.

Acronyms and abbreviations

ACT	Artemisinin Combination Therapy
AMFM	Affordable Medicines Facility-malaria
ANC	Antenatal Care
BMGF	Bill and Melinda Gates Foundation
CBO	Community Based Organisation
CHWs	Community Health Workers
CSO	Civil Society Organisation
DALY	Disability Adjusted Life Years
DFID	Department for International Development
DH	Department of Health (UK)
DHS	Demographic and Household Survey
DRC	Democratic Republic of Congo
FCO	Foreign and Commonwealth Office (UK)
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GMAP	Global Malaria Action Plan
GPARC	Global Plan for Artemisinin Resistance Containment
IMCI	Integrated Management of Childhood Illness
IRS	Indoor Residual Spraying
ITU	International Trade Unit (UK)
IPTc	Intermittent preventive treatment for children
IPTi	Intermittent preventive treatment for infants
IPTp	Intermittent preventive treatment for pregnant women
ITNs	Insecticide Treated Nets
LLINs	Long Lasting Insecticidal Nets
MERG	Monitoring and Evaluation Reference Group
MMV	Medicines for Malaria Venture
MoD	Ministry of Defence (UK)
NGO	Non-governmental organisation
NMCP	National Malaria Control Programme
PDP	Product Development Partnership
PMI	President's Malaria Initiative (PMI)
R&D	Research and Development
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Tests
SP	Sulfadoxine-pyrimethamine
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
WHOPES	WHO Pesticides Evaluation Scheme

Chapter 1

Vision and Rationale

Vision and rationale

1.1 Our Vision

1. Our vision is that illness and death from malaria are dramatically reduced and controlled over the long-term in the countries currently most affected.

2. Specifically, we will contribute to at least halving malaria deaths in at least ten high burden countries by 2014/2015.[iv]

3. Supporting countries to achieve this goal will contribute directly to reaching the Roll Back Malaria Partnership objectives set out in the 2008 Global Malaria Action Plan, targets agreed at the World Health Assembly (2005)[v] and the Millennium Development Goal (MDG) 6c.[vi]

4. In this document we set out: why the UK government is prioritising malaria; evidence for what works to reduce malaria illness and deaths and where new approaches are needed; how we will work with our partners to achieve our goals and; how we will be held accountable for results. It provides a framework for how we will contribute to achieving the national malaria and broader health goals of our country partners. And it will guide how we work through international organisations and with global partners to increase our reach and get more value for our money by leveraging the investments of others.

5. The UK government has compiled an extensive Malaria Evidence Paper[vii] and conducted wide ranging public and expert consultations to support the development of this Framework. The evidence paper and a report of the consultation findings are published and available at UUwww.dfid.gov.uk/malaria. A summary of the consultations findings are set out in Annex C. What follows is based on evidence of what works, what the UK government does best and where we can add most value to what communities, countries and international partners are doing.

1.2 The Case for Investment: why is malaria so important?

In 2009, there were an estimated 225 million cases of malaria and 784,000 deaths. 1 in 5 child deaths in Africa is from malaria. (WHO 2010)

6. Malaria is the ninth most significant cause of death and disability globally[1] and the fifth largest cause of death from infectious diseases. While half of the world's population across 109 countries and territories are at risk of malaria, the burden of illness and death is more concentrated and closely mirrors the global distribution of poverty (Figure 1). This Framework focuses on the regions where there are most cases and most deaths – Africa, South and South East Asia – and on the two

[iv] See Annex A for a discussion of baselines for this goal.
[v] WHA 58.2 'Malaria Control'
[vi] GMAP goal is to lower global incidence of malaria by 75% and reduce malaria related deaths to near zero by 2014/15. MDG 6c is to halt and to begun to reverse the incidence of malaria and other major diseases.
[vii] See the accompanying DFID Malaria Evidence Paper at www.dfid.gov.uk/ malaria

species of parasite that cause the greatest burden of disease and death, Plasmodium falciparum (P. falciparum) and Plasmodium vivax (P.vivax)..

7. Sub-Saharan Africa accounts for nearly 85% of malaria cases and 89% of deaths. Up to 30% of malaria deaths in Africa occur in the wake of a war, local violence or natural disaster. In South and South East Asia, there are around 24 million malaria cases and an estimated 40,000 deaths annually, 4.6% of the global total. Deaths are concentrated in India, Burma, Bangladesh, Indonesia, and Papua New Guinea.[2] South East Asia is also strategically important as it has historically been the cradle of resistance to malaria drugs, which has then spread globally.

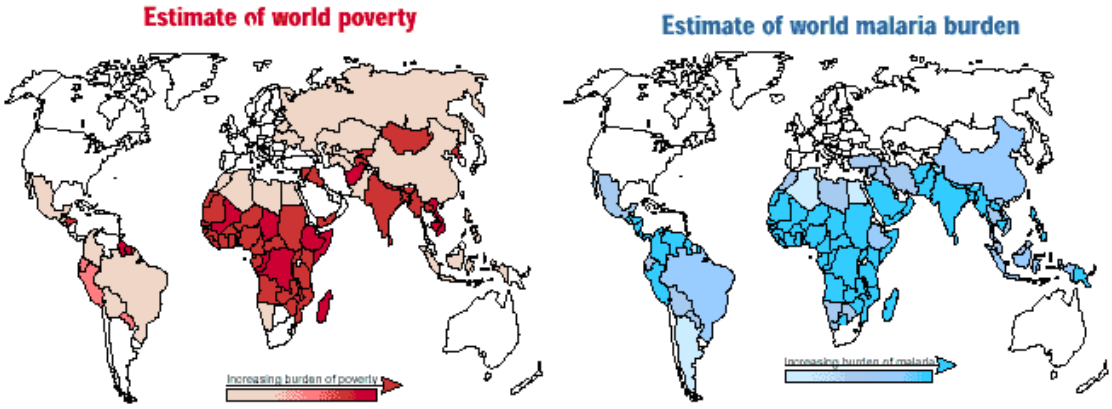
8. *P. falciparum* accounts for over 90% of global cases of and deaths related to malaria. Cases and deaths for *P.vivax* are more uncertain,[3] but 2.85 billion people are estimated to be at risk of infection.[4] Many in *P.vivax* dominant regions do not develop partial immunity to malaria during childhood, and so people of all ages are at risk of illness.

9. In endemic countries, malaria affects people throughout their lives. Pregnant women and their unborn children are more susceptible to malaria illness and death.[5] In Africa, one in five child deaths are malaria related. Malaria limits mental and physical development in children and is a major cause of school absenteeism[6] resulting in lower educational outcomes. Malaria is an ongoing cause of periodic ill health for individuals and their families, often resulting in lost productivity, high household expenditures and impoverishment.

10. Malaria interacts with other health conditions, such as non-typhi salmonella, anaemia and HIV, to worsen health outcomes. Children who are acutely undernourished (55 million worldwide) are two to three times more likely to die of malaria.[7] More widespread use of diagnostic tests to confirm cases of malaria provides an opportunity to treat people appropriately where malaria is shown not to be the cause of illness. Recognising these interactions and opportunities for broader benefits is important for the design and integration of malaria efforts within wider health strategies and in linking to other relevant programmes.

11. Poor and rural households often benefit less from malaria programmes[8,9] (although some advances have been made improving equity for ITN ownership) and have lower access to public health services. They are least able to cope with the costs of prevention, treatment and loss of income due to illness or family deaths. They often have to sell food crops or livestock to cover costs, further reducing their assets. In northern Ghana the cost of malaria care is just 1% of the income of rich households, but over a third of income in poor households.[10] In Uganda, purchasing effective ACT to treat malaria in the private sector is equivalent to 62 days of average household basic food costs.[11]

Figure 1: Malaria burden and poverty



Source: RBM data / J Sachs, 1999

12. Improving malaria outcomes will require extending coverage of services and health benefits to the poorest and most vulnerable populations. Country reporting systems should track information on use of malaria services, cases and deaths broken down by gender, by where people live, and by whether people are poor or not, to make sure that service coverage and outcomes are equitable. Break downs by other groupings may be also relevant depending on context.

13. At the national level, malaria has serious economic impact. Premature death, direct and indirect costs of illness, lower savings and investment and reduced worker productivity all limit growth. In a recent survey of 8,000 business leaders in over 100 countries,[12] over a fifth of all business leaders reported that malaria affects their business, with 10% reporting serious impacts. In Sub-Saharan Africa, 72% of respondent firms reported impacts, with 39% reporting serious impacts.

14. In Tanzania up to 39% of total health expenditure – equivalent to 3.4 % of the nation's GDP – is directed to malaria prevention and care. It is estimated that malaria in sub-Saharan Africa results in an average reduction in annual growth of 0.55%[13] and as much as 1.3% in the highest burden countries.[14]

1.3 Value for money

15. There is broad consensus that universal coverage of appropriate packages of prevention and treatment interventions can control malaria to very low levels and virtually eliminate malaria deaths.[15] Malaria prevention and treatment interventions are highly cost effective and compare favourably with other health interventions (see Table 1), in terms of cost per disability-adjusted life years averted (DALY).[viii]

Table 1: Cost per DALY averted or life saved for key malaria interventions[ix]

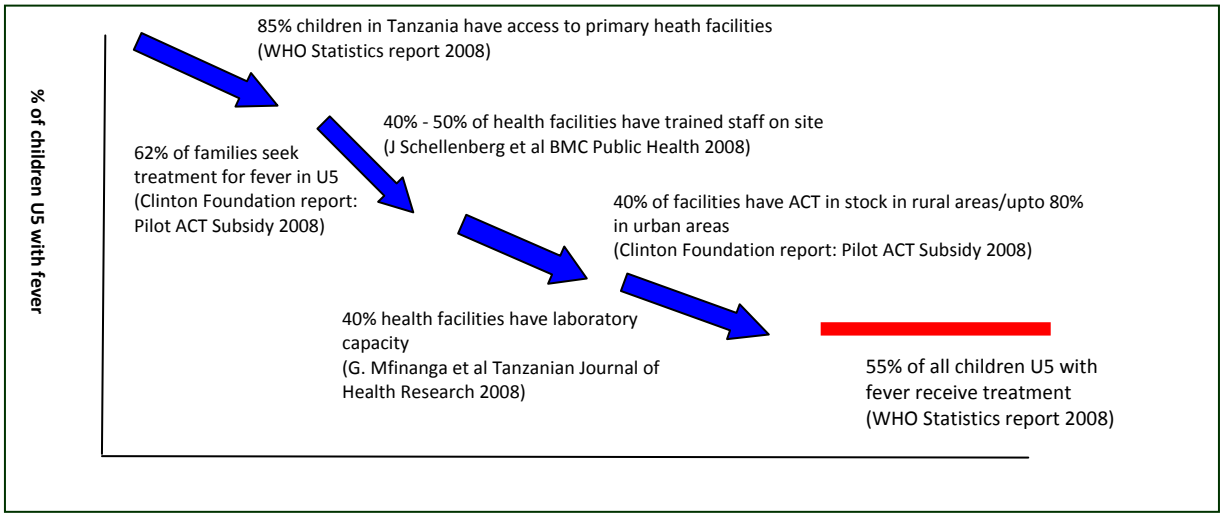
Interventions	Cost in $ per DALY averted
Indoor residual spraying	$9–24
Insecticide-treated bed nets	$5–17
Intermittent preventative treatment in pregnancy	$2–11
Treatment with ACT (under 5's) cost per life saved	$171–209

Source: Jaimson D.T. et al (eds) (2006) Disease Control Priorities in Developing Countries

16. However, the cost-effectiveness of these interventions is dependent on their being accessible to people when and where they need them, being appropriately allocated or prescribed and being properly used. Weaknesses in both public and private sectors can dramatically reduce real world effectiveness. Figure 2 provides an illustrative example of losses in effectiveness for treatment of malaria with an effective drug in the public sector due to limitations in the use and quality of services provided. Cumulatively, these losses would reduce real world effectiveness by over 95%. A similarly plausible model can be constructed for the private sector.

[viii] A DALY can be thought as one lost year of healthy life, due to disease or injury.
[ix] Note: the DALY ranges quoted above should be regarded as indicative for malaria control. Cost-effectiveness will vary considerably by context depending on local cost structures (e.g. high delivery costs in difficult settings) and epidemiology. A different approach to calculating benefits may also be required as programmes move from control to elimination objectives, where short term costs must be weighed against benefits over a much longer-term.

Figure 2: Illustrative loss of intervention effectiveness during field delivery



Source: Bhargavi Rao, Barriers to Effectiveness: Artemisinin Combination Therapies and the health systen Imperial College, 2010

17. Scaling up responses to malaria can support improvement in general health service provision, including through the following measures: strengthening community focus and accountability of services; ensuring that supply chains get drugs and commodities to where they're needed; improving availability and use of information; addressing how services are paid for; and making better use of public and private sector capacity."

18. Measurement of the number of malaria cases and related deaths should improve with increased coverage of diagnostic testing. This is likely to lead to a revision downwards in estimated numbers of cases as misdiagnosis of fever is reduced. Better tracking of malaria will support better planning and targeting of services to where they are needed.

19. This emphasises the need to integrate malaria as part of an essential package of healthcare services. It is likely that a considerable part of the return on investment in scaling up malaria responses will derive from wider health benefits, such as opportunities to treat non-malarial causes of fever appropriately. This will particularly be the case once prevention programmes reduce the prevalence of malaria in communities.

20. Reducing the impact of malaria on families, communities, businesses and countries contributes to economic and social development (Box 1) as well as better health.

Box 1: Malaria and the MDGs

MDG 1 Eradicate extreme poverty: Malaria results in losses of GDP growth of up to 1.3% per year. It accounts for 40% of health spending and 30% of household health expenditures in endemic countries. It also exacerbates the health impact of under-nutrition.
MDG2 Achieve universal education: malaria can result in poor cognitive development and contributes to absenteeism across endemic countries.
MDG 4 Reduce childhood deaths: malaria is one of the leading causes of avoidable childhood death worldwide. Scaling up malaria control programmes will have significant benefits – appropriate use of Long-Lasting Insecticide Treated Nets (LLINs) has been shown to reduce under-five (U5) deaths by up to 25% (UNICEF 2007)
MDG 5 Improve maternal health: pregnant women are four times more likely to be affected by malaria than other adults. Malaria also contributes to maternal anaemia, putting both mother and child at risk.
MDG 6 Combat HIV/AIDS, malaria and other diseases: identifies malaria as a priority disease. Malaria can also increase the impact of HIV and AIDS.
MDG 8 Develop global partnerships: malaria has benefited from the assistance of private-public partnerships to develop new and improve access to existing malaria interventions.

1.4 Challenges and Opportunities

"The findings in the 2009 World Malaria Report are cause for cautious optimism ... the tremendous increase in funding for malaria control is resulting in the rapid scale up of today's control tools. This, in turn, is having a profound effect on health – especially the health of children in sub-Saharan Africa. In a nutshell, development aid for health is working."

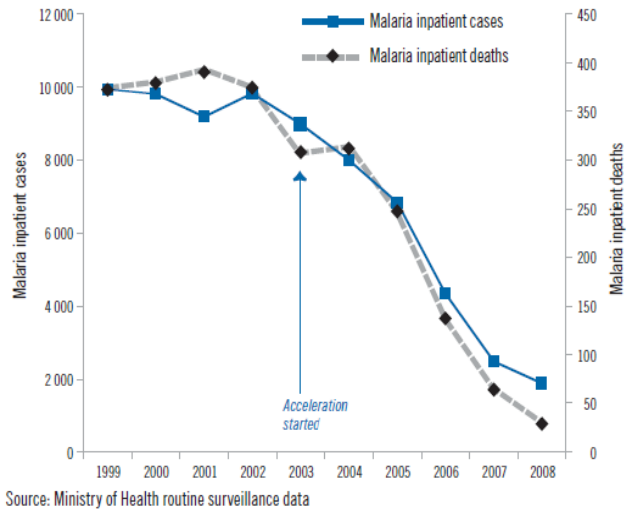
Dr Margaret Chan, Director General, WHO, World Malaria Report 2009

21. There are reasons to be confident that we can achieve our goal. Many malaria-affected countries have made great strides already; more than a third have reduced malaria cases by over a half between 2000 and 2008.[16]

22. Progress has been slower in the highest burden countries in Africa, but there are also examples of success. In Zanzibar in 2005, more than half in-patient cases and deaths were malaria-related. Rapidly increasing the coverage of insecticide treated nets, indoor spraying and effective treatment was associated with inpatient cases and deaths falling by 80% and 92% respectively by 2008 (Figure 3). Scaling up prevention and treatment in Zambia (Figure 4) has also been followed by dramatic falls in inpatient cases and deaths (note that data for 2010[17] has shown some levelling off in the number of cases nationally and increases in some districts, emphasising the need to maintain malaria efforts).

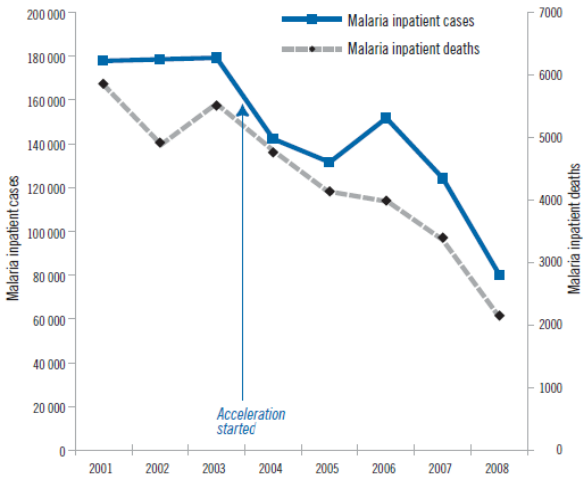
23. There are also new opportunities. Rapid diagnostic tests can now bring detection and appropriate treatment of malaria closer to communities. New technology platforms, such as mobile phones, show promise in improving the availability of information on how services are performing and can strengthen management and accountability. And there are good examples of coverage of effective prevention and treatment services expanding through community based care in the public, private and non-profit sectors.

Figure 3: Malaria inpatient cases and deaths Zanzibar [18]



Source: Ministry of Health routine surveillance data

FiTTgure 4: Malaria inpatient cases and deaths in Zambia [19]



Sources: Ministry of Health routine surveillance data

24. Political commitment has also increased. In 2008, the Roll Back Malaria Partnership (RBM) launched the Global Malaria Action Plan (GMAP) to set out ambitious aims progressively to control, eliminate and eventually eradicate malaria. Malaria-affected countries are also driving international and local action through initiatives such as the African Leaders Malaria Alliance.[x] The need for increased action on malaria was prominent at the September 2010 UN General Assembly meeting on the MDGs.

25. Global funding for malaria has increased from $0.733bn in 2006 to $1.94bn in 2009.[20] And there is evidence that this is having an effect on the ground; average ownership of ITNs almost doubled in Africa between 2006 and 2008 to 31% of households, driven largely by increased funding.[21] And by mid-2010 it is estimated that 42% of households in Africa owned at least one ITN.[22] However, while these increases have been encouraging, it is estimated that funding currently stands at around 60% of what is needed annually to control malaria.[23] New commitments made during 2010 appear to have levelled out at $1.8bn.[24] Closing this gap will need action both on the part of international donors and by national governments. Sufficient domestic spending on health will be particularly important for long-term malaria control or elimination (where feasible). However, progress by countries towards the 2001 Abuja Commitment made by African Union Heads of State to increase health spending up to 15% of domestic public expenditure has been limited.[25]

26. Similarly, while progress in many countries shows what is achievable, most high burden countries in Africa are lagging behind. Effective prevention, diagnosis and treatment urgently need to reach more people, particularly poor women and children. Moreover, large, high burden countries – such as the Democratic Republic of Congo (DRC) and Nigeria[26] – and west and central Africa more generally, receive low shares of international malaria funding in proportion to their malaria burdens. Asia contributes less to global illness and death (although figures are difficult to estimate), but funding per person at risk of malaria is very low and may not be well targeted to where burden is higher.[27]

27. Once achieved, malaria control cannot be taken for granted and must be actively maintained. Programmes need to be flexible enough both to adapt as malaria is controlled, and to respond to potential increases in transmission. This includes capacity to respond to periodic epidemics and longer term threats. Climate change will affect malaria patterns, although results are unpredictable and will vary locally.[28] Migration, conflict or changes in land use may all influence malaria transmission. There is also good evidence of initial resistance to the key drugs and insecticides that are our current prevention and treatment mainstays, posing a major threat to malaria control.

[x] www.alma2015.org

CASE STUDY
Nigeria: Scaling up nets for all

Aisha's two-year-old daughter, Fatima, plays at her feet, twiddling the end of the net that hangs down. She's a happy, healthy child, full of life. But less than six months ago, Fatima was extremely weak, having convulsions and suffering from severe malaria. Worried that her child might die, Aisha carried her to the local clinic where she was admitted. Two weeks later Fatima was well enough to return home to her village in Tarauni, an area just outside of Kano, Nigeria. Fatima was lucky, an estimated 200,000 children die from malaria each year in Nigeria – more that a quarter of all global malaria deaths.

"After Fatima was so sick with malaria I worried that it would happen again to one of my other children," says Aisha. "But then I heard … they were going to give out free nets to stop malaria. Now I have covered our bed and there will be no more mosquitoes in here, and no more fever."

Aisha's new nets arrived thanks to UKaid. In 2008, DFID launched Support to the National Malaria Programme (SuNMap) to help the Government of Nigeria distribute two long-lasting insecticide treated nets each to 30 million households. The distribution of the nets began in key malaria affected states such as Kano and is now being rolled out across the rest of the country. So far, in Kano and Anambra states household net ownership has increased from less than 10% to 70%. With the support of DFID and other partners the national government has the opportunity to make universal bed net coverage a reality for all of its population.

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Chapter 2

Framework for Results

Framework for Results

28. Table 2 sets out a summary of the UK government's Framework for Results on malaria to achieve our goal of contributing to at least halving malaria deaths in at least ten high burden countries.

29. It is based on an understanding of what drives malaria patterns and outcomes (see Figure 5), evidence of what interventions are effective and where innovation is needed, principles for how we will work and an assessment of where the UK government can add most value. It should be seen as building on the UK government's broader support to improve health outcomes in developing countries, and to complementary commitments set out in the UK government Framework for Results on Reproductive, Maternal and Newborn Health (2010).

Table 2: UK government malaria Framework for Results

Goal: Contribute to at least halving deaths in at least ten high burden countries			
Reduce burden of illness and death		**Sustain and expand gains into the future**	
Improve quality of services	**Increase access and build demand for services**	**Support innovation and global public goods**	**Focus on impact and results**
• identify and scale up context appropriate, high quality and cost effective malaria interventions, including diagnosis and appropriate treatment • support more effective financing, management capacity, human resources, commodity supply and use of information to deliver and monitor equitable results • link malaria with other health and non-health services to maximise value for money and ensure sustainability	• support increased reach of services, particularly to marginalised populations, through public and non-state providers as appropriate • remove financial and other barriers to accessing services to support equitable outcomes • improve choice and responsiveness of services, including through results based funding approaches • reduce the financial impact of malaria on households • increase community knowledge and participation	• support evidence based global norms and policies • contain resistance to drugs and insecticides • work with partners to improve the performance of global commodity markets for the poor • support new product and new tool development • support an operational and policy research agenda to improve malaria and broader health outcomes now and in the future	• work with national governments, donors and other agencies to support better data and information systems to drive and measure results & impact • actively monitor and evaluate results in all DFID funded programmes • make information on performance transparent and increase accountability at all levels • work with country and international partners to improve the effectiveness of the global response

Guiding principles

30. The UK government's approach is based on the following principles for action:

- focus on poor and vulnerable populations in high-burden countries
- achieve results by supporting national malaria control programmes that are embedded in health sector plans and use country appropriate funding methods
- seek opportunities to link malaria with other health and non-health programmes to increase benefits and value for money
- improve the quality and availability of data on malaria so that results are measurable, transparent and strengthen accountability to communities and the UK public
- base investment on evidence of what works and innovate where needed
- work with international partners to ensure that global efforts support countries to tackle malaria as efficiently as possible

Contributing to global malaria goals

31. In 2008, the Roll Back Malaria (RBM) Partnership published the Global Malaria Action Plan (GMAP). This set a near term objective of universal control by lowering global incidence of malaria by 75% and reducing malaria related deaths to near zero by 2014/2015.

32. GMAP sets the longer term objectives of progressive elimination and the eventual goal of eradicating malaria (Box 2).

Box 2: Malaria elimination and eradication

In 2007, a Bill and Melinda Gates Foundation meeting led the call for the long term goal of the global eradication of malaria.[29] In 2008, the RBM Global Malaria Action Plan (GMAP) set out a three-pronged approach to achieve malaria control, elimination and eventual eradication:

- Aggressive control of malaria in high burden countries
- Progressive elimination in countries where this is feasible (shrinking the malaria map)
- Research and development for new tools and techniques

Malaria control focuses on reducing the burden of illness and death caused by malaria to low levels. Elimination refers to the halting of local mosquito-borne malaria transmission within a geographically defined area. Imported cases will still occur and continued intervention is needed. Active detection and treatment of asymptomatic malaria cases is needed. Eradication requires an end to the incidence of malaria globally, such that malaria would not return if services were halted.[30]

The 2010 Lancet Malaria Elimination series[31] explored the necessary requirements for elimination and eventual eradication in detail, confirming the political, financial, technical and research challenges that need to be addressed by countries, regions and international partners.

Elimination is possible in some countries where transmission is low. However, there is good evidence that in higher transmission settings, while control is possible, elimination is not achievable with current treatment and prevetion tools.[32,33]

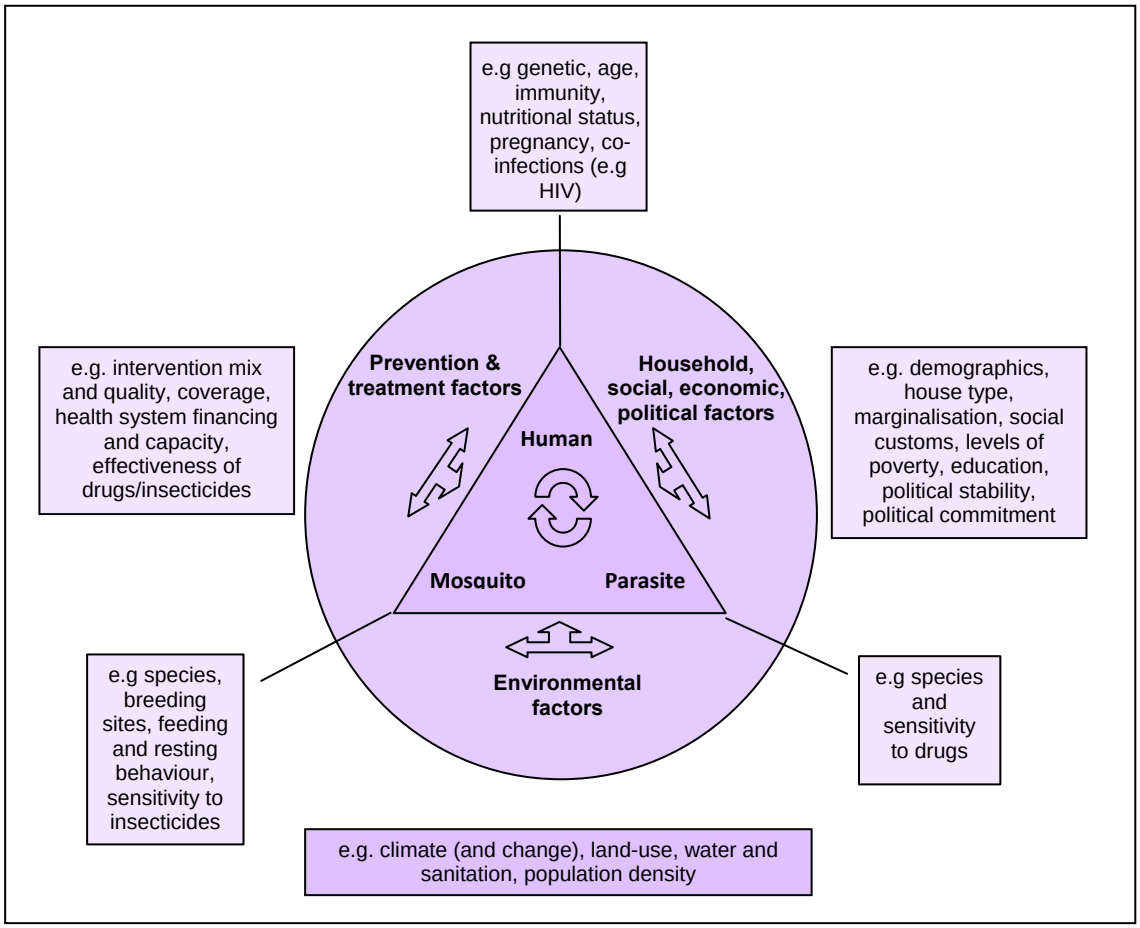
33. The UK Framework for Results directly contributes to meeting the near term objectives of the Global Malaria Action Plan by focusing on malaria control in high burden countries.

34. Investments in improving malaria diagnosis, treatment and surveillance; adapting malaria programmes once control has been achieved; investing in new prevention and treatment tools; and containing the threat of resistance to drugs and insecticides also contribute to achieving the longer term aspirations of progressive elimination and eventual eradication, when this becomes feasible.

2.1 What drives patterns of malaria infection, illness and death?

35. The Framework for Results is based on an understanding that malaria outcomes are driven by a wide range of interdependent factors, many of which fall outside of the focus of health services. A simplified overview is given in Figure 5.

Figure 5: Determinants of malaria epidemiology and health outcomes



Adapted from Breman (2001)[34]

2.2 Pillar 1 - Improve the quality of services

36. Although proven and effective prevention and treatment interventions exist, implementation is often weak. Raising the quality of existing service provision and supporting the adoption of new approaches when warranted are both needed to improve health outcomes. The quality of services is integrally connected to the systems needed to deliver them; there is no quality if staff and commodities are not on hand when needed or if financial barriers prevent people from using services. Community confidence in the quality and functioning of services, whether publicly or privately provided, is essential to support demand for and use of them.

37. Malaria practice continues to evolve as evidence of what works in different settings improves and new approaches are developed. Policy and best practice need similarly to evolve appropriately for different country and local programmes (taking into account the often substantial transaction costs involved in re-programming).

38. The evidence paper underpinning this Framework will be be regularly updated. The UK government will revise its approaches as new evidence and guidance emerges.

Effective prevention

39. A combination prevention approach will be needed to effectively control malaria. What works best will vary across and within countries. In many countries malaria patterns change with geography (e.g. altitude or urban versus rural) and may also be highly seasonal.

40. ITNs (re-treatable or long-lasting) are a central pillar of malaria prevention in most malaria-endemic countries where mosquitoes bite indoors. With high coverage and proper use they have been shown to reduce deaths of children under five by about 20% in malaria endemic areas in Africa, and halve cases of malaria illness.[35] Sleeping under an ITN also reduces the risk of anaemia and miscarriage for pregnant women.[36] And they are cost effective to use in high and lower malaria incidence settings.[37] Moreover, randomized clinical trials are likely to underestimate the impact of ITNs. Once coverage reaches high levels in a village or region even those not sleeping under nets are partially protected against malaria (although the degree will depend on mosquito behavior).[38] The potential for such mass effects should be considered when deciding if and how to target ITN programmes.

41. The benefits of ITNs depend both on consistent use and on replacement of long-lasting nets (LLINs) or re-treatment with insecticide of normal ITNs when needed. ITN programmes need to identify ways to support both of these requirements. This should include awareness raising about why nets are important, as well as how to use them (such as showing how to hang them) and care for them. Greater understanding is needed of factors that influence whether nets are used, including product preferences (e.g. size, shape and colour of nets) in different communities.

42. There is clear evidence that indoor residual spraying (IRS) with insecticides reduces malaria incidence and improves health outcomes where mosquitoes bite and rest indoors (and insecticide resistance is not a problem). However, more data is needed on the specific added value of IRS and ITNs as separate components when implemented together (including potential impact on the development of insecticide resistance). IRS has played an important role in reducing malaria burden in Asia and Latin America.[39] African countries that have implemented large, well-organized, well-funded and sustained IRS control programmes have made

progress in malaria control.[40] This includes countries where malaria has been reduced to a minor public health problem through a comprehensive prevention and treatment approach (e.g. South Africa and Zanzibar).[41] However, IRS is yet to be scaled up in many endemic African countries.

43. In high-transmission countries Intermittent Preventive Treatment during pregnancy (IPTp)[42] can significantly reduce malaria risks for expectant mothers and their unborn children, especially in early pregnancies. It is cost-effective in high burden settings in Africa (data outside of African settings is limited). Where implemented, IPTp should be provided as part of antenatal care and is an important tool in reducing maternal and newborn deaths.[xi] There is consensus that IPTp should not be promoted where the chances of malaria infection during pregnancy are low (prompt diagnosis and treatment should be available instead). However, there is no agreement on the levels of prevalence above which IPTp should be implemented. Similarly, there is no strong evidence on the safety and efficacy of alternatives to *sulphadoxine pyrimethamine* (SP), the drug recommend for IPTp, to which *P.falciparum* has become widely resistant.

44. WHO recommends intermittent preventive treatment for infants (IPTi) delivered as part of routine immunisation programmes in medium to high transmission settings where there is low resistance to SP.[43] Preventive treatment is also being evaluated for children and may be useful in some contexts.[44]

Diagnosis and appropriate treatment

45. Malaria can be effectively treated with existing drugs. WHO guidance recommends diagnosis and treatment of uncomplicated malaria within 24 hours of the onset of fever. Artemisinin-based combination therapy (ACT) is recommended as the first line treatment for *P.falciparum* malaria.[45] Oral artemisinin (or its derivatives) should not be used as a single drug for first-line treatment of uncomplicated malaria (oral artemisinin mono-therapy). The use of oral mono-therapy is a driver of artemisinin resistance, and WHO has recommended that countries halt its use. This has also been supported by a resolution (WHA 60.18) at the World Health Assembly. As of November 2010, 25 countries still allow marketing on oral mono-therapy, mainly in Africa. And 39 companies manufacture them, mainly based in India.[46]

46. Severe malaria requires urgent treatment in a health facility by trained staff, with pre-referral care with appropriate drugs where delays are likely. Prompt referral and access to facilities (including proximity and availability of transport and transport routes) are important to reducing death rates.

47. A large proportion of people receive treatment that is not effective. This may be because the malaria parasites prevalent in their area have become resistant to the drugs being used. There is widespread resistance to older, cheaper drugs, such as chloroquine, SP and amodiaquine.[47] Alternatively, the drugs provided may be poor quality or not properly prescribed, dispensed or taken.

48. Malaria is frequently over-diagnosed. Fever is often equated with malaria illness but is more frequently caused by a number of other common conditions.[48] Diagnostic tests are needed to confirm malaria. The proportion of cases of suspected malaria that are confirmed by diagnostic tests has increased globally in recent years. In the WHO Africa region, the average proportion of cases confirmed rose from 26% in 2005 to an estimated 35% in 2009. However, in 21 out of 42 countries in this

[xi] IPTp coverage rate is a shared indicator with the 2010 UK government Action Plan on Reproductive, Maternal and Newborn Health

region, the proportion was less than 20%. [49] Diagnosis rates are lower in the private sector. This leads to a paradox; most people, particularly children in Africa, who need effective malaria treatment do not get it, while many people who receive malaria treatment do not need it - but may need and often don't receive treatment for other potentially life threatening diseases. Over or improper use of malaria drugs can also play an important role in accelerating drug resistance.

49. Low cost and accurate rapid diagnostic tests (RDTs) are now available for use at the point of care.[50] Microscopy has been limited to but remains useful in hospital settings, although quality control can be a challenge. More accurate diagnosis can improve outcomes for malaria and other diseases – including major causes of child deaths, such as pneumonia. New WHO 2010 malaria treatment guidelines recommend[51] universal diagnostic confirmation of suspected cases of malaria.

50. Availability of RDTs is not sufficient. Where used, their influence on subsequent clinical practice has been variable in different settings and with different providers.[52] One study in public health facilities in Tanzania found that 90% of patients who had received a *negative* RDT test still received an antimalarial drug.[53]

51. More recent evidence however, shows that RDTs can be used for effective case management when supported by training, supervision and options for treating or referring non-malaria cases. Facility based practice in Senegal[54] and community based case management in Zambia,[55] have show successful adoption and influence of treatment practice.

52. There is virtually no evidence on if and how RDTs can guide prescribing practice in the private sector, particularly by informal vendors. This is where many people – often the majority – access treatment, and so it is an important channel to improve coverage of appropriate care. How to increase use and best practice for diagnostic testing in the private sector is an urgent question for operational research.

53. Community awareness-raising about the importance of diagnosis and not taking antimalarials when a diagnostic test is negative is likely to be important. Although more research is needed, qualitative studies have shown that long-standing treatment practices continue to influence clinical decisions and patient expectations after changes in treatment guidance or RDT introduction.[56]

54. Increased use of diagnostic testing can support more accurate reporting on malaria. In the first instance, it is likely to lead to a significant decrease in reported cases in many countries (see example of Senegal – Figure 7 below), as rates of misdiagnosis decrease. This provides the opportunity to plan and deliver malaria services more effectively and cost-efficiently. And to address appropriately the health needs of people who would otherwise be misdiagnosed.

55. A number of methods to get effective antimalarial drugs to children and adults in the community have been tested and found to work in some contexts, especially in rural settings where access to care is otherwise difficult. This includes Integrated Management of Childhood Illness (IMCI), community health workers, home management of malaria, and the pre-referral use of artesunate suppositories in cases of severe febrile illness.[57]

56. Countries that introduce RDTs will need to revise their national IMCI guidelines to include their use. IMCI can provide a platform at community and primary health care level to scale up RDT use if supported by appropriate refresher training, supervision and monitoring to ensure implementation and appropriate prescribing practices (including of antibiotics for non-malaria cases). More research is also needed to improve the specificity for the diagnosis of non-malarial causes of fever.

Broader interventions to support malaria outcomes

57. Addressing indirect environmental drivers (see Figure 5 above), including managing water and sanitation resources and better planning of changes in land use (such as deforestation, agriculture or urbanisation) also have important roles to play in malaria control and have wider benefits for a range of diseases.[58,59] Water management and malaria objectives can sometimes be in tension. Irrigation or water management interventions – such as small dams or water treatment plants – may provide additional habitats for mosquito breeding. However, with planning and collaboration significant positive effects for both can be achieved. In Tanzania, the Dar es Salaam Urban Malaria Control Programme is projected to have reduced its programme costs by 42% through the introduction of simple, low-cost interventions to clean and maintain the drainage network and introduce improved systems for solid waste management.[60]

58. The WHO Commission on the Social Determinants of Health[61] identifies the crucial importance of 'non-health' factors on health outcomes. Indirect drivers, such as poor living and working conditions or social exclusion and inequalities (particularly gender inequalities), impact health outcomes profoundly. They often increase exposure of some groups to the causes of ill-health, constrain their capacity to prevent or treat illness, limit their access to or their ability to demand services and reduce capacity to cope with the consequences of ill-health. Health literacy may be lower and barriers to access such as distance to services and the direct expenses and opportunity costs of seeking care are likely to be higher.

59. Unless such barriers are addressed, poorer households or marginalised groups are less likely to take action to prevent illness or seek care than richer households. Removing these barriers is an important corollary to simply improving the supply of services. Building demand is important if health outcomes are to be improved. It may also be necessary to mitigate the wider costs of ill-health at household level. While there is no malaria-specific evidence, emerging findings from work in other health fields have suggested that direct financial support to poor households (e.g. through cash transfers)[62] can both improve health outcomes and limit the potential of ill-health to cause impoverishment. In high-burden countries, families will be affected by malaria and have to cope with the associated costs many times during a year. This is likely to make such approaches particularly relevant[63,64.]

2.3 Pillar 2 - Increase Access and Build Demand for Services

"Health systems are in dire need of strengthening to ensure that adequate human resources are available, even in remote health centres, and adequate surveillance, monitoring and evaluation is established. Supply chains need to be better managed to avoid stock outs of critical commodities. Diagnostics need to be introduced and managed."
Sixth Report of the All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases, April 2010

Low current levels of coverage

60. The GMAP goal of universal coverage of locally appropriate interventions for malaria prevention and case management by 2010 has not been met. Progress is being made but universal coverage of prevention and treatment services for those at risk will require increased effort by countries and the international community.

61. More funding for ITNs has led to rapid increases in ownership and use. Estimated average household coverage across Africa rose from 5.1% in 2003 to 32% in 2008.[65] A significant push from 2008 to 2010 has seen a total of 254 million ITNs delivered to sub-Saharan Africa, sufficient to cover 66% of people at risk of malaria. A model-based estimate for 2010 shows that 42% of African households own at least one ITN, and that ownership has reached more than 50% in 19 African countries. However, ownership in number of countries is estimated to be much lower, including Nigeria (11%) and Somalia (7%). The estimated proportion of children sleeping under ITNs has also increased considerably but lags behind household ownership. The same model estimated that 35% of children < 5 years of age slept under an ITN in sub-Saharan Africa at the end of 2010 (also with wide variations by country). [66]

62. Lower coverage rates and similar disparities are seen across countries for preventive treatment for pregnant women and indoor spraying.[67]

63. Where prescribed, first line treatment for suspected *P.falciparum* malaria should be an ACT. In 2010 RBM estimated[68] that in only 5 out of a sample of 15 Africa countries do ACTs make up more than a quarter of antimalarial drugs prescribed. Dispensing of ACTs in the private sector – where the majority often access treatment – is extremely low, largely due to prohibitive prices (often up to 10 to 20 times the cost of older and less effective drugs).[69]

Stronger systems

64. In both public and private sectors, delivery of prevention and treatment services for malaria – and health more generally – depends on: proximity and physical accessibility of services; the availability of trained and motivated staff, with supportive supervision; regular supplies of good quality drugs and commodities; information on demand, use and performance of services; and sufficient regulation and oversight to ensure quality products, good practice and accountability.

65. Lack of accessibility, long waiting times due to overstretched staff or poor availability of drugs and equipment in many public facilities are common complaints for public health services in many developing countries.[70] These limitations mean that the majority of people in many countries turn to the private sector or non-governmental organisations. However, quality of products and care in the private sector can be poor,[71] and prices unaffordable, particularly for ACTs. Weaknesses in

both public and private sectors are major barriers to improved malaria prevention and care and to better and more equitable health outcomes (see Figure 2 above).[72]

66. Financing for health, from domestic and external donor sources, needs to be sufficient and allocated appropriately to provide good quality essential services and to support equitable health outcomes. WHO estimates that a package of essential health care services needed to deliver the millennium development goals requires approximately $42 per person per year in low-income countries.

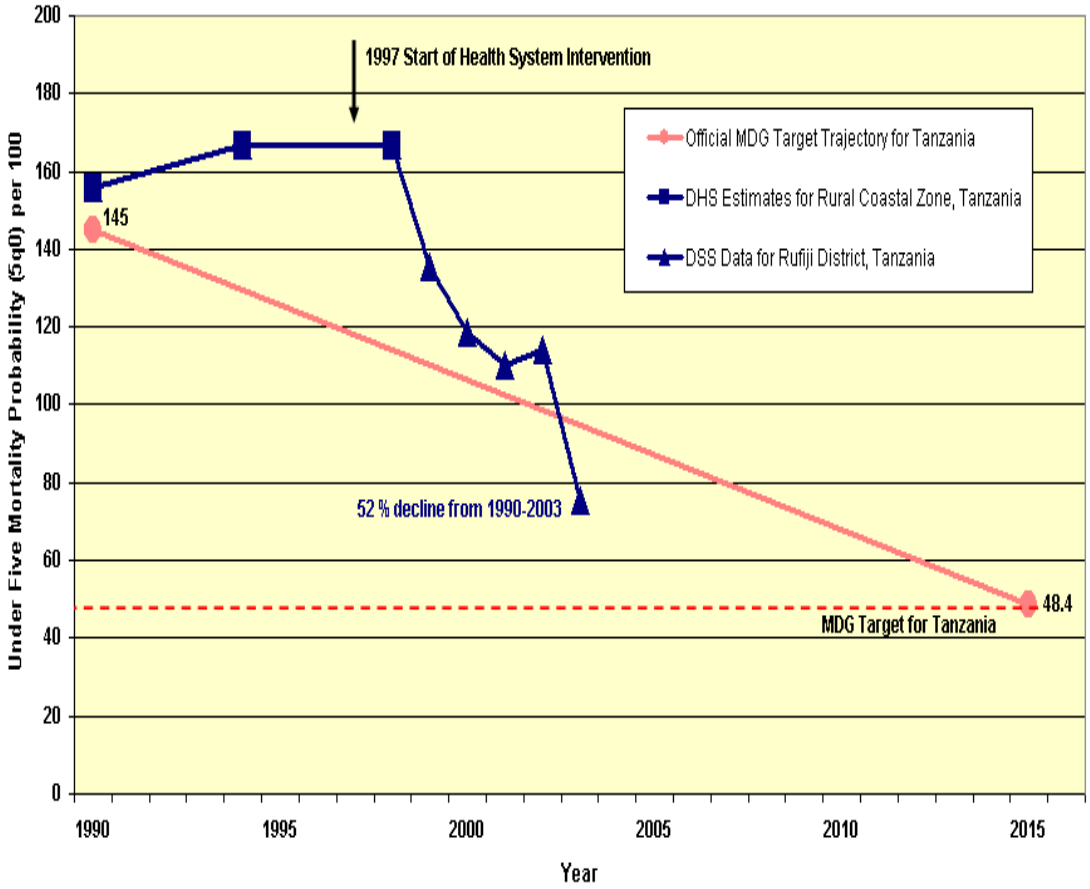
67. In 2008, none of the 49 least developed countries reached this level.[73] In most developing countries, out-of-pocket payments at time of illness make up the majority of health spending. This often prevents poor people from accessing services or causes financial hardship; WHO estimates that each year 150m people experience severe financial hardship and 100m are pushed into poverty as a result of direct payments for health care. WHO identifies the need to move away from out-of-pocket payments as essential to securing universal access to healthcare and improving health outcomes and equity (World Health Report, 2010).[74]

68. These challenges may be particularly severe in emergency situations or in fragile or conflict affected countries, where public sector health systems are likely to be disrupted or may be perennially weak. Up to a third of malaria deaths are estimated to occur in countries undergoing complex emergencies.[75] Conflict and natural disasters can result in movements of non-immune people into high malaria transmission areas, increasing the risk of malaria related illness and deaths.[76] However, the scale and duration of effects on malaria cases and deaths in such countries varies considerably. There are also examples of effective malaria programmes in countries emerging from conflict, such as Eritrea and Rwanda.[77] Crises can also provide opportunities for scaling up coverage as a result of increased number of implementing partners[78] and opportunities for policy and practice change, including the introduction of RDTs and ACTs.

69. Investing in health systems can improve quality and make a difference to outcomes. Strong management capacity to allocate resources and drive performance effectively is important, centrally and at district level. This is even more the case for malaria; changes in transmission will require adaptation of programmes and moving resources to where they are needed as epidemiology changes.[79]

70. A study in two districts in Tanzania demonstrates the potential benefits of investment in stonger management capacity. A focus on improving health information, allocating resources proportionately to different health needs, strong planning and decision-making processes and better supervision and follow-up was associated with a 52% decline in child mortality over 5 years (Figure 6). In both districts resources were re-aligned during the intervention to better reflect health needs. This resulted in a significant rebalancing towards malaria, integrated management of childhood illness (IMCI) and key health systems functions, such as strengthening drug supply.

Figure 6: Declines in U5 mortality in two districts in Tanzania following health management capacity building.



Source: deSavigny, D et al (2004)[80]

71. Limitations in infrastructure, supply chain reach and human resources mean that the health benefits delivered by existing capacity need to be optimised (while taking care not to overload and reduce quality). Integrating malaria with other essential health services – such as neglected tropical diseases, nutrition, HIV, maternal and child health – can in well chosen contexts address disease interactions (e.g HIV or nutrition and malaria) and share capacity for services that need to reach the same populations, particularly the poor and those in remote areas.

Increasing the reach of services

72. Increasing demand for malaria and health services is a necessary corollary to increasing their coverage. Communities need accessible information on malaria prevention, treatment and where to get services in order to generate demand.[81] Women are important in promoting health within families, particularly as they are usually the primary carers for children. Raising their awareness and understanding, and involving them in malaria prevention and control can enhance the proper use of ITNs, increase uptake of IPTp and encourage early care seeking when children have fever.

73. Large-scale distribution of free ITNs has rapidly increased household ownership in many countries, with evidence that this has also supported equitable ownership across rich and poor/rural and urban populations.[82,83] ITN distribution has also been successfully combined with campaigns to address other diseases in some countries, such as vaccination programmes or prevention for other tropical

diseases.[84] Such approaches provide opportunities to share infrastructure and resources, and to deliver broader health benefits for populations reached.

74. Alternative approaches, such as voucher schemes that support subsidised purchase of nets, have also shown success in increasing coverage over time.[85] In a national voucher programme in Tanzania, coverage levels of ITNs rose across all groups, but remained lower among the poor. Research in Kenya has shown high sensitivity of demand to changes in the price of ITNs among the poor. A 60% decrease in demand followed when prices were raised from zero to $0.60. And there was no evidence that paying something for a net increased the likelihood that it would be used.[86]

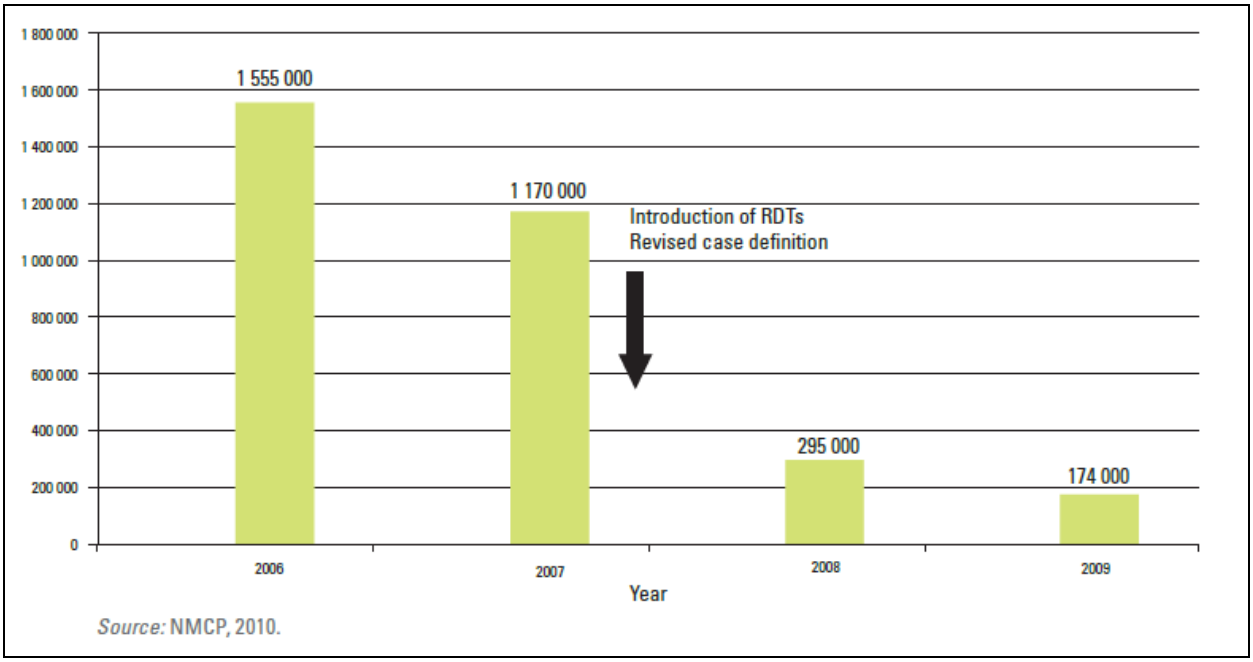
75. Recent focus has been on rapid expansion of ITN coverage (the 'scale up' phase). Attention is also needed on to how to support sustained use of ITNs by households and to re-treat or replace ITNs as they reach the end of their life cycles (the 'keep up' phase). LLINs have reduced the frequency with which nets need to be renewed, but they require replacement rather than re-treatment once they lose their effectiveness. Average lifespan of LLINs is estimated to be 3 years. Many of the nets that were distributed at the start of the most recent push to scale up coverage (around 2008) will now be due for replacement.

76. In reality, replacement needs for individual nets will vary depending on use conditions and care in individual households. Consequently, mass campaigns may be less well suited to maintaining coverage, with more routine ways to replace nets needed. In some countries, mass distribution of free LLINs may have destabilised local net markets (where these previously existed). These may have provided useful channels for ensuring sustained coverage and use over time, and so impacts on local markets need to be considered in net distribution planning. ITN distribution strategies need to address both scale-up and keep-up needs, with the best mix of approaches to increasing and maintaining use likely to be context specific.[87] Whatever approaches are adopted, continued attention is needed to equity.

77. As noted above, in high burden settings IPTp should be part of routine antenatal care. The WHO recommendation for IPTi to be delivered as part of routine immunisation in high burden settings should also be considered (although data suggested by WHO as the basis for decisions on IPTi is not readily available in most high burden countries).

78. There are several examples of countries successfully expanding effective diagnosis and treatment for malaria both through health facility based care and community based care. Senegal has rolled out diagnosis and treatment with ACTs through public facilities as part of a highly successful national malaria programme. By 2009, 86% of patients presenting with suspected malaria fever were screened using RDTs.[88] The increased use of diagnostics – both RDTs and laboratory based – has supported more appropriate treatment for people with fever and led to much better data on malaria cases (see Figure 7). Although part of the significant drop in malaria cases between 2007 and 2008 is probably due to better identification of malaria, it is noticeable that cases have continued to fall since 2008. Between 2005 and 2008/09, deaths from all causes of children-under-five deaths were reduced by 30%. This is likely to be driven both by reductions in malaria deaths and by more appropriate treatment of children with non-malaria related fever.

Figure 7: Cases of malaria in Senegal 2006 – 2009



Source: RBM 2010[89]

79. Chronic shortages of trained doctors, pharmacists and nurses in many developing countries are well documented[90] and present a major constraint to the provision of effective health services. Africa has 24% of the global burden of disease but only 3% of the world's health workers, resulting in critical shortages in many countries.[91] Proximity of health facilities is an important factor in healthcare access, with fewer people using formal health facilities as distance to them increases.[92] Importantly the distribution of public healthcare facilities in many parts of Africa is patchy. Remote regions, which typically include the poorest populations with the highest rates of malaria morbidity, are usually underserved.[93]

80. A number of countries are addressing this human resource challenge, lack of health infrastructure and limited access to facilities in rural and poor areas by training people within communities to act as community health workers (CHWs). With appropriate supervision and reliable supplies of medicines and health commodities, CHWs are successfully providing packages of essential preventive and treatment services. Recent data from a trial in Zambia has demonstrated that RDTs and treatment can be effectively delivered by CHWs.[94] Similar programmes are now being rolled out in a number of other countries including at state level in India (Accredited Social Health Activists) and nationally in Ethiopia (Health Extension Workers).

81. Public health facilities often suffer from stock outs of medicines and other health commodities. In Africa, average availability of essential medicines in the public sector is only 29.4% (54% in the private sector).[95] Strengthening public sector supply chains can have a major impact on access to effective care. An impact evaluation study in Zambia (partly funded by the UK government) recently demonstrated that a well designed public supply chain could improve the availability of malaria and other essential medicines dramatically. Availability of ACT treatments for children in districts implementing one of two experimental supply chain models reached 88% (compared with 51% in districts with no intervention). Similar improvements were seen for other essential medicines, such as antibiotics. The evaluation team estimated that scaling up this supply chain model could reduce child malaria deaths by 37%.[96]

82. Weaknesses in the public health system result in many of the poor and those at highest risk of malaria not using any formal health services for treatment of malaria. Instead, many turn to the private sector, which typically consists of local drug shops, kiosks or drug sellers – many of which are not formally licensed to dispense malaria treatment.[97,98] The majority of fevers are treated in this informal and unregulated private sector, which is often closer, may be less expensive (once travel and waiting times are taken into consideration), is more likely to have drugs in stock and may be regarded as being of better quality than public services.[99]

83. As the place where many already turn, the private sector is an important channel to expand access to malaria prevention and treatment. However, several well documented and widespread challenges exist including; low availability of ACTs; availability of non-recommended drugs, including artemisinin mono-therapy; poor quality of drugs; poor prescribing practices; and high price mark-ups.[100,101] And all of these problems are compounded by weak regulation.

84. A variety of recent survey data collected by ACT Watch (including Cambodia, DRC, Uganda and Zambia) confirm that availability of ACTs is often particularly low in the private sector, while less effective drugs and artemisinin mono-therapy are often readily available. In most countries, recommended first-line malaria treatment (usually an ACT) represented less than 10% of drugs dispensed in the private sector. [102]

85. The price of ACTs has been a major barrier to expanding their use in the private sector. Older treatments, such as chloroquine and SP cost well under a dollar. Artemisinin mono-therapy may retail in the $1 - $2 price range. ACT Watch found that recommended first-line treatments (usually ACT's) were 4 – 22 times more expensive than the most commonly dispensed antimalarial in the private sector (a non-artemisinin based treatment in all countries surveyed).[103]

86. The Affordable Medicines Facility- malaria has been established to pilot an approach to rapidly scale up effective malaria treatment through private, NGO and public sector channels by subsidising the price at which wholesalers purchase quality assured ACTs from manufacturers. Previous small scale studies (e.g Tanzania[104]), suggest that subsidies provided at the top of the private sector supply chain can be passed on to consumers. In the private sector, the aim is to make quality assured ACTs less expensive than oral artemisinin mono-therapies. And, over time, for ACTs to become price competitive with the most common but increasingly ineffective antimalarials, such as chloroquine. It is intended that increased demand for ACTs will also drive greater competition in the market place and, together with public information campaigns, bring down prices for private and public sector purchasers.

87. The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) is now piloting this subsidy approach on a national basis in 8 countries over a two year period. An evaluation of the pilot will be conducted in 2011. It will examine the extent to which the AMFm improves affordability, availability and market share of ACTs, and how it compares with other financing models that aim to achieve the same objectives solely through the public sector. It will be important also to assess what short-term and comparative effect the AMFm model has on access and utilisation of ACTs by rural and poor populations.

88. A variety of approaches have been developed to improve treatment quality and practice in the private sector among more or less formal retailers (pharmacies, drug sellers and general stores).[105,106] These have included social franchising (Ghana, Kenya, Uganda), accreditation (Tanzania[107]), improved regulation and supervision (Tanzania[108]) and social marketing of ACTs. For example, drugs subsidised by the

AMFm will all have a 'green leaf' logo that the public can look for as a mark of quality and affordability.[109] There is some evidence that private sector practice can be improved, but results have been variable. Projects have also largely been small scale to date and evaluation has not followed experimental design.[110] How to make better use of private sector capacity and reach remains an urgent research question for the malaria field if universal coverage of effective interventions is to be achieved.

2.4 Pillar 3 - Support innovation and global public goods

89. Malaria is a global issue. Successes in one country can strengthen prospects for progress by its neighbours. Emergence of resistance to drugs and insecticides in one region puts gains made in control at risk in all. Increases in global funding for malaria have improved the commercial viability of malaria commodity markets. Entry by new suppliers has driven competition and product innovation that all purchasers potentially benefit from. Improving malaria results at a country level through new ways of doing things and the use of better products also has benefits internationally. And achieving the longer term goals of progressive elimination and eventual eradication will require global efforts to develop and support use of more effective prevention, diagnostic and treatment tools. [111]

Resistance

90. The emergence of parasite and mosquito resistance to drugs and insecticides is inevitable. As resistance will eventually affect everyone, detecting, delaying and containing it and having new tools on hand for when it emerges, are public goods.

91. Widespread resistance to older malaria drugs, such as chloroquine, SP and amodiaquine, have resulted in the recommendation that ACTs are used as the first line treatment for *P.falciparum*. However, evidence of resistance to artemisinin has now been confirmed in South-East Asia (where resistance to previous drugs also originated).[112] Swift action is needed to slow and contain resistance in these areas before it spreads. The WHO Global Malaria Programme is currently developing a Global Strategy for Artemisinin Resistance Containment (GPARC) to do this.

92. Resistance to insecticides is an acute threat to the effectiveness of malaria control.[113] Pyrethroids are the only class of insecticide used for ITNs and every effort must be made to preserve effectiveness. There is already evidence of resistance to some pyrethroids and this is likely to spread. Four chemical classes are currently recommended by WHO for IRS. This wider range of options, if properly managed, places IRS at less risk of failure due to resistance. However, particular consideration should be given to not using pyrethroids for IRS where ITNs are also being widely used. Routine monitoring of mosquitoes susceptibility and strategic selection of insecticides used in ITNs and IRS are essential.

Improving market performance

93. Responses to malaria at country level are in part shaped by the availability of malaria commodities – ITNs, RDTs and ACTs – in international markets. This is particularly the case given the dominance of the GFATM and other international donors in funding malaria commodities. International funders have product specification and quality requirements that must be met for commodities purchased using their money. Currently, many local manufacturers are not able to meet these

specifications and quality standards. Technological developments and the rapid increase in malaria funding have led to significant changes in malaria commodity markets:[114]

- **LLINs** – the market is relatively immature, with only a limited number of suppliers (7) that meet international (WHOPES) standards for insecticide treated products. Massive scale-up through free distribution has resulted in a significant peak in demand, which will now tail off as countries move into 'keep up' stages of distribution. Managing this transition and sustaining long-term supply and product evolution (e.g. to longer-lasting nets) will be important to maintaining high levels of net coverage.
- **ACTs** – only a small number of manufacturers/products have necessary regulatory approvals[xii] for international donor funding. Supply of artemisia (the essential ingredient for ACTs) is complicated by long lead times required to plant, harvest and refine it from the plants from which it is extracted. Supply and demand for artemisia have varied considerably resulting in spikes in prices that have implications for the costs of manufacture of ACTs. Prices have varied from $170/kg at the end of 2007 to a high of $350/kg by the end of 2009.[115]
- **RDTs** – the market is highly fragmented, with many manufacturers but with considerable differences in product specification (resulting in potential confusion for purchasers and users), quality and unit costs. It is likely that some level of standardisation of target specifications and a consolidation around a smaller number of quality suppliers is needed.

94. Funding for LLINs and ACTs is relatively concentrated, with the GFATM and PMI playing major roles (UNITAID made a very significant one-off purchase of LLINs in 2009).[116] However, procurement, particularly using GFATM funds, is more fragmented and misses some opportunities to use buying power to ensure market sustainability and to secure innovation and value for money from suppliers. The GFATM has recently established the Voluntary Pooled Procurement (VPP) mechanism to support better leveraging of its funding. VPP became operational in June 2009 and has improved procurement results for countries that have worked through it. However, the country led GFATM business model means that the potential of the VPP to aggregate demand and coordinate procurement is limited.

95. UNICEF procured around half of the total global volume of LLINs in 2009, both for its own use and as an agent for Global Fund Principal Recipients. It has secured competitive prices[xiii] and effectively managed the placement of orders in a year when total demand almost equalled total LLIN supply (requiring orders to be matched to supply capacity across manufacturers).

96. The median price paid across individual countries for LLINs with GFATM funding was $5.30 in 2009.[117] VPP (procuring for a sub-set of 23 GFATM funded countries) and UNICEF procure LLINs on average at under $5.00 per net. Bringing the median price paid for all GFATM funded countries closer to the sub-five-dollar prices achieved by the VPP and UNICEF could result in significant savings.

97. Active engagement in markets – by improving demand forecasting, working directly with suppliers to improve production processes and accelerate market entry or by coordinating procurement – could achieve significant improvements in value for money (better prices, supplier performance, product specification and market

[xii] Either approval by a Stringent Regulatory Authority (SRA) – such as the US Food and Drug Administration or the European Medicines Agency – or WHO pre-qualification.
[xiii] Note: direct comparison across procurement agents is complicated by differences in what is included in reported prices (e.g. insurance and shipping) and different product specifications (e.g. different sizes of LLINs).

security). This is likely to require global funders and procurers to move beyond efficient procurement within an existing market structure, to a more active shaping approach (e.g. setting clear guidelines and transitional periods for the procurement of products that meet certain specifications).

98. Attention is also required to the impact of taxes and tariffs on the import of malaria medicines and other commodities. WHO recommends the removal of taxes and tariffs on essential medicines as one policy option to improve affordability.[118] A 2005 review found that 59% of countries impose tariffs on finished pharmaceutical products.[119] The Abuja declaration (2000) included a commitment by African Heads of State to reduce or waive taxes and tariffs for mosquito nets and materials, insecticides, anti-malarial drugs and other recommended goods and services that are needed for malaria control strategies. The GMAP (2008) similarly calls on national governments to put in place policies that eliminate trade barriers, taxes and tariffs on malaria-related commodities. Some progress has been made, but taxes and tariffs remain in place in a number of countries.

Innovation

99. New products must be relevant, usable and acceptable for the people who use them. If diagnostic tests are to be used in remote rural settings by community health workers, then they need to be easy to use, stable in the local climate and robust enough to endure transport and storage unharmed. If people are to sleep under insecticide treated nets more consistently then they need be easy to use in their homes and comfortable to sleep under.

100. Malaria product innovation, particularly for drugs, has evolved significantly in recent years. Product development partnerships (PDPs), such as the Medicines for Malaria Venture and Drugs for Neglected Diseases Initiative, have brought together pharmaceutical industry expertise with public financing and a focus on the needs of developing countries. This has resulted in an accelerated development and the approval of new ACT formulations, including child-friendly products. Product development partnerships have also been established to accelerate the development of malaria vaccines (Malaria Vaccines Initiative) and new insecticides for vector control (Innovative Vector Control Consortium).

101. The product development partnership model has provided an important means to incentivise and accelerate technology development for product markets that may not otherwise be commercial priorities.[120] Other approaches, such as market based incentives to encourage greater private sector investment in malaria product development and to strengthen R&D in malaria endemic countries, should be explored to complement investments in PDPs.

102. Good products aren't enough.[121] Policy change, resourcing, training for and acceptance by practitioners, attention to distribution channels and public demand generation all need to be in place for successful product introduction and diffusion. The slow uptake of ACTs in developing countries, despite superior treatment outcomes, demonstrates the need to think about systems as well as products. A study in Kenya showed that two years after the adoption of ACTs as first line treatment, 26% of public sector facilities had no ACTs in stock. These stockouts were most severe in the places of greatest need.[122]

103. Innovations in systems – such as use of mobile phones to improve information and accountability – are also needed to drive better outcomes. A pilot programme of such a system (SMS for Life[123]) in Tanzania – where health workers received credits to use their own mobile phones to text stock level information weekly to

district health managers – saw a reduction in the number of public health facilities with stockouts of ACTs from 26% to 0.8%.

104. Bringing product and system innovation together provides opportunities for step changes in delivery and outcomes. RDTs and the expansion of ACTs through community based and private sector channels could open up opportunities to accelerate achievement of the goal of universal coverage of treatment services. This will need commensurate improvements in the effectiveness of supply chains, supervision and monitoring of results.

105. Ongoing operational research is needed to inform programming on how best to deliver and increase coverage of interventions in real life circumstances in different settings. This should include how to improve both demand and use of services, as well as their supply. And it should look at how to deliver results for hard to reach groups and to maintain cost-effectiveness as malaria patterns change.

2.5 Pillar 4 - Focus on impact and results

The data challenge

106. A focus on impact and results requires that information on disease patterns, health service performance and health outcomes are routinely collected and analysed. Good data is essential to planning and allocating resources cost-effectively and to holding governments and service providers to account for their results.

107. Routine collection of vital statistics (births, deaths) and health management information systems (HMIS) are both weak in most developing countries. Common survey tools that supplement routine information collection, such as Demographic and Health Surveys (DHS), do not necessarily collect clinical data on malaria – although malaria specific questions can be added. More specialised Malaria Indicator Surveys (developed by RBM) and Multi-Indicator Cluster surveys (developed by UNICEF with a wider focus on child health) also provide accepted methodologies for tracking malaria, but generally provide only national point estimates that are of limited use for programme management at the district level. Survey based approaches are important but are limited in their frequency by costs and human resources required to undertake them.

108. Data on actual malaria cases and deaths is limited. As noted above, many cases of fever that are the result of other causes are currently misdiagnosed as malaria. Conversely, many malaria-related deaths occur at home without contact with health services and are not properly recorded. Lack of direct data on cases and deaths mean that these are currently modelled from information on local levels of malaria incidence and rates of coverage for different prevention and treatment interventions. A number of modelling approaches exist that rely on different inputs and assumptions. As more countries use diagnostic tests more widely to confirm actual malaria cases, the availability of directly measured data should improve and can be used to strengthen models.

109. Increased use of diagnostic testing and better collection of data is likely to result in an initial reduction in the number of cases of malaria reported by many countries. This will present an opportunity to plan, target and deliver malaria services more effectively, and to track progress more accurately. Data systems will need to be strengthened as malaria is increasingly brought under control. National averages will mask local changes in transmission and malaria hotspots. More detailed data will be important for targeting and moving resources to where they are needed. Countries moving from control to elimination will also need to identify cases of malaria, including asymptomatic and imported cases, quickly and respond to any changes that may drive increases in transmission.

110. Collecting a wider range of health information will also be important to capture the broader benefits of improved malaria prevention, diagnosis and treatment services. This includes reductions in deaths due to other causes of fever that can be more appropriately treated once malaria is ruled out, and better functioning health services (e.g. more reliable drug supply).

111. Countries such as Senegal[124] are demonstrating that RDT use in clinics can significantly improve data on actual malaria case rates. And countries, such as Ethiopia and Zambia, are rolling out use of RDTs and appropriate treatment in community settings. Reliable and easily implemented systems are needed to collect

data generated from such programmes. Similarly, ways need to be found to collect information on malaria diagnosis and treatment in the private sector.

CASE STUDY
Burma: A coordinated approach to tackling emerging resistance

In 2008, artemisinin resistance was identified in Western Cambodia. Monitoring in the South East Asia region suggests that artemisinin resistance is also emerging near the Burma borders with China and Thailand. Malaria is the leading cause of illness and death in Burma, with estimates of 4-8.5 million cases per year; most (75%) are *P falciparum*. The malaria burden is particularly high in the hills and forests of the border areas, where some areas have suffered 60 years of unbroken civil conflict.

Most malaria treatment is sold through the private sector. Many private sellers dispense oral monotherapy rather than the recommended ACTs. This large-scale use of monotherapy is a key driver for the emergence of resistance. The problem is further compounded by the presence of counterfeit or poor quality artemisinin tablets, which could make up an estimated 20% - 40% of the market. The human and financial costs of the spread artemisinin resistance would be immense for this region but, above all, for Africa which has highest burden of disease.

DFID Burma currently supports malaria control through the seven donor supported Three Diseases Fund for HIV, TB and malaria. From 1st January 2011 the Global Fund will recommence funding for Burma, after its' withdrawal in 2005. DFID Burma is working closely with other donors and partners in country to support the development of a new national plan to contain emerging malaria drug resistance. This includes initiatives to limit the use of oral monotherapy in the private sector; to scale up high quality malaria diagnosis and treatment and to encourage the uptake of long-lasting insecticide treated nets in high risk areas. DFID Research and Evaluation Department is also supporting operational research and surveillance in the region to help identify future emerging resistance so that future containment activities can be better targeted. This co-ordinated response is crucial if the emergence of resistant malaria is to be contained in South-East Asia. This will mean that ACTs will remain a highly effective drug and continue to save countless lives among vulnerable populations across Asia and Sub-Saharan Africa.

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Chapter 3

Achieving Results

Achieving Results

"Build on what DFID [does] well … and work to your comparative advantage. The reach across evidence, advocacy, coordination and partnership building, implementation and research agendas needs to be continued."
Respondent to external malaria consultation

3.1 Working through country programmes

"DFID should … continue to apply aid effectiveness principles to the malaria field. We encourage DFID to lead efforts to harmonize donor aid behind national plans."
Respondent to external malaria consultation

112. The UK government will work through its country programmes to support the achievement of our malaria goals. Bilateral spending also includes funding for research, support to civil society organisations and the new Health Partnership Scheme.

113. The UK government has placed a priority on delivering results that are based on the development goals of countries and evidence of what works. A bilateral aid review was launched in the summer of 2010 and has been one of the main inputs for the development of this framework. Based on this review, the UK government will support malaria efforts in 16 countries in Africa, and two in Asia (Box 3). This includes 16 of the 30 countries with the highest reported proportion malaria deaths (see Annex B).

114. In keeping with this bottom-up approach, we do not set out detailed country-by-country plans and targets in this document. Summary operational plans for DFID bilateral country programmes and an update on projected UK supported malaria results will be published during 2011. The UK government will actively work with development partners, such as GFATM and the US President's Malaria Initiative, to support alignment with national malaria control plans and monitoring and evaluation frameworks.

115. Country focus may change over the period of this framework. However, the UK government recognises the importance of continued support to countries that successfully control malaria to ensure that these gains are maintained over the long-term.

116. Eleven of the countries set out below are considered fragile and conflict affected. In such contexts, the UK government will use a variety of funding channels and work with a range of state and non-state actors (National Ministries of Health, WHO, UNHCR and NGOs) to plan and implement appropriate responses – including strengthening surveillance and outbreak preparedness.

117. The UK government's general health and broader development programmes in developing countries also support malaria control in affected countries. In the health sector, investing in improved human resource capacity, better drugs supply, better information systems, and stronger accountability will provide a platform to deliver quality malaria services to those who

need them. Where appropriate, we will support countries that wish to remove fees at the point of use of services and replace them with more equitable health financing systems.

Box 3: UK bilateral programmes

- **Burma**
- **India**
- **Rwanda**
- **Uganda**
- **Burundi**
- **Kenya**
- **Sierra Leone**
- **Zimbabwe**
- **Malawi**
- **Somalia**
- **Zambia**
- **Ethiopia**
- **Mozambique**
- **Sudan**
- **Tanzania**
- **Ghana**
- **Nigeria**
- **Democratic Republic of Congo**

118. Investments to improve nutrition, education, improving the incomes of poor households, water and sanitation, the role of women and the empowerment of communities can all have indirect benefits for malaria outcomes. Consequently the UK government attributes some of its spending in these areas to malaria. How we do this is set out in Annex A.

119. The UK government has the flexibility to use a range of ways of funding to support malaria and broader health results, including general budget support, sector budget support, sector wide approaches (SWAps), working through UN or other agencies (e.g. in fragile and conflict affected countries) and project funding. The most appropriate mix of approaches will be used in each context. The UK government is working with others to develop new financing models, such as results based aid, that can both empower countries and focus on results. Opportunities will be explored for malaria investments also to support enterprise and growth in developing countries. These investments will complement those of other donors. And in all instances,

strengthening responsiveness and accountability to communities through better availability of information will be prioritised.

3.2 Improving the effectiveness of the global response

120. In addition to country programmes, the UK government works through multilateral channels to:

- influence global responses to malaria
- deliver key global public goods – such as action on resistance
- directly and indirectly complement bilateral programmes
- expand reach at scale across countries in which we do not have a presence
- promote improved performance, transparency and accountability in the international system
- leverage the investment of others to improve value for money for British aid.

121. Multilateral agencies play important strategic coordination, funding and normative guidance roles in the global malaria response. They also provide channels through which to address public goods that require engagement by and impact on multiple countries, such as malaria resistance and the structure and performance of malaria commodity markets.

122. However, there are opportunities to improve focus on areas of comparative advantage, performance, cost-effectiveness, transparency and coordination across the multilateral system and by international partnerships. The UK government has an ambitious reform agenda that will be taken forward through positions held on governing boards, funding-related performance frameworks and financial, technical and policy work with organisations. Priorities for reform will be informed by the findings of a Multilateral Aid Review that will be published in 2011.

World Health Organisation, including the Global Malaria Programme

123. WHO plays an important role providing normative guidance and policy leadership on health across a wide range of technical and health policy fields. It provides technical support to Ministries of Health to develop, implement and monitor evidence based national health policy and plans. Performance and coordination at regional and country level can be variable.

124. The WHO Global Malaria Programme provides essential leadership in the malaria field in a number of important roles:

- global technical and normative leadership on malaria – such as treatment guidelines
- objective monitoring of global progress (including the annual World Malaria Report)
- guidance on approaches to capacity building at country level and work with National Malaria Control Programmes
- leadership to define and address the emerging threat of resistance

125. The UK government strongly supports the technical leadership role of WHO on malaria. This should focus on delivering results in its core areas of competency and ensure that this translates to added value at country level. In general, WHO needs to improve its coordination

with other international partners, improve value for money in delivery and increase transparency of decision making and in reporting results.

Roll Back Malaria Partnership

126. The Roll Back Malaria Partnership (RBM) comprises of over 500 partners from governments, international agencies, civil society and the private sector. It plays an important role in galvanising malaria efforts and provides the main international forum to facilitate effective collaborative action, through the RBM Secretariat and working groups.

127. In 2008, RBM launched the Global Malaria Action Plan (GMAP), which set out a number of ambitious and internationally supported objectives for malaria control, elimination and eventual eradication. The GMAP now provides an important frame of reference to help align the contributions of the wide range of actors and constituencies that are essential to effectively tackling malaria.

128. The UK government is both a board member and funder of RBM. We will support the secretariat to focus on its convening role and in facilitating support to countries to help develop robust and well targeted proposals to the GFATM. We will encourage RBM partners to play their roles in supporting its work (e.g. through working group participation) and in implementing effective malaria responses.

Global Fund to fight AIDS, TB and Malaria

129. The GFATM accounted for more than 60% of all external malaria financing between 2003 and 2009.[125] It is the dominant funder for malaria LLINs and ACTs. As well as supporting the adoption of new products, the GFATM has also provided an important platform for innovation, and currently hosts the AMFm.

130. The GFATM has supported strong results by countries. The scale of its malaria funding has helped define international malaria commodity markets – particularly for LLINs and ACTs. GFATM funding is demand driven and based on a series of proposal rounds. Malaria has been particularly prominent in rounds 8 and 9 and will remain a significant part of the Fund's portfolio in round 10 (Technical Review Panel approvals for malaria applications to round 10 are high).

131. The UK government is a significant funder of the GFATM and it will remain an important channel for British aid in supporting malaria results. There are also opportunities to strengthen further the contribution of the GFATM to health outcomes:

- Simplifying and aligning grant procedures: the round-driven nature and complexity of grant procedures can increase transaction costs for recipients, constrain forward planning by countries (particularly where the Fund is a large contributor) and hinder alignment with other donors. The UK government supports the GFATM's work with other partners to begin to address these issues.
- Aligning allocations with need: high malaria burden countries in west and central Africa have been relatively less successful in securing funding proportionate to their malaria needs. Conversely, countries that have been successful in controlling malaria will need appropriate continued support to maintain these gains. The UK will work with partners to help support countries to develop robust proposals for funding that are commensurate with their levels and types of need and to encourage an appropriately needs focused allocation of resources.

- Strengthening market leverage: the GFATM is the largest funder of many malaria commodities but purchases are only partially coordinated. There are opportunities to balance the importance of country-led decision making with ways of using the total value of GFATM funding to shape commodity markets. The Voluntary Pooled Procurement mechanism is a first step in this direction. The UK is also an active member of the GFATM Market Dynamics Committee, which is exploring and developing options for the GFATM board for more active market engagement.
- Supporting sustainability: country demand for support is likely to continue to outstrip available resources. The GFATM may need to develop a more active business model to prioritise resource allocation and further improve value for money (e.g. revised eligibility and prioritisation criteria). Stronger monitoring and evaluation may also be needed to protect investments e.g. support for more systematic monitoring of resistance to HIV, TB and malaria drugs funded by the GFATM.

UNITAID

132. UNITAID was launched in 2006 with a unique focus on improving the performance of commodity markets for HIV, TB and malaria for developing countries. UNITAID works through partners to catalyse market changes including: establishing markets for new products (such as paediatric HIV medicines), stabilising markets by smoothing demand or engaging with suppliers to improve quality or reduce prices. UNITAID has been active in the malaria field. It played an important role in smoothing out funding flows for LLINs in 2008/09 (see section 2.4 above). And it is the largest funder of the AMFm pilot.

133. Higher demand for funding and the likelihood of increasing costs in some of its priority areas (particularly HIV drugs), mean that UNITAID will also need to reform. A more strategic and forward looking investment process is needed that takes a stronger account of where most value can be added. Evaluation of the market impact of UNITAID interventions is also needed to guide future directions. Future engagement in malaria markets will need to be assessed alongside other opportunities as part of such a process.

134. Greater attention is needed to how the GFATM and UNITAID can use their different funding mechanisms and focus to complement each other as effectively as possible.

UNICEF

135. UNICEF plays a major international role as an advocate for the health and well being of children, including objective monitoring and reporting on progress in meeting international commitments. It also provides a number of important services, including large scale procurement of commodities for its own programmes and for others – with a particularly strong role in the procurement of ITNs and LLINs.

136. At country level, UNICEF is an important partner in supporting the implementation of evidenced-based malaria policy and strengthening the integrated delivery of malaria interventions within maternal, child and primary health care programmes.

137. UNICEF performs well against development objectives but there are opportunities to strengthen delivery in humanitarian contexts, to continue to drive improvements in value for money and to be more transparent in decision making and reporting of global level results.

World Bank

138. The World Bank can play an important role, internationally and at country level, supporting policy development and coherence on how to improve performance in the health sector. In particular, the Bank can act as an influential contact with Ministries of Finance to support reforms for more efficient and equitable health financing approaches. However, engagement at country level can vary considerably. The World Bank Malaria Booster Programme 2 has earmarked funds of up to $1.1bn for malaria. However, draw down by countries has been slow to date and disbursements relatively low.

European Union

139. The European Union, taken as a whole, is the single largest contributor to overseas development assistance, with health forming a major part of its overall portfolio. 21% of DFID's development budget was allocated through the European Commission in 2008, including a significant contribution to the health sector. The 2010 communication on the "EU Role in Global Health" [xiv] provides an opportunity to ensure that Commission and Member State funding is better aligned behind strong national plans, and addresses systemic constraints to health service delivery, uptake and universal coverage. The EU can play an important role in facilitating strategic coordination of donors at country level.

International Partnerships

140. In addition to multilateral agencies, the UK government will work with leading bilateral and Foundation partners to ensure that our contribution to malaria complements other global programmes and adds maximum value for communities and countries affected by malaria.

141. The US government's President's Malaria Initiative (PMI) is currently the largest bilateral funder of malaria programmes. It is an important part of the US Global Health Initiative, which prioritises stronger alignment behind robust national strategies, strengthening service delivery systems, and supports the integration of health services, including reproductive health, HIV, malaria and nutrition.

142. Given the complementary interests of the US and UK approach it is important to strengthen collaboration at country and international levels, avoid duplication of effort and strengthen the performance and accountability of the international system to deliver for malaria.

143. Of the 17 PMI priority countries[xv], there are 11 in which the UK government bilateral programme contributes to action on malaria (see box 3 above). The point of entry for working collaboratively at this level will be led by our respective country offices. The UK government will also seek opportunities to work with PMI on global public goods including containing artemisinin resistance, increasing the value for money in the global market for malaria commodities and working with our partners to strengthen monitoring and surveillance systems.

144. The Bill and Melinda Gates Foundation (BMGF) has played a major role in galvanising renewed global malaria efforts. In 2007, it set out a long-term goal to progressively eliminate and then eradicate malaria. In 2008, the GMAP set out a pathway to achieve these long-term

[xiv] COM(2010)128. Brussels, 31.3.2010
[xv] http://www.fightingmalaria.gov/countries/index.html

goals. The BMGF has a broad programme of investments in malaria programming, particularly in the development of new treatment and prevention technologies.

145. The UK government shares the BMGF objectives of reducing the global burden of malaria today and investing in the future. The UK government will work with BMGF to: strengthen global responses to malaria through our engagement with international organisations; support efforts to contain and delay resistance to artemisinin; and invest strategically in new prevention, diagnostic and treatment tools to ensure continued malaria control and to pave the way for progressive elimination and eventual eradication, once feasible.

3.3 UK government research priorities

146. Investment in research is a key part of the UK government's bilateral development spending. It is fundamental to defining and understanding what drives development in different settings. It provides an evidence base for what works now, and where and why it works. And research is essential to understanding how we may need to do things differently in the future as circumstances change or new tools or evidence emerge. The UK government supports short term policy focused research, including systematic reviews of evidence, to inform current practice. We support the development of new technologies that can be used by developing countries to improve development outcomes. Recognising the fact that technologies exist but are not reaching those who need them, DFID is committed to increasing the proportion of its budget on research.

147. DFID funds two broad kinds of malaria research: (a) research and development to improve and develop new anti-malarial interventions, including drugs and diagnostics; and (b) operational and implementation research to improve the effectiveness of interventions in the field and to improve the delivery, quality, equity and effectiveness surrounding malaria prevention and treatment.

148. Our current malaria research portfolio includes support to Medicines for Malaria Venture and the Drugs for Neglected Diseases Initiative. We also support operational research to help get interventions into use and to explore ways to help control the spread of resistance to malaria drugs. New research priorities will include:

- strategies addressing the growing threat of artemisinin resistance
- malaria in pregnancy: with a new global focus on malaria transmission reduction, we are likely to see major changes in the epidemiology of malaria which will have implications for the burden and control of malaria in pregnancy
- new diagnostic and treatment strategies to manage malaria in changing/low transmission settings
- increasing the effectiveness and scope of existing treatment options
- implementation research on quality management of clinical care and diagnosis
- dealing with insecticide resistance and developing new insecticides
- work with partners to assess the role of specific vaccines as they are developed, and of potential vaccines classes including disease preventing, pregnancy and transmission-blocking vaccines in malaria control.

149. As well as direct funding for R&D, the UK government will explore ideas for innovative financing or incentives to stimulate greater investment in priority malaria research – including results based approaches.

150. A strong focus on evaluation and results in all the UK government programmes will also provide an important source of information to strengthen the evidence base for effective responses to malaria. This will include programmes that adopt impact evaluation designs where possible.

3.4 Harnessing UK Expertise

Cross-government working

151. Government departments work together to provide a coherent approach to UK policy on malaria and international health more generally. This includes engagement with international processes, such as the G8, G20 and UN summits and with the governance of international organisations, such as WHO and the World Bank.

152. The Department of Health (DH) leads on the UK's cross-government approach to global health including: (a) the management of existing and new diseases that spread rapidly around the world; (b) health worker migration and the global scarcity of skills; and (c) leading the UK government's institutional relationship with the World Health Organisation. The DH chairs the Cross Whitehall Group on Health, which ensures coherence across the UK government on policies that have relevance to and impact on international health (including impact on health in the UK).

153. The Foreign and Commonwealth Office (FCO) plays a central role in leading the UK government's engagement with country governments and with the UN system.

154. The International Trade Unit (ITU) is a joint initiative between DFID and the Department for Business, Industry and Skills (BIS). The ITU supports the development of a fair and competitive international trade system that includes growth facilitation for developing countries and work on issues such as taxes and tariffs (e.g. on essential medicines or ITNs).

155. The Intellectual Property Office leads UK government policy development on intellectual property. This includes engagement on the Trade Related Aspects of Intellectual Property (TRIPS) agreement to ensure an approach that both supports intellectual property as an important incentive for the development of new technologies (such as new malaria drugs and diagnostics) and balances this with the potential for patents to be exercised in a way that can reduce access to medicines in some circumstances.

156. The Ministry of Defence chairs the cross-government group on health and conflict, which includes DFID, DH and the joint Stabilisation Unit (SU). It develops coherent and consistent policy on health and conflict across the UK government.

Civil Society

157. Empowering communities and civil society in developing countries must be central to the UK government response to malaria. Non-governmental organisations (NGOs) and civil society organisations (CSOs) are important partners for doing this. They are often best able to reach the people that bear the highest burden of malaria and to work with communities that may vulnerable or marginalised to secure better services and support. NGOs play vital role in raising awareness, mobilising resources and gaining political commitment, both at country level

and internationally. And they can empower communities to hold governments – including the UK - to account for keeping their promises and delivering the resources that are needed to prevent and treat malaria. UK based NGOs also play an important role of linking the British public with the realities faced by communities in developing countries.

158. NGOs and CBOs are important development partners on the ground. They deliver a wide range of programmes and services, particularly in emergency and humanitarian contexts. And they often provide valuable technical support to local partners, including ministries of health (e.g. in developing strong applications to the GFATM).

159. The UK government supports NGOs and CSOs in a number of ways:

- Programme Partnership Arrangements provide support for large, multi-year and multi-country programmes on a wide range of development areas, including health. They are open by competition to UK and non-UK based non-profit organisations.
- Global Poverty Action Fund is a demand-led fund for UK-based NGOs supporting projects focused on service delivery in support of poverty reduction and the most off-track Millennium Development Goals in poor countries. Projects will be selected on the basis of demonstrable impact on poverty, clarity of outputs and outcomes, and value for money.
- The Civil Society Challenge Fund is open to UK based organisations and specifically supports partnerships with CSOs and communities in developing countries.

The UK health community

160. The wider UK health community will play its part in delivering the results in this plan through a range of formal and informal mechanisms. The UK government signed the Global Code of Practice on the international recruitment of health personnel in 2010 which sets out an agreed set of guidelines governing the recruitment of foreign health workers. The UK National Health Service (NHS), with its own Code of Practice (latest revision 2004), has dramatically reduced the level of nurse and midwifery recruitment from developing countries. Through the Department of Health and international fora such as WHO, the UK encourages other countries to sign up and limit the active recruitment of scarce health workers from low resource settings.

161. The UK government has established the Health Partnership Scheme in order to promote and foster strengthened partnerships between UK based health organisations and their counterparts in developing countries. The scheme (described in Box 4) will encourage skills transfer especially around UK development priorities including malaria and maternal & newborn health and will enable learning to benefit UK health services as well.

Box 4: Health Partnership Scheme

The new Health Partnership Scheme, launched by the Prime Minister in June 2010, will strengthen the links between the UK health community and counterparts in the developing world. With an annual budget of up to £5 million a year, the Scheme will fund four strands of activity

- Ambitious multi-country partnerships addressing DFID's priorities – including malaria – in the countries most in need of support,
- Bespoke paired institutional partnerships where a UK health organisation links to a counterpart in the developing world, covering a broad range of health issues from sight to mental health to rural health centre management,
- Encourage volunteering to help UK health professionals who want to spend six months or more sharing their skills and experience overseas,
- Healthbay, a new brokerage service, to help match demands from the developing world with expertise in the UK.

CASE STUDY
Ethiopia: Supporting health services to reduce malaria

Almaz is 24 years old and has been working as a Health Extension Worker for the last 3 years in her own village which is more than an hour's drive from the nearest small town. "The work is very hard, I have to work long hours and walk long distances but I am proud to be serving my community and have seen real changes in their health".

Almaz is one of more than 34,000 HEWs that have been trained and deployed to deliver a 'package' of basic services to their communities (including the prevention diagnosis and treatment of malaria, family planning and immunisation.

Ten years ago, only two-thirds of Ethiopians had access to health services. Rural areas, in particular, suffered from a lack of medical facilities and health workers. There was a critical need to bring healthcare to more of Ethiopia's people. And over the last five years, the Health Extension Programme (HEP), the flagship programme of the Ethiopian Ministry of Health, has aimed to do just that.

At the centre of the HEP are female health workers operating within local communities. In each rural "kebele" (a community of about 5,000 people), two women who have completed tenth grade are selected to become Health Extension Workers.

This national programme has helped to deliver real improvements in people's health including reducing the previously devastating impact of malaria. The HEWs teach their communities about how to prevent malaria and to seek help when they have a fever. They have also been trained and equipped to test people for malaria at the community level, which ensures they are correctly diagnosed and treated. Additionally, in the last five years more than 35 million ITNs have been distributed across the country, which are reducing the numbers of people becoming infected.

The latest WHO rapid impact assessment in four main regions in Ethiopia shows that between 2001-2004 (annual average) and 2007, confirmed malaria outpatient cases decreased by 67%, malaria admissions by 54%, and malaria deaths by 55%. The Government of Ethiopia's (GoE) next five year plan includes efforts to further increase utilisation of ITNs and strengthen diagnosis and treatment of malaria.

DFID supports the HEP through its contribution to the GoE's district level 'block grant' which pays for the delivery of services. This block grant is used by districts across the country to deliver priority services, including health and education, to its communities. DFID funding is currently supporting more than 3,900 of the HEW to deliver health services to around 9 million people. Additionally, the UK Government provides direct support to the Ethiopian Ministry of Health to help it to deliver its ambitious plans to meet all of the health related MDG targets by 2015, including those on malaria.

CASE STUDY
India: Battling malaria in Orissa

The road to the Labangi hamlet in Western Orissa is not an easy one. From the nearest district town of Angul, it takes three hours to reach Labangi. You start off driving on a dark, forested road but halfway there, the road becomes a hilly dirt track, so there is no option but to walk the rest of the way. Just before you reach the village, you have to cross an inert stream of water – a breeding ground for mosquitoes that infect people with the deadly scourge of malaria.

Labangi is home to Milu Jani, from the Kondh tribe. With its 150 inhabitants, it is as poor as its state, Orissa. The village has no health centre, no electricity and no school. Most villagers farm for a living. Others make a living working in the forest nursery or by constructing forest roads. As a forest guard at the Satakosia wildlife reserve, Milu earns a mere 90 rupees (£1.20) a day.

Like most villagers, Milu has lost a loved one to malaria. His eyes tear up as he recalls his father's death last winter. Milu's father, a frail and weak man, succumbed to a high fever. Tragically, he was diagnosed with malaria only a day before his death, leaving no time for proper treatment.

Milu knew dangerous mosquito bites caused malaria but did not know that they bred in the water pools around the village. A chance meeting with the local health worker, Suhasini Behera, raised his awareness of this deadly disease – and helped him take action.

DFID's contribution

Orissa, home to less than 4% of India's population accounts, for 25% of India's reported malaria cases. With support from Government of India, DFID and the World Bank, Orissa, has introduced and significantly expanded the use of rapid diagnostic test kits, artemisinin-based combination therapy (ACT) and long lasting treated nets (LLIN). DFID has helped Orissa to develop a sound distribution and communication strategy for LLINs. This strategy identified villages with highest transmission and ensures all households get sufficient nets and are motivated to use them. 1.2 million LLINs have been distributed in very high burden areas, mostly home to marginalised tribal communities, and a further 1.2 million are on their way.

In addition to distribution of LLINs, DFID's support has increased the state government's capacity to monitor coverage and use of RDT, ACTs and LLINs, and the management of fever. These interventions are beginning to show impressive results, for example, in one of the poorest districts of South Orissa, the percentage of children who slept under LLIN increased from 1% in November 2009 to 19% in August 2010.

Protective bed nets

Suhasini, the village ASHA (Accredited Social Health Activist), led a government publicity drive about long-lasting insecticide-treated nets (LLIN) in Labangi and neighbouring villages earlier this year. Prior to the distribution of nets, she spent days walking from village to village to tell the

villagers about the government programme. “It was not easy to convince people to use bed nets,” she says. People feared the nets were poisonous after reports of rashes and itching from the insecticide – misconceptions that she sought to dispel while visiting their homes.

On a February morning, Suhasini, proudly attired in her blue sari and jacketed uniform, sat with her colleagues under the village jackfruit tree to distribute the new bed nets. Milu and his wife Samina Jani were among the first to arrive. For only 20 rupees (25p), Milu bought two bed nets for his family, including one for his 65-year-old mother, Sukumari Jani.

Sleep at last
Six months later, Milu and his family are happy with his decision to purchase the nets. The government’s distribution drive had been successful – everyone in the hamlet now uses a net, declares Milu.

A contented Sukumari says, “I always had a disturbed sleep due to the mosquitoes. This new net has brought me a lot of comfort and I also use it for my afternoon nap. “ Her son Milu is equally satisfied. “Malaria has been a severe problem in our area. I have lost my father and cannot afford one more death in family due to it,” he says. He is finally reassured that he can keep his loved ones safe.

Chapter References

[125] Roll Back Malaria. Malaria Funding and Resource Utilisation: The First Decade of Rolls Back Malaria. Progress & Impact Series 2010:1.

Annexes

Annex A Monitoring and Evaluation Framework

"In order to ensure a focus on equity in programming, all indicators need to be disaggregated for sex, age group and location, and where possible they should also be disaggregated by wealth quintile and ethnicity. Without this level of detail, it cannot be assumed that those most vulnerable to malaria are benefiting from DFID's programmes".
Response to UK government Malaria Consultation

What we will track

1. This Framework for Results has a measurable goal and defined outcome indicators that are based on those recommended by the RBM Monitoring and Evaluation Reference Group (MERG)[xvi] for malaria and by WHO for assessing the performance of health systems.[126] The UK government will also report on inputs committed to delivering these results. The methodology used to calculate UK baseline spending on malaria is set out below.

2. The UK government will track the results achieved by countries in reducing malaria-related deaths and in improving the quality and coverage of prevention, diagnosis, treatment and related services. As far as possible, this will be based on routine data collection and reporting carried out by countries (usually National Malaria Control Programmes) using MERG recommended indicators. Most of the indicators set out below are collected annually for the WHO Global Malaria Programme annual World Malaria Report and/or through population-based surveys such as the Demographic and Health Surveys (DHS), the Multiple Indicator Cluster Surveys (MICS) or the Malaria Indicator Surveys (MIS).

3. The UK will not, in most cases, seek direct attribution of outcome and impact results to UK government funding. Instead, UK support will be taken to be a contribution to overall results. This approach follows recommendations by the MERG and is consistent with other major funders of malaria programmes, including the US Government's President's Malaria Initiative (PMI).[127]

4. The Framework indicators that the UK government will report on are set out in table 5 below. They include indicators – (1), (e) and (f) – that focus on general improvements in health and in the performance of health services. This emphasises that tackling malaria should result in improvements in health overall and that investments in strengthening malaria responses are expected to improve the performance of health services more generally. Indicator (1) encompasses the benefits to child health of improved diagnostics and appropriate treatment ("case management"). Better management of the variety of causes of childhood fevers will result in reductions in deaths in children under five.

5. Indicator (g) is intended to provide a proxy measure of the performance international donors and agencies in engaging strategically with international markets for malaria commodities. LLINs have been selected as they are high cost items, the market for LLINs is relatively immature and managing supply to meet variable demand over the coming years will require strategic planning by purchasers. The indicator focuses on the prices paid for LLINs before

[xvi] See section 2.4 of the WHO World Malaria Report 2010

they are distributed in countries. The price excluding the cost of insurance and transit to countries is chosen to focus on commodity costs and to enable comparability across countries and procurement agencies. This indicator will be reviewed periodically to assess whether it is still the most appropriate proxy measure for market performance.

Table 5: UK government Malaria Framework for Results indicators

Impact Indicators	
(1)	All cause under-five mortality rate (the number of children who die by the age of five, per thousand live births)
(2)	Malaria-specific deaths per 1000 persons per year[xvii]
Outcome Indicators	
(a)	% children under 5 who slept under an ITN the previous night
(b)	% children under 5 years who received appropriate antimalarial treatment (including ACTs) within 24 hours of onset of fever in the last two weeks
(c)	% of children under 5 with fever in the last two weeks receiving finger/heel stick diagnostic test for malaria
(d)	% of women who received at least two doses of IPTp during ANC visits during their last pregnancy
(e)	Number of health workers per 10,000 population disaggregated by rural and urban settings and by cadre
(f)	Average availability of 14 selected essential medicines in public and private health facilities, plus a first line ACT for treatment of uncomplicated malaria.[xviii]
(g)	Average unit price (Free Carrier)[xix] of highest volume LLIN procured by (or on behalf of) a country.

6. DFID offices will identify indicators from this list that are relevant to malaria results that are to be supported at country level as part of national malaria control and national health sector programmes. As far as possible, these will then be tracked based on existing reporting systems and frequencies, with support for additional data collection where needed. Further detail on anticipated country-by-country results will be provided as part of general country operational plans that will be published in the first half of 2011.

7. A broader range of appropriate intermediate and output indicators (such as number of ITNs distributed) will be used by the UK government to monitor progress and to assess the performance of specific projects. More direct attribution from UK government funding to this level of results will be possible in most cases. Data collected at this level will be used to support the case that the UK government is effectively contributing to malaria outcomes and impacts.

8. Where relevant, new agreements with multilateral and international partners will include suitable indicators as part of performance frameworks or project funding agreements.

[xvii] Estimated malaria-specific deaths will initially be modelled from malaria transmission coverage rates of malaria interventions.
[xviii] WHO (2010) 'Monitoring the Building Blocks of Health Systems: A Handbook of Indicators and their Measurement Strategies.' NB: the supplementary list in this document specifies artemeter + lumefantrine. For this Framework the focus is an ACT (or alternative in settings with emerging artemisinin resistance) recommended in-country for first line treatment of uncomplicated malaria
[xix] Free Carrier (incoterm) - http://www.iccwbo.org/incoterms/id3040/index.html

Monitoring and evaluation

9. The Secretary of State for International Development has set out the need to strengthen focus on value for money, transparency and independent evaluation of British aid. DFID will assess the implementation and impact of this framework and develop a strong evidence base for decision-making and lesson-learning, based on robust and independent evaluation. A detailed evaluation framework will be developed by mid-2011, with the emphasis on accountability and lesson-learning. Data aggregated from country and multilateral programmes, will be supplemented by in-depth evaluations of our biggest and most innovative programmes. Key milestones include:

    - A mid-term review of progress will be published by 2013.
    - A full evaluation of this Framework will be published in 2015, commissioned internally by DFID or externally by the Independent Commission on Aid Impact (ICAI).

Baselines

10. Current limitations of malaria data mean that a dynamic approach to the monitoring and evaluation of this Framework is needed. Estimates of malaria cases and deaths are currently modelled due to limited availability of data on malaria cases or deaths that are confirmed by diagnosis.

11. Modelling will be used to establish baselines and to estimate potential outcome and impact results for cases and deaths averted. The UK government will consult with WHO and RBM to identify the most appropriate models to use to estimate potential impact on cases and deaths of malaria interventions. Baseline years may differ by country as these will draw on most recent availability of robust data (such as Demographic and Household Surveys or Malaria Indicator Surveys).

12. Increasing coverage of diagnostics and stronger routine data collection will improve information on actual malaria cases and deaths during the implementation of this Framework. This poses a challenge that changes in cases and deaths may, in part, be due to changes in the way data is collected.

13. In principle, the UK government will use the most robust data that is available at the time of measurement for both baselines and future evaluation of the Framework for Results. Sources and methodologies used will be published and changes in the way that data is collected or categorised noted.

Capacity building and coordination

14. It is important to work with countries and international partners to strengthen the capacity of national health management and information systems and to improve the quality and timeliness for country planning with which routine data is collected. Where additional data is needed, efforts will be made to coordinate data collection with others, limit transaction costs for countries to a minimum and maximise the usefulness of information collected for country programmes. The capacity of Ministries of Health and National Malaria Control Programmes to use and be accountable for information also needs to be strengthened.

15. The MERG, which is co-chaired by the WHO Global Malaria Programme, provides an important forum for coordination and the development of best practice for malaria surveillance

and monitoring and evaluation. The UK government will work with the MERG to ensure that our approaches are based on best practice and that they support comparability of data across programmes.

16. The UK government will coordinate with country and development partners to support the strengthening of health management information systems. And we will also work collaboratively where survey based methods (such as Demographic and Household Surveys or Malaria Indicator Surveys) are needed to supplement routine information in the near term.

17. We will also work with partners to make information more transparent and to strengthen the ability of CSOs and communities to access and use information to hold services and policy makers to account. CSOs and communities can also play important roles in collecting information to monitor the performance of services and to identify where there are problems.

Methodology for calculating UK government malaria attributable spending

18. The UK government's expenditure on malaria is provided through: malaria-specific bilateral projects and programmes; our bilateral support to health systems and service delivery; UK government contributions to multilateral, global initiatives, civil society and other non-state actors that work on malaria prevention and treatment; and by supporting malaria related research.

19. The methodology below sets out our how we have calculated our baseline spending on malaria in the financial year 2008 – 2009. It includes assumptions that we make regarding attributions of the proportion of our health related spending primarily allocated to non-malaria specific activities that can reasonably be said to have an impact on malaria.

20. It also includes assumptions regarding the proportion of our spending through multilateral organisations that can reasonably be attributed to malaria. We have only considered the malaria specific spend of multilateral organisations, and unlike bilateral spend we have not attributed contributions from other areas of spending that have an impact on malaria. This will underestimate the UK government spend on malaria through multilateral organisations. We recognise that these proportions will vary from year to year and will revise this methodology accordingly when calculating future attributions.

21. Attribution rates for multilateral organisations have been calculated using DAC data and may not reflect typical annual UK government spend through these channels, for example GFATM spend on malaria was low in 2008/9. The share of multilateral spend on malaria has been estimated by UK government and for some organisations may be over or underestimated. These numbers have not been agreed with the Multilateral Organisations.

22. We will review this methodology for calculating our malaria inputs periodically and as our work with partners evolves, including where we are able to be more specific about directly attributable spending on malaria. We will publish updates of our spending on malaria periodically, along with assumptions that have been used to calculate it.

23. The analysis set out below has been been reviewed by the WHO Global Malaria Programme and suggestions incorporated.

Table 5: Attribution of UK government spending to malaria

BILATERAL AID			
Sub-sector	**Description**	**Attribution**	**2008/09** (£m)
Malaria	DFID bilateral aid directly on malaria activities.	100%	35.1
Health system and services	DFID bilateral aid to health systems and service delivery that help facilitate the prevention and treatment of malaria.	Country specific % [a]	61.1
Maternal health	DFID bilateral aid to maternal and reproductive health.	10% [b]	9.8
Research spend	Malaria related research spend.	100%	7.4
Water & Sanitation	DFID bilateral aid to water and sanitation.	5%	4.4
		TOTAL BILATERAL AID	**117.8**
MULTILATERAL AID			
Multilateral	**Description**	**Attribution**	**2008/09** (£m)
Global Fund	Attributable share of imputed DFID health aid through the GFATM [c].	26.0%	13.0
World Bank	Attributable share of imputed DFID health aid through the World Bank [c].	3.9%	2.3
UNICEF	Attributable share of imputed DFID health aid through UNICEF [c].	9.7%	0.7
EC	Attributable share of imputed DFID health aid through EC [d].	0.6%	0.3
Water & Sanitation	DFID imputed multilateral contributions to Water and Sanitation [e].	5.0%	4.4
		TOTAL MULTILATERAL AID	**20.7**
TOTAL DFID AID TO MALARIA			**138.5**

[a] Attribution rates of health systems and services spend are determined for each country using the percentage of all cause outpatients that are due to malaria (average for 2007-09). The level of attribution in a country will therefore reflect the relative burden of disease due to malaria. For example: about 10% of all deaths are caused by malaria in Sierra Leone, 53% of all outpatient cases are due to malaria and this is the rate which health systems spend is attributed; in Yemen about 1% of all deaths are due to malaria and 5% outpatient cases are due to malaria, which results in 5% of health systems spend attributed to malaria spend. Where country data is not available, the relevant regional average is used. Data provided by WHO.
[b] Only in countries with malaria.
[c] For each multilateral, the average 3-year (2006-08) share of total disbursements of health and population aid directed to malaria activities is applied to DFID imputed health aid to that institution. Source: OECD-DAC, accessed December 2010.
[d] Data is only available for 2007 and 2008.
[e] Statistics on International Development 2010.

Annex A References

[126] World Health Organisation. Malaria Funding and Resource Utilisation: The First Decade of Roll Back Malaria. Roll Back Malaria Progress and Impact Series. 2010; 1.
[127] US government 2010. Lantos-Hyde United States Government Malaria Strategy 2009–2014.

Annex B Top 25 high-burden malaria countries plus India

1. The following table ranks the top 30 high-burden countries in terms of absolute numbers of malaria deaths. Data on malaria deaths rates per 100,000 is also provided. These 30 countries account for approximately 96% of all global malaria deaths.
2. The data source was the World Health Organisation's Global Burden of Disease: 2004 update (2008). Countries in which DFID has a country presence are in **bold italics.**
3. WHO Global Malaria Programme aim to release more up to date information later in 2011, following further analysis of data collated for the 2010 World Malaria Report.

		Population ('000)	Malaria deaths ('000)	% of total malaria deaths	Malaria deaths (per 100,000)
1	***Nigeria***	***138,001***	***231***	***26.0%***	***167***
2	***Democratic Republic of the Congo***	***56,918***	***96***	***10.8%***	***169***
3	***Ethiopia***	***76,995***	***46***	***5.2%***	***59***
4	***United Republic of Tanzania***	***37,508***	***42***	***4.7%***	***111***
5	***Uganda***	***28,028***	***39***	***4.4%***	***138***
6	***Sudan***	***36,145***	***32***	***3.6%***	***88***
7	Niger	12,808	28	3.2%	216
8	***Kenya***	***34,675***	***26***	***2.9%***	***74***
9	Burkina Faso	13,507	25	2.8%	184
10	***Ghana***	***22,057***	***24***	***2.7%***	***107***
11	Cameroon	17,409	23	2.6%	133
12	***Mozambique***	***20,078***	***23***	***2.6%***	***115***
13	Angola	15,636	21	2.4%	137
14	Côte d'Ivoire	18,275	20	2.3%	107
15	Mali	11,265	19	2.1%	171
16	Chad	9,810	17	1.9%	170
17	***India***	***1,116,985***	***16***	***1.8%***	***1***
18	***Malawi***	***12,894***	***16***	***1.8%***	***122***
19	***Zambia***	***11,270***	***15***	***1.7%***	***132***
20	Guinea	8,833	13	1.5%	150
21	Benin	8,224	13	1.5%	158
22	Senegal	11,472	10	1.1%	84
23	***Sierra Leone***	***5,390***	***9***	***1.0%***	***173***
24	***Myanmar***	***47,565***	***9***	***1.0%***	***19***
25	Togo	6,071	8	0.9%	139
26	***Burundi***	***7,566***	***8***	***0.9%***	***101***
27	***Rwanda***	***9,052***	***7***	***0.8%***	***73***
28	***Bangladesh***	***150,528***	***6***	***0.7%***	***4***
29	Liberia	3,348	6	0.7%	181
30	Central African Republic	4,123	5	0.6%	124

Source: World Health Organisation's Global Burden of Disease: 2004 update (2008). http://www.who.int/healthinfo/global_burden_disease/gbddeathdalycountryestimates2004.xls. Accessed 21 December 2010.

Annex C Summary of the Malaria Framework for Action consultation

Process and response

1. Contributions from public and expert consultation have been important inputs to the development of this Framework for Results.

2. An on-line public consultation was launched on 02 August 2010 and closed on 26 October 2010. This provided options to complete a short survey, participate in an on-line debate on a set of questions and/or to submit a written submission. Over 540 responses were received in total across these three options.

3. Two expert consultations were held. Thirty four experts from civil society, academia, the private sector and international organisations participated in a meeting in London on 28 October. Over 20 local experts met in Kenya in September.

Key findings

4. There was strong support for UK government's role and current approach to improving health in developing countries; respondents agreed that the new Framework provides an opportunity to leverage the UK leadership position in international health to improve malaria outcomes.

   "Build on what DFID has [does] well … and work to your comparative advantage. [R]each across evidence, advocacy, coordination and partnership building, implementation and research agendas needs to continue."

5. There was strong consensus that embedding malaria responses within a broader approach to strengthening health systems is important. This includes integrated delivery and strengthening health information systems, commodity supply chains, management capacity and human resources for health – with increased emphasis on the district level.

   "Tackling malaria is very important… this does not necessarily mean supporting malaria-specific interventions. Strengthening health care systems and provision is just as important for successful malaria control."

6. Key areas of interest included: community based delivery approaches and the role of communities; education and participatory approaches for prevention/awareness and the role of the private sector.

   "In malaria, unlike other important public health problems, very little effort and support is provided for development of local advocates and CSOs to provide local accountability of huge resources that are available at country level. …. Increasing investments in local advocacy and communications so that these are proportionate to overall funding for malaria would make a huge contribution to DFID's efforts and success."

7. Vector control/management beyond a simple focus on ITNs and more effective coordination with other health and non-health sectors also received significant attention.

8. Respondents identified a number of areas where there are gaps in knowledge, and there was wide support for a strong research programme.

9. A full summary report of the consultation findings has been published and is available at www.dfid.gov.uk/malaria.

Glossary

Artemisinins	A class of drugs used for the treatment of malaria usually as a part of combination therapy with an non-artemisinin derived drug , derived from the plant *Artemisia annua.*
Case management of fever (and community case management)	Diagnosis (ideally, using diagnostic tests) and appropriate treatment or referral of patients presenting with fever (and other symptoms). Includes procedures for both malaria and non-malaria cases. Community case management takes place in communities (often provided by a community health worker) with appropriate provisions for diagnostic testing, treatment and referral if indicated.
Chloroquine	A drug used against malaria for both prevention and treatment. Safe and inexpensive drug but widespread *P.falciparum* resistance exists.
Community Health Worker	Men and women usually chosen by a community and trained to provide a range of basic health and community development services. Usually educated to primary level with basic literacy and numeracy, and trained for 6 weeks or more. May be employed full or part-time by the community or health services and are usually responsible to appropriate local authority/health supervisors (NB: definitions and roles may vary by country).
Diagnostic Test	For malaria, a means to confirm malaria infection. A number of methods exist, including microscopy and rapid diagnostic tests (RDTs), with the latter useable at point of care.
Drug resistance	Result of microbes changing in ways that reduce or eliminate the effectiveness of drugs, chemicals, or other agents to cure or prevent infections.
Endemic	Where disease occurs on a consistent basis and is prevalent in a particular locality, region or people.
Epidemics	The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time.
Elimination	In the context of malaria, reducing all local transmission down to zero cases within a defined geographic location.
Eradication	In the context of malaria, is the permanent reduction to zero of the worldwide incidence of malaria infection caused be a specific agent (i.e. applies to a particular malaria parasite species).
G6PD deficiency	An inherited abnormality that causes the loss of a red blood cell enzyme. People who are G6PD deficient should not take the antimalarial drug primaquine.
Immunity	In the context of malaria, protection generated by the body's immune system, in response to previous malaria attacks,

	resulting in ability to control or lessen future subsequent attacks to more or less of a degree.
Incidence	The incidence of malaria in a population is the number of new cases that occur over a given time period.
Indoor residual spraying	Treatment of houses where people spend night-time hours, by spraying insecticides that have residual efficacy (i.e. that continues for several months). IRS aims to kill mosquitoes when they come to rest on the walls, usually after feeding.
Integrated Management of Childhood Illness (IMCI)	An approach to child health that aims to reduce death, illness and disability, and to promote improved growth and development among children under five. It includes preventive and curative care implemented by families and communities as well as by health facilities.
Intermittent Preventive Treatment in Pregnancy (IPTp)	Treatment of pregnant women to prevent malaria during pregnancy, usually with sulfadoxine-pyrimethamine (where resistance is limited). Where levels of local transmission warrant, women should receive at least two doses during their 2nd and 3rd trimesters.
Plasmodium falciparum (P.falciparum)	A species of plasmodium that causes malaria. *P.falciparum* is highly transmissible and responsible for the majority of cases and deaths from malaria globally.
Plamodium vivax (P.vivax)	A species of plasmodium that causes malaria.
Presumptive treatment	Treatment of clinically suspected cases without, or prior to, results from confirmatory diagnostic tests.
Prevalence	The number of cases of malaria in a specified population (usually per 100,000 people) at a given point in time.
Pyrethroid	A class of insecticides derived from natural pyrethrins.
TTResistance	The ability of an organism to develop ways to be impervious to specific threats to their existence. The malaria parasite has developed strains that are resistant to drugs such as chloroquine. The TT*Anopheles* mosquito has developed strains that are resistant to DDT and other insecticides.
Sulfadoxine-pyrimethamine	A drug used against malaria. Its value has been compromised by the emergence of drug-resistant malaria parasites, although still widely used for IPTi (see above).
Vector	An organism (e.g. *Anopheles* mosquitoes) that transmits an infectious agent (e.g. malaria parasites) from one host to the other (e.g., humans).

Front cover image: Children sleeping under a bednet © Georgina Goodwin/ Vestergaard Frandsen
Chapter 1: Family under a bednet in Orissa, India © DFID India
Page 15: A woman rests two new bednets on her head © William Daniels / Malaria Consortium
Chapter 2: Child being tested for malaria © Pedro Sa Da Bandeira / Malaria Consortium
Chapter 3: A Health Extension Worker prepares a rapid diagnostic test (RDT) at a health outpost in a rural community in Ethiopia © The Bill & Melinda Gates Foundation
Page 52: Woman under a bednet in Amhara, Ethiopia © Barny Trevelyan Johnson / Highly Visual photography
Page 53: Raising awareness about malaria in Orissa, India © DFID India

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International development is about helping people fight poverty. Thanks to the efforts of governments and people around the world, there are 500 million fewer people living in poverty today than there were 25 years ago. But there is still much more to do.

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The Department for International Development (DFID) leads the UK government's fight against world poverty. DFID has helped more than 250 million people lift themselves from poverty and helped 40 million more children to go to primary school. But there is still much to do to help make a fair, safe and sustainable world for all. Through its network of offices throughout the world, DFID works with governments of developing countries, charities, nongovernment organisations, businesses and international organisations, like the United Nations, European Commission and the World Bank, to eliminate global poverty and its causes. DFID also responds to overseas emergencies. DFID's work forms part of a global promise, the eight UN Millennium Development Goals, for tackling elements of global poverty by 2015.

What is UKaid?
UKaid is the logo DFID uses to demonstrate how the UK government's development work is improving the lives of the world's poorest people.

Department for International Development
1 Palace Street
London SW1E 5HE
UK

and at:

Abercrombie House
Eaglesham Road
East Kilbride
Glasgow G75 8EA
UK

Tel: +44 (0)20 7023 0000
Fax: +44 (0)20 7023 0016
Website: www.dfid.gov.uk
Email: enquiry@dfid.gov.uk
Public enquiry point: 0845 3004100
or +44 1355 84 3132 (if you are calling from abroad)