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Malaria: breaking the cycle

Consultation report

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Table of Contents

Table of Contents 2
Acronyms 3
Executive Summary 4
1. Introduction 5
2. The Consultation Process 5
3. Reducing the burden of malaria – priority areas 7
4. Improving the quality and coverage of services 10
5. Public and private delivery models 12
4. Increasing access and building demand 13
5. Working in fragile and conflict affected states 15
6. Tackling drug and insecticide resistance 17
7. Where we should focus our efforts 19
8. Conclusions 20
Annex 1: Summary of online survey responses 21
Annex 2: Technical consultation template 24
Annex 3. Technical meeting: list of participating institutions 35

Acronyms

ACT	Artemisinin-based combination therapy
AMFm	Affordable Medicines Facility for Malaria
CHW	Community health worker
DFID	Department for International Development
GMAP	Global Malaria Action Plan
GPARC	Global Plan for Artemisinin Resistance Containment
HIV	Human immunodeficiency virus
ICCM	Integrated Community Case Management
IRS	Indoor residual spraying
ITN	Insecticide treated net
NGO	Non Governmental Organisation
NTDs	Neglected Tropical Diseases
OECD	Organisation for Economic Co-Operation and Development
RDT	Rapid Diagnostic Test
UN	United Nations
UNHCR	Office of the United Nations High Commissioner for Refugees
WHO	World Health Organization

Executive Summary

The Department for International Development (DFID) conducted a public consultation to seek inputs into its Malaria Business Plan. The Business Plan is part of the UK's commitments to Millennium Development Goal six.

The 12-week consultation took place from 2 August to 26 October 2010. It gathered views from UK and international experts and the public through an interactive website, individual and group submissions, and technical workshops.

We received over 540 responses, either from the online or technical submissions. This report summarises the key messages we received, and how we have responded to them through the Malaria Business Plan.

The responses show that there is strong support for DFID's role and current approach. There is consensus that focus on broad health systems is needed. This includes integrated delivery, strengthening health information systems, stronger commodity supply chains, management capacity and human resources for health – with increased emphasis on the district level.

Key areas of interest emerging from the responses include: community systems and the role of community; education and participatory approaches for prevention/awareness; and how to work with the private sector. Vector control/management (beyond bednets) and more effective coordination with other sectors were also emphasised. Respondents also noted the significant knowledge gaps and the crucial role of research.

1. Introduction

In July 2010 the UK Government announced its plan for a new Business Plan on malaria as part of its commitments to Millennium Development Goal six (combat HIV and AIDS, malaria and other diseases). Following the announcement, we launched a public consultation to gather inputs from UK and international experts and the public into the Malaria Business Plan.

The 12-week consultation took place from 2 August to 26 October 2010. We sought views through the website and direct consultation with partners. The website[1] gave background information and offered the following feedback options:

- A short online survey (see Annex 1)
- In depth feedback though a response template; based on seven broad questions (see Annex 2);
- In depth feedback through an online discussion forum (based around the same set of seven questions);
- A dedicated email address (malaria@dfid.gov.uk).

In addition, we organised two consultation workshops with key stakeholders. The first took place in London on 28 September, and the second in Nairobi, Kenya on 28 October 2010.

We had a very large response to the online/email consultation (with over 500 responses in total); through the workshops, we gathered the inputs of over 50 organisations.

This report synthesises the key messages we received, and how we have responded to them through the Malaria Business Plan. It does not cover each specific comment made by respondents in their submissions, but highlights the key issues and challenges raised more frequently. It starts by giving more details about the consultation process, outlines the major issues highlighted by respondents, and how we have addressed them in the Business Plan.

2. The Consultation Process

> *Giving the people the chance to contribute is wonderful. I must commend you on your openness in that regard.*

Facts and figures about the response

In total we received:

- 483 responses though the online survey;
- 30 group/organisational responses through the template provided;
- 12 individual responses (6 using the template provided; 6 email messages);
- 79 postings in the online discussion forum;
- inputs from London consultation meeting (30 participants);

[1] http://www.dfid.gov.uk/Media-Room/News-Stories/2010/UK-aid-to-combat-malaria/

- inputs from Kenya consultation meeting (over 20 participants).

Online survey: distribution of respondents

By affiliation:	Academic/researcher	30% (144 respondents)
	Civil society/NGO	25.2% (121)
	Health professional	17.9% (86)
	Public	14.8% (71)
By country/region:	UK	40.4% (193)
	Africa	26.6% (127)
	Other OECD countries	20.7% (99)
	Asia	10.0% (48)
	Other non OECD	2.3% (11)

The summary breakdown of survey responses is presented in Annex 1.

Technical consultation. Among group responses, almost half were from, NGOs; followed by private sector/industry respondents; academia and professional bodies.

Meetings. The one-day workshop in London and the half-day workshop in Nairobi were attended by a mix of international organisations (including UN, donors and foundations), NGOs, research institutions, and private sector/industry partners. The list of organisations consulted during these meeting is in Annex 3.

Analysis of responses

Responses were analysed independently of the Business Plan development process to guarantee maximum objectivity. Because of the different formats (meeting reports, survey, emails and word documents) and variations the phrasing of questions, all responses were first collated separately by format, and then analysed against a broader framework, consisting of the broad logframe headings of the Malaria Business Plan (working draft dated 28 October): a) Improve quality of services; b) Increase access and build demand; c) Support innovation and global public goods; and d) Focus on impact and results.

The specific survey questions were then used to further categorise the results. For the purpose of this summary report, we have further refined the categories to highlight areas where we received a 'critical mass' of responses. All responses have been fully anonymised.

Your comments on the process

We received two types of feedback: appreciation for the opportunity to participate in the consultation, and comments on the survey methodology. The survey asked respondents to choose from a selection of priority areas (see questions in Annex 1), with the option of providing further comments in a separate box. Many respondents queried this approach, as they felt it gave them a limited number of options to choose from *('it is not helpful to recommend that DFID focus only on one of these'*; *'It is very difficult to choose one focus, as all these objectives are inter-connected'*). We believe that those who found the survey approach too simplistic might have found the discussion forum or technical response template more suitable tools for giving us their responses. The survey was designed to reach a broad, non-expert audience. It is possible that the website unwittingly directed a majority of respondents to the

survey, as opposed to the technical consultation tools; one lesson for the future to give clearer directions and explanations regarding the range of available options.

3. Reducing the burden of malaria – priority areas

> *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.*

We asked what we should focus on in order to reduce the burden of malaria.

Your key messages were:

1. Invest in the systems that allow malaria and other health interventions to be delivered.
2. Avoid over-reliance on a single intervention.
3. Balance this approach with investment in community systems and involvement.
4. Don't neglect: information and education approaches; vector control; integration with other sectors.
5. Maintain focus on control – but keep an eye over longer term goals.
6. Leverage your leadership position to influence countries and other stakeholders.

You said …

Invest in the systems that allow malaria and other health interventions to be delivered. You highly value our approach based on strengthening health services and systems. There is overwhelming consensus that we should continue to view investment in malaria prevention and treatment interventions as concurrent to investment in the systems to deliver them. This includes integrated delivery, strengthening health information systems, commodity supply chains, management capacity and human resources for health. You recognise that this will take time and persistence, and appreciate our focus on supporting long term solutions rather than 'quick wins'.

Avoid over-reliance on a single intervention. You strongly expressed the view that we should not prioritise one intervention over another – but maximise coverage with all existing interventions, depending on the context – and that none of these interventions can be delivered effectively without a functioning health system. When pressed to select a priority (as we did in two survey questions), there was no overall 'winner'. While generally respondents favoured giving people more education and information, a very large number also mentioned the opposite: relying less on behaviour and more on fighting the malaria carrying mosquito.

Balance this approach with investment in community systems and involvement. You gave us a strong message to balance support for health systems with a focus on communities. This includes greater involvement in delivery (community case management), strategies that foster community ownership of behaviour change interventions, education of communities about their health rights, and generally any approach that empowers communities to demand good services and leads to increased **accountability**.

Information is power! When the people are informed, there will be a demand on the commodities currently available and skills of providers. This will have a feedback effect on providers to improve their skills and the government/donors to provide more commodities. And the citizens will move towards preventions strategies.

Don't neglect …Information and education approaches. Both the survey and technical consultation strongly emphasised effective, context specific communication and behaviour change interventions (second only to health systems). You noted that this would require collaboration with a range of partners, coordination with other health and sector strategies (such as education), and greater efforts to measure the outcomes of such approaches.

Various methods of **vector control/management** (beyond bednets) were highlighted in both the technical consultation and online survey – from Integrated Vector Management, to chemical and biological control, to tackling broader environmental factors. You argued for stronger and more effective integration with **sectors outside health**, including agriculture, housing, water and sanitation, and others. Again, the responses emphasised the importance of community involvement.

Maintain focus on control – but keep an eye over longer term goals. This elicited contrasting views. Some argued that *'the only truly successful campaign against malaria has to focus on eradication'* and *'anything less is a recipe for dismal failure'*. However, the majority was in favour of balancing shorter term goals (maximising the impact of existing strategies in high burden countries) and longer term agendas – sustaining the gains where progress has been made, developing new tools and approaches and preparing for their introduction (including a vaccine). You also told us to be flexible and responsive to changing country situations.

Leverage leadership position to influence countries and other stakeholders. You have expressed high expectations that we will use our role to influence the international response and increase the efficiency of the global investment for malaria. You specifically mentioned the role we should have in:

- influencing country governments to commit funding for health (and more specifically, to meet the Abuja commitments on health financing);
- mobilising and coordinating with other donors to provide greater and more predictable funding, in line with the aid effectiveness principles;
- ensuring that the Global Fund to Fight AIDS, TB and Malaria is fully funded, and the range of its funders is broadened;
- strengthening coordination with other sectors, existing country-led initiatives, as well as among partners;
- mobilising resources for countries that have received insufficient support by the international community, particularly francophone countries in West and Central Africa.

We did …

Health systems and services. Investing in stronger health systems provides the platform for the delivery of quality malaria services to those who need them. Our general health programmes in developing countries therefore also indirectly support malaria control in affected countries. Ensuring that investments in malaria responses

deliver wider health benefits, and that programmes are integrated as part of broader health services also likely to be important in achieving long-term control.

Interventions. One pillar of our framework is that *'Evidence based and context appropriate mixes of prevention and treatment interventions are provided as part of broader programmes to deliver maximum health benefits and value for money'*. A combination prevention approach will be needed to effectively control malaria; what works best will vary across and within countries. We believe that insecticide treated nets (ITNs) are a central pillar of malaria prevention. However, their benefits depend on consistent use, replacement or re-treatment with insecticide when needed; ITN programmes need to identify ways to support both of these requirements, and awareness raising about why nets are important as well as how to use (such as showing how to hang them) and care for them.

Community systems and involvement. Increasing community knowledge and participation is one objective of our framework for action. We recognise that strengthening community focus and accountability of services are important to better malaria and health outcomes. Raising community awareness about correct diagnosis, and addressing expectations for treatment where diagnosis is negative is also likely to play an important role in supporting uptake and proper use of diagnosis. We also recognise that several countries have successfully expanded effective diagnosis and treatment for malaria through community based care as well as health facilities. With appropriate supervision and reliable supplies of medicines and health commodities, community health workers can successfully provide packages of essential preventive and treatment services.

Information and education approaches. Information on malaria prevention, treatment and where to access services are important to building demand. Investments to improve education, the role of women, and empowerment and building government accountability to communities can all have indirect effects on the drivers of malaria transmission and/or malaria related health outcomes. We believe that empowering communities and civil society in developing countries must be central to the UK Government response to malaria. NGOs and civil society organisations will be a channel through which this is achieved.

Vector control. There is clear evidence that indoor residual spraying (IRS) can play an important role in reducing the malaria burden in certain settings. However, we recognise that IRS is yet to be scaled up in many endemic Africa countries.

Sectors outside health. In the Business Plan, we have highlighted the importance of broader interventions to support malaria outcomes. These include: addressing indirect environmental drivers (such and managing water and sanitation, and better planning of changes in land use) as well and other indirect drivers of poor health, such as poor living and working conditions or social exclusion and inequalities.

Our goals. Our framework for action focuses on controlling malaria in high burden countries. It contributes to meeting the near term objectives of the Roll Back Malaria Partnership's Global Malaria Action Plan (GMAP). However, we also believe that 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. The GMAP sets the longer term objectives of progressive elimination and eventual goal of eradicating of malaria.

Influence countries and other stakeholders. A guiding principle of our framework for action is '*Working with international partners to ensure that global efforts support countries to tackle malaria as efficiently as possible'*. In addition to our bilateral programmes, we work through multilateral channels to influence global responses to malaria and to promote improved performance, transparency and accountability in the international system. We will also 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. Section 3 of the Business Plan explains how we set out to work with a range of partners, globally and in the UK.

4. Improving the quality and coverage of services

> *Improving management may be the most cost effective way in which DFID could contribute.*
>
> *Innovative and creative delivery mechanisms necessarily need to be brought down to the community level, involving community health workers.*

More specifically, we asked how we should best support health services and systems for the effectiveness of malaria interventions, and what innovative approaches we should focus on.

The most recurrent issues you raised were:

1. The need to focus on the broad health system, and particularly on those areas that have received less attention to date, such as strengthening health information systems, commodity supply chains, management capacity, with increased emphasis on the district level.
2. The need to balance this with investment in community responses
3. The many opportunities for integrated delivery of a range of health interventions together with those for malaria.

You said …

The broad **health system**. Key themes highlighted by respondents included:

- Focusing on the **'periphery'** - ensuring that system-related activities reach all tiers of the system, and particularly the more peripheral areas. This includes strengthening management capacity at district/sub-district level, delivery of interventions at peripheral health facilities, better distribution of health workers, and district surveillance systems.
- Health worker **supportive supervision**: apart from the need to increase the number of health workers and improve their distribution, many respondents stressed the importance of increasing health worker support and supervision, and of exploring innovative approaches to this.
- **Health management information systems** and **commodity supply chains** are mentioned as key gaps. In relation to health management information systems, there is great interest in new technologies for data capture (such as SMS technologies). Other specific needs you mentioned include: tracking coverage with artemisinin combination therapies (ACT) and rapid diagnostic tests (RDTs) coverage; systems for tracking progress at sub-national/district level (and making

then responsive to the implications); data from the commercial sector. You noted that weak commodity supply chains seriously limit the long term success of malaria control, and more attention to this area has potential for great increases in efficiency. Suggestions include: using innovative techniques such as SMS messaging to report stock levels and transfer data from the periphery to the centre on a real time basis; using the private sector for professional logistics/procurement support; studying and leveraging existing distribution systems for other (non-health) products; gathering data from the commercial sector and on how private markets work in each country.

- Strengthening **financial and programme planning and management capacity** with long term technical and financial support for programme management, planning, budgeting and coordination particularly at district and sub-district level. You also recognise that measuring malaria specific impact and attribution to this will be difficult.

Community responses. You highlighted the need to strengthen community systems for case management, surveillance and the integrated delivery of other health interventions. This should include support and supervision as well as adequate incentives for Community Health Workers, who are at risk of becoming 'overloaded'.

Integrated delivery. You recognise the integrated delivery of various health interventions as the way forward, mentioning the numerous untapped opportunities; the fact that RDTs are identifying an increasing proportion of fevers as non malarial; that integrated case management reduces cost and duplication, and is more effective and acceptable for the user. However you also recognise that more implementation research needs to be carried out in this area.

You welcomed DFID's emphasis on maternal health and the related opportunities for malaria, but also told us not to forget child health interventions. You see the opportunities in Integrated Community Case Management (ICCM), integrated testing and management of three infections (malaria, HIV, syphilis), treatment of anaemia in pregnancy as part of ante natal care, nutrition, services for pneumonia and diarrhoea and other childhood illnesses. You noted that through the new Business Plans we are in a position to link planning for malaria and maternal health, and to advocate for the benefits of integration. Beyond maternal health, you stressed that DFID's current support for neglected tropical diseases (NTDs) also offers many integration opportunities, and lessons on how to do it.

We did …

The broad **health system**. Supporting more effective financing, management capacity, human resources, commodity supply and use of information to deliver and monitor equitable results is one objective our framework for action. Our focus on impact and results requires that systems are in place that can routinely and reliably collect, process, analyse and act upon information about disease, service performance and health outcomes. Strong management capacity to allocate resources and drive performance effectively is particularly important. Working with country and international partners to strengthen routine reporting systems will also be a priority. Community confidence in the quality and functioning of services is also essential to support demand for and use of them.

Community responses. A number of countries are addressing the human resource challenge, lack of health infrastructure and limited access to facilities in rural and

poor areas by training people within their own communities to act as community health workers (CHWs). As mentioned in section 3, with appropriate supervision and reliable supplies of medicines and health commodities, CHWs can successfully provide packages of essential preventive and treatment services.

Integrated delivery. Linking malaria with other health and non-health services to maximise value for money and ensure sustainability is one objective in our framework for action.

At the point of care, better diagnosis of fever provides the basis for the appropriate treatment of both malaria and non-malaria cases, emphasising the need to integrate malaria as part of an essential care package. We expect that a considerable part of the return on investment in scaling up malaria responses will derive from broader health benefits.

Given limitations in the delivery systems, efforts should be made to optimise health benefits delivered by existing capacity (at the same time taking care not to overload the system and reduce quality). Integrating malaria with other health essential services – such as neglected tropical diseases, nutrition, HIV, maternal and child – can help address disease interactions and share the capacity of services that need to reach the same populations, particular the poor and those in remote areas.

5. Public and private delivery models

> *Taking a balanced approach to public and private provision in malaria will, in the long term, provide the broadest access to current and future interventions. In addition, such a strategy will have positive secondary effects of developing the private drug distribution and retail sector, in support of DFID's drive to boost economic growth and wealth creation.*

We asked in which key areas we should work with private and other non-state actors to deliver more successful malaria prevention and treatment outcomes.

The most recurrent issues and challenges you raised were:

1. Taking a balanced approach.
2. The significant role the private sector can play, but also.
3. The challenges of private sector standards, quality control, knowledge gaps, and equity.

You said …

Balanced approach. You told us it is important to take a balanced approach, supporting a range of public and private sector partners and a variety of channels (including community-led delivery systems) to maximise impact and coverage. Although the vast majority of responses supports working with governments to strengthen health systems a few respondents to the online survey did raise concerns over corruption, citing it as a reason for favouring non-state actors as partners.

Private sector. There was also strong support for working with both the for-profit and not-for-profit private sector in a number of areas, and at different levels. Overall you made a strong case for increased involvement of the for-profit private sector,

particularly for increasing access to medicines and other malaria commodities. However, the spectrum of responses ranged from the argument that DFID could put more 'weight' behind its private sector strategy, including through its internal structure, and by eliminating *'different standards of measurement of efficiency, value for money, risk assessment between public and private sectors'* – to disagreement with the rationale of engaging more with the private services just because often the poorest and most vulnerable use them, arguing that 'willingness to pay' does not necessarily mean 'ability to pay'.

Challenges. While recognising the important role of the private sector, a recurrent theme is also the need to tackle regulation, standards and quality control, which will require working with, and strengthening the public sector (particularly where governments are reluctant to partnering with the private sector). You also noted that better knowledge is required of this sector if we are to harness it effectively – from collecting and monitoring private sector data, and knowledge of how the sector operates in each country, to gaining better understanding of market dynamics beyond health. Questions remain on how to incentivise malaria diagnostic testing in the informal private sector, and strengthen informed demand by consumers.

Equity. There were some concerns about overlooking equity, which might be overlooked in the drive to expand services through the private sector. Some respondents specifically called for monitoring of equity in initiatives such as the Affordable Medicines Facility for malaria (AMFm) which supports provision of antimalarials in private shops.

We did ….

One of our objectives is to support increased reach of services through public and non-state providers as appropriate. One pillar of our framework is *'Services are accountable to communities and delivered through a mix of public, private and non-profit service providers appropriate to different settings.'*

We recognise the private sector as an important channel to expand access to malaria prevention and treatment, and one which offers significant opportunities to accelerate achievement of the goal of universal coverage of services. However we do also recognise the several (well documented and widespread) challenges, including treatment quality and practice, and regulation. These will need commensurate improvements in the effectiveness of supply chains, supervision and monitoring of results. 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.

We also recognise that it will be important also to assess what impact the AMFm model has on access and utilisation of ACTs by rural and poor populations.

4. Increasing access and building demand

> *Information, awareness, empowerment of women/education, and having funds available to travel and pay for health care are crucial barriers - support programmes with proven track record to overcome these barriers.*

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.

We asked what strategies and approaches should we focus on to ensure that we reach and have impact on the poorest and most vulnerable populations.

The most recurrent issues you raised were:

1. Increasing the reach of services through a variety of sectors and partners.
2. Monitoring equity.
3. Whether certain groups should be prioritised or not.
4. Removing financial barriers.

You said ….

Mix of delivery channels. In order to increase access by the poorest, including the most remote and marginalised groups, you told us again to use a pragmatic mix of approaches which harness all sectors – private, public and community-led. In particular, respondents mentioned:

- Strengthening peripheral health facilities including human resources, and also distribution and transport systems.
- The crucial role of faith-based organisations and networks, and other community-based organisations, especially in remote or fragile areas.
- Expanding integrated approaches, by using and expanding existing platforms (such as immunisation, community distributors for control of neglected diseases etc.) for malaria interventions.
- Strengthening community delivery.

Mixed views about 'priority groups'. Some noted that specific 'hard to reach' groups, particularly mobile populations (refugees, nomadic people or migrants) will require better understanding and specific efforts. However there was some 'discomfort' about choosing priority groups (a survey question); some felt that DFID should aim at universal coverage, as recommended by WHO, to increase access by poorest and most vulnerable. Others also expressed concerns that where transmission decreases, countries may step back from targeting populations such as pregnant women that will always remain vulnerable.

Monitoring and evaluation. There have been many calls for better context-specific analyses and disaggregation of data, so that it becomes possible to monitor whether the approaches used are truly reaching the most vulnerable.

Removing financial barriers. You mentioned various barriers constraining access to malaria and other health services (e.g. financial, physical, lack of education and empowerment more generally). After information/education, financial barriers were the most cited, with some calls for supporting governments to make essential health services free at point of use.

We did ….

Increasing demand for malaria and health services is an important corollary to increasing their coverage. Our actions will be guided by the following framework objectives:

- 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 impact on households
- Increase community knowledge and participation.

Focus on the poor and vulnerable populations in high-burden countries in Africa and Asia is one of our guiding principles.

In the previous sections, we have outlined how we intend to strengthen health services and systems, take the opportunities offered by integrated approaches, and using community delivery systems. In doing this, we take into account of the fact that that remote areas are often underserved.

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. The cost-effectiveness of these interventions is dependent on their being accessible to people when and where they need them, appropriately allocated or prescribed and properly used.

Whatever approaches are adopted, we believe that continued focus on ensuring equity is needed. In the Business Plan we have indicated how, where possible, we will support and seek disaggregation of indicators by gender and/or socio-economic status.

We also recognise that 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.

5. Working in fragile and conflict affected states

> *Underpinning any work towards access to malaria prevention tools, diagnosis and treatment for populations in fragile and conflict affected states, should be the principle of equal access, irrespective of race, political affiliation, or faith.*

We asked what we should particularly focus on to control malaria in fragile, conflict affected states and humanitarian situations.

The most recurrent issues you raised were:

1. Partnering with relevant organisations.
2. Effective financing and donor coordination.
3. Building country capacity.

You said …

We received fewer responses to this question compared to the others, perhaps reflecting the background of respondents. This, and the complexity of the issues raised by our question, made distilling the key messages more problematic. Your comments included:

Partnering with relevant organisations. In the context of emergencies and humanitarian responses, you told us to partner with, and fully fund, other organisations with the relevant expertise.

Effective financing and donor coordination. In the context of 'chronic' emergencies and post-conflict situations, some responses highlighted the need for flexible and predictable financing, and improved donor coordination, noting that sometimes there are gaps in the transition from emergency to long-term support.

Building country capacity. The responses overall stress the need to build longer term capacity and a functioning health system. However there were very divergent views on the channels for assistance (government, NGOs and other local institutions, private sector).

We did …

We recognise the severe challenges of working in emergency situations or in conflict affected or fragile states, 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. 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.

However, there are also examples of effective malaria programmes in countries emerging from conflict, such as Eritrea and Rwanda. Crises can also provide opportunities for scaling up coverage as a result of increased number of implementing partners and opportunities for policy and practice change including the introduction of RDTs and ACTs.

Nine of the countries where we will support malaria bilaterally are considered fragile. In such countries, we 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 context relevant responses – including strengthening surveillance and outbreak preparedness and response. We will work with partners, to ensure that malaria response strategies are included in, and coherent with the wider emergency health response.

The UK Government has the flexibility to use a range of instruments to support malaria and broader health results including, general budget support, sector wide approaches, working through UN or other agencies (e.g. in fragile states) and project funding. The most appropriate mix of approaches will used in different country settings.

We aim to coordinate our investments to complement those of other donors. And in all instances we will strengthen responsiveness and accountability to communities by supporting better availability of information and publish details of our own programmes.

6. Tackling drug and insecticide resistance

Working in partnership must remain central to DFID's strategy – coordination and collaboration are essential to effectively utilise resources in tackling malaria.

We asked what should be our priorities for helping tackle drug and insecticide resistance, and what should be the key areas for research.

There were no clear trends, but some of the issues you raised were:

1. Availability of commodities.
2. Strengthening quality assurance systems/regulation.
3. Collaborative work.
4. Health systems issues; vaccine.
5. Support to research.

You said …

Availability of commodities. Respondents addressed the issue of increasing access to quality anti-malarials and commodities in several consultation questions (for example, in relation to strengthening health systems, commodity supply chains, and working with the private sector). There were many comments on the needs for a large scale roll out of rapid diagnostic tests – this is relatively new ground and most responses highlight challenges and unanswered questions, rather than lessons and good practice examples.

You also gave us some mixed views – for example on subsidies for ACTs and roll out in the private sector, and on supporting commodities purchasing rather than health services. You also mentioned supporting local production of generic essential medicines, and the reduction of tariffs on malaria drugs.

Strengthening quality assurance systems and regulation. This is seen as an area requiring increased attention and a stronger response, as also highlighted by the comments in relation to the private sector. One respondent questions whether the distribution of ACTs by untrained shop-keepers is actually helping or hindering in respect to drug resistance. The overall consensus is that governments need support in the development of policies on drug use and quality standards, which they then need to enforce.

Collaborative work. You recommend that we continue our collaborations with key partners, from product development partnerships to other donors, global players and researchers to ensure resistance is tackled effectively and broadly. This includes calls for support for the roll-out and execution of the forthcoming Global Plan for Artemisinin Resistance Containment (GPARC).

Other comments. You also continued to emphasise the need for strong **health systems** to tackle resistance, through effective surveillance allowing for rapid responses, as well as well-trained health workers capable of preventing, diagnosing and correctly treating malaria.

One respondent argued that given the 'apparent inevitability' of resistance, the key thing to focus on should be a malaria **vaccine**; by contrast another argues this is not a specific gap that DFID should try to fill, as there are already other funders. This reflects somewhat mixed views around the issue, with some agreeing on the importance of *preparing* for the introduction and delivery of a vaccine and other new tools when they become available.

Support to research. We received over 100 suggestions for specific areas of research we should support. We have collated these suggestions under the following broad headings, which give an idea of the main topics of interest:

- Operational research: delivery systems; access to interventions; resistance; RDTs; integrated delivery; school health programmes; malaria in pregnancy; human resources for health; regulation; vector control; M&E; private sector; community delivery and participation; other miscellaneous.
- Research on new tools and products: drugs; vector control; diagnostics; vaccine.

Other general comments include: DFID should continue its collaboration with a variety of research partners, from industry to academia and others 'discovery channels', particularly agencies that support translation from laboratory to field implementation.
A few respondents also noted the importance of helping build country research capacity and south-south learning.

We did …

Emergence of resistance to drugs and insecticides in one region puts gains made in control at risk in all. Swift action is needed to slow and contain resistance to artemisinin before it spreads to additional countries. Every effort must be made to preserve effectiveness of pyrethroids – to some of which there is already evidence of resistance.

Containing resistance to drugs and insecticides is one objective of our framework for action. Under the pillar '*Support innovation and global public goods'* we have indicated the importance of coordinated action to address important global needs including: the containment of drug and insecticide resistance; the development of new products and delivery approaches and efficient markets for malaria commodities.

We will also seek opportunities for collaboration on global public goods (including containing artemisinin resistance) and increasing the value for money in the global market for malaria commodities. We recognise the need to address the particular challenges of private sector provision - 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. We have dealt with this issue in section 5 of this summary report.

We will support a programme of research that provides a strong evidence base for programming, drives innovation and accelerates the development of preventive, therapeutic and delivery technologies for effective malaria responses.

Our new research priorities will include:

- Strategies to deal with the growing threat of artemisinin resistance
- Malaria in pregnancy.

- Developing new diagnostic and treatment strategies to manage malaria in changing and/or 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.

7. Where we should focus our efforts

DFID needs to be flexible as situations change and countries not currently experiencing the highest burden of disease may do so in the future.

We asked which priority countries we should support.

The key messages you gave us were:

1. Continue with existing approach, but:
2. Be flexible as situations change;
3. Do not overlook: border areas; countries that have made gains; 'neglected' countries.

You said …

Existing approach. While some respondents found it difficult to 'choose' one country over another, stating that if possible, DFID should work in all affected countries, overall we found strong support for DFID's approach to date (focus on high burden countries where DFID has a country presence, and on other countries through multilateral organisations). However some of you remarked on the predominance of African countries, and argued for strengthening efforts in Asia. Only one respondent argued that we should start from the 'fringes' rather than the 'heart' of malaria distribution.

In both the survey and technical consultation, Nigeria and DRC were selected as top priorities. In the survey, these were followed by 'don't knows' and India; in the technical consultation, strong emphasis was placed on Burma and Cambodia, as well as other African countries.

Generally, you told us to take the following considerations into account when programming:

- The **need for flexibility** and responsiveness to changes in disease burdens.
- The importance of targeting **border areas** – especially where countries with successful programmes border with weaker and more unstable countries – through cross border and regional initiatives
- The importance of continued support for countries that have already succeeded in reducing the malaria burden in order to **'sustain the gains'**.
- The need for DFID to use its **influence** to ensure that countries that have been 'neglected' (particularly in West and Central Africa) are supported by other donors.

We did …

Based on the results of the Bilateral Aid Review, the UK Government will directly support malaria efforts in 16 countries in Africa, and two in Asia. These are:

- Africa: Burundi, Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Nigeria, Rwanda, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, Zambia and Zimbabwe.
- Asia: Burma and India.

Our country focus may change over the period of the framework for action. Our continuing support is not based on a simple assessment changes in disease burden. We recognise the importance of continued support to countries that successfully control malaria to ensure that these gains are maintained.

We will also work with a range of multilateral partners to directly and indirectly complement our bilateral programmes, to expand reach at scale across countries in which we do not have a presence, and to ensure that countries (particularly in West and Central Africa) which have been relatively less successful in securing funding receive resources proportionate to their malaria needs.

8. Conclusions

We are very grateful to all those individuals, groups and organisations that contributed with their submissions and participation in technical meetings to the development of the Malaria Business Plan. This brief report is a summary of the wide range of views that have been presented, and as such it can only offer a snapshot of those views.

The responses have not only given us a 'roadmap' for our future direction, but have also highlighted strong support for our role and approach. Using the words of one respondent, you said *'build on what DFID has done well in the past and work to your comparative advantage'.* We found great appreciation for the responsiveness and flexibility of our funding - including the willingness to take risks with new instruments; our focus on the health system; and our willingness to partner with different types of organisations, while keeping governments at the forefront. This encouragement is highly valued as we set out to put our Malaria Business Plan into action.

Annex 1: Summary of online survey responses

Please note that all comments to each question were analysed separately; the number of comments received is indicated at the bottom of each table.

Question 1: It helps us in our research to know a little about you.

By affiliation:	Academic/researcher	30% (144)
	Civil society/NGO	25.2% (121)
	Health professional	17.9% (86)
	Public	14.8% (71)
By country/region:	UK	40.4% (193)
	Africa	26.6% (127)
	Other OECD countries	20.7% (99)
	Asia	10.0% (48)
	Other non OECD	2.3% (11)

Question 2: I think that tackling malaria is:

Answer Options	Response Percent	Response Count
Very important	91.9%	434
Quite important	5.7%	27
Not sure/can't decide	0.0%	0
Not that important when you compare it with other things	1.5%	7
Not important at all	0.6%	3
Don't know/can't decide	0.2%	1
If you want to share your reasons, please let us know why:		206

Question 3. I think DFID should focus on:

Answer Options	Response Percent	Response Count
More bed nets to help prevent infections	18.3%	83
Pest control – spraying homes to stop mosquitoes	12.3%	56
Better and earlier diagnosis	9.5%	43
Getting effective drugs to more people who need them	14.5%	66
Treatment for pregnant women so they and their babies don't get sick	2.2%	10
Helping prevent resistance to drugs (so that they continue to work)	2.9%	13
Training more healthcare workers to deliver good services	11.0%	50
Stopping the spread of fake drugs	1.5%	7
Giving people the right information so they can prevent themselves getting malaria and seek treatment earlier	22.2%	101
Don't know/can't decide	5.5%	25
If you want to share your reasons, please let us know why:		240

Question 4: I think DFID should work most with:

Answer Options	Response Percent	Response Count
Developing Country Governments	39.0%	176
Governments in other Developed Countries, like the US	2.2%	10
Community-based organisations	29.3%	132
Private clinics and pharmacies in countries	2.4%	11
Faith-based organisations	4.4%	20
Non-governmental organisations (such as charities)	14.6%	66
Drug companies	2.9%	13
Don't know/can't decide	5.1%	23
If you want to share your reasons, please let us know why:		214

Question 5: I think DFID should be working in:

Answer Options	Response Percent	Response Count
Nigeria	32.8%	147
Ethiopia	17.2%	77
Kenya	17.6%	79
Sierra Leone	19.0%	85
Zambia	13.4%	60
Ghana	14.5%	65
Malawi	19.2%	86
Mozambique	12.9%	58
Burundi	7.6%	34
Somalia	14.3%	64
Burma	10.9%	49
India	19.6%	88
Tanzania	17.4%	78
Sudan	18.5%	83
Democratic Republic of Congo	30.6%	137
Uganda	19.0%	85
Don't know/can't decide	20.3%	91
If you would like to share your reasons, please let us know why:		184

Question 6: I think DFID should help (priority groups):

I think DFID should help (please choose three):		
Answer Options	**Response Percent**	**Response Count**
Pregnant women	55.2%	244
Children under five years of age	71.7%	317
Children over five years of age	16.7%	74
People in remote areas with no access to health services	63.8%	282
People living in conflict areas	17.0%	75
Men	3.4%	15

Older people	5.0%	22
Women generally	13.8%	61
Don't know/can't decide	4.5%	20
If you would like to share your reasons, please let us know why:		131

Question 7: I think we should …
This was an open ended question; all responses (408) have been analysed separately.

Annex 2: Technical consultation template

Malaria: breaking the cycle

Help us shape the UK Government's policy and plans for tackling malaria in the developing world

Name:	
Email:	
Organisation if applicable:	
Country or region (please specify) or global?	
Please tick:	☐ Individual response ☐ Group response ☐ Organisational response

Why is it important?

Half of the world's population is at risk of malaria. Malaria disproportionately affects the poor, children, pregnant women and places an immense burden on health systems. Addressing the issue will not only reduce malaria mortality and morbidity, it will also have a positive impact on health systems, on reducing the burden of other diseases, improving services for poor people and ultimately will improve the economic growth prospects of affected countries.

We know what works to prevent and treat malaria and these interventions have proven to be highly cost-effective. But far too few people have access to these proven interventions, and weak health systems contribute to this failure.

Understanding the issues

Facts and figures:

- About 3.3 billion people - half of the world's population - are at risk of malaria
- Thirty-five countries are responsible for 98% of the total malaria deaths world-wide.
- 863,000 people die from malaria each year, that's more than 2300 people every day
- Malaria accounts for an estimated 8% of global deaths in children under-five years with the figure rising to 16% in Africa.
- In Africa, a child dies from malaria every 45 seconds
- And even if a child survives malaria, it can have long terms impacts on children's growth, mental development and educational outcomes as they grow older

- Malaria can reduce economic growth by up to 1.3% for countries with the highest burden.
- Insecticide-treated bed nets can protect families from mosquitoes which mainly bite at night.
- Indoor residual spraying (IRS) with insecticides is a powerful way to reduce exposure to mosquitoes inside the home.
- Diagnostic tests are not widely available, particularly in Africa. This means that many people with fever are incorrectly diagnosed with malaria. So even though 70% of those that need anti-malaria drugs do not receive them, up to 90% of people who actually receive drugs do not have malaria.
- 60% of people buy their malaria medicines from private clinics
- The emergence and spread of resistance to artemesinin threatens to make many first-line anti-malaria drugs ineffective.

Areas of progress

- The funds committed to malaria control from international sources have increased from US$ 0.3 billion in 2003 to US$ 1.7 billion in 2009.
- In 2008, nearly 25 million people in Africa were protected by indoor residual spraying as opposed only 2 million in 2006.
- Procurement of ACTs, the most effective treatment for malaria, has risen worldwide from half a million doses in 2001 to 160 million doses in 2009.
- Between 2000 and 2010, it is estimated that in the 26 countries in Africa with trend data, insecticide treated nets (ITNs) saved over 908 000 lives. Three quarters of those have been prevented since 2006.

However:

- More progress has occurred in low or medium-burden countries rather than countries with a high malaria burden. .
- Less progress has been made on access to treatment, diagnostics and intermittent prophylaxis treatment for pregnant women.
- Emerging drug resistance in South East Asia continues to threaten progress globally

How have we helped?

DFID spent over £150 million in 2009 on malaria through all funding channels, of which almost a half was through our bilateral country programme. Eighty percent of this bilateral country spend was focused on Africa.

- DFID supported delivery of 14.2 million bednets and ordered a further 2.7 million between April 2008 and December 2009. This is estimated to prevent over 78,000 child deaths in first year of use.
- **In Kenya**, DFID support includes purchase and distribution of 17 million bednets and 5 million re-treatment kits, the roll out of combination treatment for malaria and a communication programme. These interventions have contributed to the reduction of under-5 mortality by an estimated 44% in high risk malaria districts.
- **In Mozambique**, DFID's contribution has supported the Ministry of Health to achieve high coverage of insecticide treated nets amongst the most vulnerable groups, reaching over 90% of children under five and 85% of women attending ante-natal consultations.

- **In Nigeria**, we are supporting the delivery of Nigeria's National Malaria Control programme with a £50 million contribution (2008-2013). In Kano and Anambra states, where we distributed insecticide treated nets, household net ownership increased from less than 10% to 70%.
- DFID also supports other large agencies like the Global Fund. By the end of 2009 the Global Fund for AIDS, TB and Malaria had distributed 104m insecticide treated nets and treated 108m cases of malaria in accordance with national treatment guidelines.

Research

Research is essential to delivering new tools, increasing effectiveness of existing interventions and to ensure that they reach the most in need. DFID is supporting a range of research and our investment is leading to significant impact.

The Drugs for Neglected Diseases Initiative (DNDi) have developed two new artemisinin based fixed dose drug combinations. One of which is being used in 25 African countries and India, with over 50 million treatments distributed since it was launched in 2007.

The Medicines for Malaria Venture (MMV) have launched a powerful new child friendly artemisinin combination therapy (Coartem-D). Over 44 million treatments have been distributed in 23 African countries since its launch in January 2009.

DFID is working with the World Health Organisation's Special Programme for Research and Training on Tropical Diseases (TDR) to accelerate the development of new diagnostics for malaria. DFID is currently providing £12 million (2008-13) to support the Special Programme.

DFID is supporting the Foundation for Innovative New Diagnostics (FIND) (2009-14) to develop new diagnostic tests for a number of diseases of poverty, including malaria, with a £5 million grant.

Drug resistance to malaria

The spread and intensification of antimalarial drug resistance represents the single most serious challenge to global malaria control. If drug resistant malaria was to spread, particularly in Africa, it would render useless one of our most effective tools. This is why DFID is working with the World Health Organisation, country malaria programmes in South East Asia, and other donors to develop strategies to develop effective ways to identify resistance and contain its spread, including increasing the correct use of high quality malaria drugs and tackling counterfeits. Vigilance is also needed to monitor potential resistance to currently effective insecticides, particularly those used in the manufacture of insecticide treated nets.

Going forward

To reach the MDG 6 target of "Halting and beginning to reverse the incidence of malaria and other major diseases" there is still much more to be done.

The Global Malaria Action Plan (GMAP) 2009 outlines a strategy to reduce malaria morbidity and mortality by reaching universal coverage and strengthening health systems. Targets for 2015 include:

- Universal coverage continues with effective interventions.
- Global and national mortality is near zero for all preventable deaths.
- Global incidence is reduced by 75 percent from 2000 levels—to fewer than 85–125 million cases per year.
- The malaria-related Millennium Development Goal (MDG) is achieved: halting and beginning to reverse the incidence of malaria by 2015.
- At least eight to ten countries currently in the elimination stage will have achieved zero incidence of locally transmitted infection.

How you can get involved

We are developing our policies and plans of action in a number of ways. We are working with partner governments and other donors in country to determine what to support and how best to deliver; global experts give us advice; our research provides strong evidence, and we are looking at the budget and resources available to support programmes of activity.

We particularly want to hear what people around the world have to say on the subject of malaria. We want to know more about your views, opinions and experiences. This will help us to understand different viewpoints, how these issues might vary in different countries, and how DFID could work better with partners.

The views and opinions expressed in this survey and discussion forum will be assessed by DFID and will give us a greater understanding of the issues.

This template should be used if you do not or cannot use the open, online version. If you are considering these questions as a group, you might find the presentation useful to stimulate discussion. Enough information is provided here for each question to be answered independently should you wish to just respond to a few questions.

1. Improving the quality and coverage of services

We know what works to prevent and treat malaria, but far too few people have access to proven interventions. Weak health systems contribute to this failure. Addressing these failures and strengthening the delivery of interventions is essential to achieve sustained reductions in malaria morbidity and mortality, particularly amongst the most poor, women and children.

Read more.

How can DFID best support health services and systems in high burden countries to improve and sustain coverage of effective malaria control interventions?

Your response:

2. Integrated Approaches

Innovative approaches have demonstrated that greater impact on malaria can be achieved through better integration with other health interventions and programmes, such as those delivering neglected tropical diseases, nutrition, maternal and child health. Links with other sectors (e.g. water and sanitation) and broader poverty reduction programmes can also strengthen impact.

What innovative approaches should DFID focus on to increase impact and yield additional health outcomes? What are the priorities for operational research to support to support effective delivery?

Your response:

3. Public and Private Delivery Models

Delivery of malaria control interventions takes place through a variety of public, private and community-based mechanisms. Multi-layered service delivery strategies, using different combinations of state and non-state provision, are often used, but mix varies by context and country.

What are the key areas for us to work with private and other non-state actors to deliver more successful malaria prevention and treatment outcomes? (Please prioritise a maximum of four areas).

Your response:

4. Increasing access and building demand – impact in the poorest and most vulnerable populations

Reaching the poorest and most vulnerable with malaria control interventions is still largely an unmet challenge. We want to ensure that we have a demonstrable impact for these populations, including women and children.

What strategies and approaches should we focus on to ensure that we reach and have impact on the poorest and most vulnerable populations?

Your response:

5. Working in Fragile and Conflict Affected States

People living in conflict affected and fragile states are disproportionately affected by malaria. Mortality rates are 13 times greater in fragile states than other developing countries. In 2000, it was estimated that up to 30% of malaria deaths in Africa occur in the wake of a war, local violence or natural disaster (B Whyte, WHO Aug 2000 Bulletin).

What issues and approaches should we particularly focus on to control malaria in fragile and conflict affected states and in humanitarian situations?

Your response:

6. Tackling Drug and Insecticide Resistance

The emergence of resistance to artemisinin in South East Asia has the potential to render the most important anti-malarial drug ineffective. Experience suggests resistance can spread quickly to Africa, where the malaria burden is much higher. There is a narrow window of opportunity to dramatically reduce artemisinin mono-therapy and investigate the best ways to halt or slow spread of resistance, while longer term alternative drugs and new technologies are developed.

A. What are the policy and programme priorities for DFID to help tackle drug and insecticide resistance in Asia and Africa? Who are the key partners we should working with?

B. What should DFID research focus on in (i) development of new cost effective tools and (ii) operational research?

Your response:

7. Where should we focus our efforts?

Thirty-five countries are responsible for 98% of the total malaria deaths world-wide. DFID has a presence in 16 high-burden countries and supports health programmes in twelve of these. DFID's contributions to multilateral organisations – such as the Global Fund for AIDS, TB and Malaria – also reach a wider range of countries.

Which countries should we focus our efforts to reduce malaria related death and illness? Please list your five priority countries and explain the reasons for your choice.

Your response:

BACKGROUND INFORMATION

Background information for question one

A range of highly cost effective new tools are revolutionising malaria control efforts globally. Long lasting insecticide impregnated nets (LLINs), diagnosis with microscopy or rapid diagnostic tests (RDTs), artemisinin based combination therapy (ACT), indoor residual spraying (IRS) and intermittent preventive treatment in pregnancy (IPTp) and infants (IPTi) are now having a profound impact on the prevention, diagnosis and treatment of malaria worldwide.

The number of commodities distributed and coverage with all interventions have been increasing. A number of countries have achieved high coverage rates, resulting in significant reduction in malaria morbidity and mortality. However, less progress has been seen in African countries and in countries with high incidence,ACT remains expensive and coverage is not good enough, being particularly low for children. Similarly, most African countries report low coverage rates for intermittent preventive treatment for women during their last pregnancy. The success shown in initial scaling up LLINs needs to be followed by 'keep up' strategies to replace LLINs as the effectiveness of the insecticide that they are impregnated with wanes over their 3 to 5 year life-spans.

Evidence from across Africa suggests that whilst most of those with malaria do not get effective drugs, most anti-malarial treatments are given to people who do not

have malaria. On average, only about 25% of those with fever are shown to have malaria once confirmed by microscopy and/or RDTs. This over-use means that drugs are wasted, other potentially life-threatening fever causing infections are not addressed and that the risk of drug resistance heightened. Increasing rates of confirmed diagnosis of malaria by microscopy and RDTs and adherence by health practitioners to the results of the test is both a necessity and a significant challenge.

Weak health systems contribute to lack of progress on malaria in many high burden countries. Common constraints include the lack of trained staff; inadequate infrastructure including diagnostic services; weak procurement and supply chains; weak management, planning and budgeting; lack of coordination and the failure to engage other stakeholders; weak monitoring and information systems; and inadequate and inequitable financing.Addressing these failures is essential to achieve and sustain reductions in malaria morbidity and mortality, particularly amongst the most poor, women and children.

Background information for question two

There is some evidence to suggest that community-based healthcare providers of malaria interventions can prove highly effective if adequate support, supervision and appropriate incentives are provided. However, while community-based diagnosis and treatment for malaria is now available in some transmission hotspots, children in these same communities do not have access to treatment for respiratory infections, diarrhoea or neonatal sepsis.

There have also been innovative approaches to increase health impact through greater integration of malaria services with other health interventions/programmes like neglected tropical diseases, nutrition, maternal and child health as well as supporting greater synergies both with other sectors (e.g. water and sanitation) and broader poverty reduction programmes.

Background information for question three

Non-state actors include private for-profit companies and a wider range of formal and informal for-profit health care providers. Other non-state actors include non-profit organisations such as non-governmental organisations (NGOs), faith-based organisations and community-based organisations.

In most counties, the private sector and other non-state actors represent an important source of health care provision for all socio-economic groups, including the poorest. Weak regulation of health services, malaria drugs and other health commodities in many countries means that quality can be variable. Poor people are more likely to use lower quality services and commodities.

The majority of DFID funding for health is currently channelled to public sector health services. The case for the public sector role in malaria control and more broadly in health is clear: the nature of health care means it cannot be left entirely to the market; the state needs to be involved in order to regulate for quality, avoid excessive costs and to reach the poor. However, public sector capacity isn't sufficient to meet needs in most countries and people turn to other providers. However, there is limited experience of effective large scale private and public sector engagement to tackle malaria. In particular, where non-state providers do

complement public sector services, we need to ensure that overall provision is cost-effective, high quality and equitable.

Background information for question four

There are multiple and often inter-related risk factors that affect an individual's vulnerability to malaria. Equally, there are multiple barriers that prevent people from seeking care including financial, geographical, information and gender barriers.

The poor suffer a disproportionately high burden of morbidity and mortality. Moreover, poor people benefit less from malaria control interventions, and are less likely to seek treatment when they fall sick. Malaria episodes impose significant costs on poor people, often trapping them in a cycle of poverty and ill health.

Malaria during pregnancy leads to negative health consequences for the mother, the pregnancy outcome, and the newborn's health. Women who were semi-immune to malaria before pregnancy become vulnerable to malaria when pregnant

Malaria accounts for an estimated 8% of global deaths in children under five years. In Africa this proportion increases to 16%. Even when they do survive, malaria in children is linked to stunted growth and impaired mental development that can have long term impacts on a child's educational outcomes.

A number of studies have shown that women often have limited decision-making and financial power to act in the event that they (or their children) have fever. This leads to failures and delays in seeking treatment. Women are also often less informed about malaria, partly due to lower literacy rates. This further limits their ability to seek appropriate care, with negative results for their own health and for their children during pregnancy and after birth.

Increased vulnerability to malaria is well documented amongst other groups such as those co-infected with HIV or suffering from other health conditions such as anaemia and malnutrition, thus increasing the risk of severity.

Background information for question five

Key drivers of malaria in these contexts include breakdown of health services and malaria control programmes; movements of non-immune people to, or concentration of people in, high risk areas for malaria; weakened nutritional state of the displaced population; environmental deterioration that encourages vector breeding; problems of food and medicine supply and of access to at risk populations and health services.

Background information for question six

The development of resistance was a significant contributor to the failure of eradication efforts in 1950s and 1960s. There is already evidence that resistance to ACTs is emerging in South East Asia. The use of single artemisinin based drugs (mono-therapy), rather than using them in combination, can help drive resistance. People may use mono-therapies due to lower price or lack of availability of appropriate combination treatments.

Experience suggests resistance can spread quickly to Africa. There is a narrow window of opportunity to dramatically reduce artemisinin mono-therapy and

investigate the best ways to halt or slow spread of resistance. In the longer-term, alternative drugs and new technologies will be needed. Similarly, LLINs are dependent on pyrethriod.insecticides. These are also vulnerable to the emergence of resistance.

Tackling resistance is a global public good that requires coordinated national and international efforts. Some of the actions needed to delay or prepare for resistance have long timeframes, uncertain outcomes and impact and value for money can be hard to measure. Examples include:

- Managing and building global malaria commodity markets to support the use of effective and high-quality drugs and commodities
- Supporting the development and implementation of evidence based norms, standards, policies and monitoring tools.
- Research to develop new cost effective diagnostics, insecticides and drugs
- Supporting the development of better drug formulations to increase acceptability and patient adherence
- Operational research to strengthen the integrated delivery of quality services

DFID may not be best placed to address some of these actions directly.

Background information for question seven

We want to focus our efforts in high burden countries. High burden can be defined both in terms of absolute numbers and in terms of relative risk of death. For example, in Ethiopia, with a population of over 80 million, there are 35,000 malaria related deaths reported a year with 0.64 malaria related deaths per 100,000 at risk. In Sierra Leone, with a population of just 5.6 million there are only 6,000 malaria related deaths a year but 1.03 malaria related deaths per 100,000 at risk.

Thirty-five countries are responsible for 98% of the total malaria deaths world-wide. They also contribute to around 96% of the total number of malaria cases. There are significant regional differences in both numbers of cases, deaths and type of infection. Thirty of these countries are found in sub-Saharan Africa (SSA) and 5 in South East Asia.

DFID has a presence in 16 high-burden countries and supports health programmes in twelve of these. These 16 countries are; Nigeria, Ethiopia, Kenya, Sierra Leone, Zambia, Ghana, Malawi, Mozambique, Burundi, Somalia, Burma and India, Tanzania, Sudan, DRC and Uganda.

We are also considering working through other partners to contribute to efforts in other high-burden countries where we do not have a physical presence.

Thank you for your contributions.

Annex 3. Technical meeting: list of participating institutions

London, 28 September 2010

Liverpool School of Tropical Medicine – Prof Janet Hemingway

London School of Hygiene and Tropical Medicine – Prof David Schellenberg

Imperial College – Prof Bob Sinden

Malaria Consortium – Dr Albert Kilian

Malaria No More UK – Sarah Kline

Mentor Initiative – Richard Allan

Malaria in Pregnancy Consortium – Dr Kara Hanson; DrJenny Hill

Save the Children – Sarah Williams

Merlin – Jawara Saidykhan

International Federation of Red Cross (IFRC) – Katie Eves

World Vision – Dr Sarah Morgan

FIND Diagnostics – Dr Evan Lee

Medicines for Malaria Venture (MMV) – Dr Tim Wells

PATH Malaria Vaccine Initiative (MVI) – Carla Botting

Population Services International – Dr Angus Spiers

GlaxoSmithKline (GSK) – Jon Pender

Sanofi-Aventis – Dr François Bompart

Novartis – Dr Heiner Grueninger

Sumitomo – Adam Flynn

Vestergaard Frandsen – Klaus Östergaard

African Leaders Malaria Alliance (ALMA) – Robert Kwame Agyarko

World Bank – Dr Maryse B Pierre-Louis

Office of UN Secretary General's Special Envoy on Malaria – Suprotik Basu

World Health Organisation (WHO) – Dr Robert D Newman

Roll Back Malaria (RBM) – Dr Thomas M Teuscher

UNITAID – Philippe Duneton

Liverpool Associates in Tropical Health (LATH) – Dr Stewart Tyson

Bill and Melinda Gates Foundation – Dr Janice Culpepper

Clinton Health Access Initiative – Dr Bruno Moonen

HLSP – Claudia Sambo