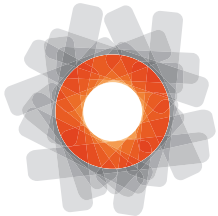
MALARIA *in* PREGNANCY

Bringing the maternal health and malaria communities together

26–28 June 2012 • Istanbul, Turkey

Meeting Report



Maternal Health Task Force

Executive Summary

According to recent reports from the World Health Organization (WHO) and the Institute for Health Metrics and Evaluation (IHME), the number of deaths from malaria has fallen rapidly in recent years. Similarly, recent reports from the WHO as well as IHME show dramatic reductions in maternal mortality. Despite this encouraging progress, coverage of malaria control efforts among pregnant women remains low. Malaria in pregnancy (MiP) continues to be a substantial contributor to maternal and newborn mortality and morbidity in malaria-endemic regions.

MiP programming is at a critical juncture. Important gains have been made in malaria control, but without continued efforts, the gains achieved may quickly erode. Coverage of malaria prevention, screening, and treatment among pregnant women remains low in many locations in sub-Saharan Africa (SSA), despite clear evidence of effective interventions and significant investment in this area. Experts agree that the maternal health and malaria communities must work closer together in order to significantly increase coverage. Given the existing synergies and overlap between these communities, several opportunities exist to collaborate more effectively. These areas of overlap include the target population (pregnant women), common health outcomes (maternal and newborn mortality and morbidity), and a shared delivery mechanism (the antenatal care platform). However, confusion at the global level about integration between maternal health and malaria is mirrored by confusion at the country level. The question of how malaria control efforts might be better integrated into the antenatal care (ANC) platform is thus of special interest.

Given the Maternal Health Task Force's (MHTF) convening role and focus on the quality of maternal health care, it is uniquely poised to foster dialogue on MiP among maternal health and malaria professionals. This report summarizes the discussions, emerging themes, and next steps from the meeting *Malaria in Pregnancy: A Solvable Problem—Bringing the Maternal Health and Malaria Communities Together.* At the request of the Bill & Melinda Gates Foundation (BMGF) and with BMGF's support, the MHTF convened the meeting in Istanbul, Turkey from 26-28 June 2012 in collaboration with a steering committee comprised of the BMGF, Liverpool School of Tropical Medicine (LSTM), London School of Hygiene and Tropical Medicine (LSHTM), and PATH.

The meeting focused on sharing lessons learned from sub-Saharan African countries and projects that have attempted to achieve high coverage of malaria control for pregnant women, identifying the main challenges to addressing MiP in SSA, exploring opportunities for collaboration and innovation, and determining next steps to improve partnerships between the malaria and maternal health communities. The meeting also served as a platform for colleagues to share recent and emerging findings on the determinants of coverage of MiP interventions—as well as the effectiveness of the delivery of those interventions.

Forty people from developed and developing countries attended the meeting. All participants were invited based on their expertise in malaria and/or maternal and newborn health. Participants represented the scientific, medical, and public health programming and research communities, including investigators who recently conducted clinical trials in which malaria prevention, diagnosis and treatment, and ANC have been integrated.

List of Acronyms

ALMA	African Leaders Malaria Alliance
ANC	antenatal care
BMGF	Bill & Melinda Gates Foundation
CDC	Centers for Disease Control and Prevention
FANC	focused antenatal care
IHME	Institute for Health Metrics and Evaluation
IPTp	intermittent preventive treatment in pregnancy
ITNs	insecticide-treated nets
LSTM	Liverpool School of Tropical Medicine
LSHTM	London School of Hygiene and Tropical Medicine
MCHIP	Maternal and Child Health Integrated Program
MHTF	Maternal Health Task Force
MiP	malaria in pregnancy
MNCH	maternal, newborn, and child health
PMI	President's Malaria Initiative
PMTCT	prevention of mother-to-child transmission (of HIV)
PSI	Population Services International
RMNCH	reproductive, maternal, newborn, and child health
RBM	Roll Back Malaria (World Health Organization)
SP	sulfadoxine-pyrimethamine
SSA	sub-Saharan Africa
WHO	World Health Organization

1. Introduction

According to recent reports from the World Health Organization (WHO) and the Institute for Health Metrics and Evaluation (IHME), the number of deaths from malaria has fallen rapidly in recent years. Similarly, recent reports from the WHO as well as IHME show dramatic reductions in maternal mortality. Despite this encouraging progress, coverage of malaria control efforts among pregnant women remains low. Malaria in pregnancy (MiP) continues to be a substantial contributor to maternal mortality and morbidity in malaria-endemic regions. MiP also leads to low birth weight babies, spontaneous abortion, stillbirth, premature delivery, neonatal mortality, and other adverse birth outcomes.

MiP programming is at a critical juncture. Important gains have been made in malaria control, but without continued efforts, the gains achieved may quickly erode. Coverage of malaria prevention (particularly intermittent preventive treatment), screening, and treatment among pregnant women remains low in many locations in sub-Saharan Africa (SSA), despite clear evidence of effective interventions and significant investment in this area. Experts agree that the maternal health and malaria communities must work more closely together in order to significantly increase coverage. Given the existing synergies and overlap between these communities, several opportunities exist to collaborate more effectively. These areas of overlap include the target population (pregnant women), common health outcomes (maternal and newborn mortality and morbidity), and a shared delivery mechanism (the antenatal care platform). However, confusion at the global level about integration between maternal health and malaria is mirrored by confusion at the country level, making the question of how malaria control efforts might be better integrated into antenatal care (ANC) of special interest.

Given the Maternal Health Task Force's (MHTF) convening role and focus on the quality of maternal health care, it is uniquely poised to foster dialogue on MiP among maternal health and malaria professionals. This report summarizes the discussions, emerging themes, and next steps from the meeting *Malaria in Pregnancy: A Solvable Problem—Bringing the Maternal Health and Malaria Communities Together.* At the request of the Bill & Melinda Gates Foundation (BMGF) and with BMGF's support, the MHTF convened the meeting in Istanbul, Turkey from 26-28 June 2012 in collaboration with a steering committee comprised of the BMGF, Liverpool School of Tropical Medicine (LSTM), London School of Hygiene and Tropical Medicine (LSHTM), and PATH.

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Forty people from developed and developing countries attended the meeting. All participants were invited based on their expertise in malaria and/or maternal and newborn health. Participants represented the scientific, medical, and public health programming and research communities, including investigators who recently conducted clinical trials in which malaria prevention, diagnosis and

treatment, and ANC have been integrated. (Please see Appendix A for the complete list of participants and Appendix B for the meeting agenda.)

In addition to this meeting and as part of the MHTF's recent work to foster dialogue between the maternal health and malaria communities, the MHTF also coordinated a blog series (on the MHTF Blog) with over ten posts from experts working to address MiP throughout SSA—and continued interest from colleagues to write additional posts. The series set the stage for the meeting while simultaneously raising awareness of MiP throughout the broader global health community. Posts shared lessons from specific countries, organizations, and projects; made the case for strengthening the ANC platform across SSA; and raised questions about next steps for increasing coverage of MiP interventions and further issues to explore. The MHTF also used Twitter (hashtag #MiP2012) to share updates from the meeting with colleagues who were not present.

2. Meeting Objectives and Deliverables

The meeting objectives, developed by the steering committee, were as follows:

1. Share and discuss: (a) issues in the delivery, access and use of MiP interventions experienced across SSA; (b) the recent analysis of the impact of MiP interventions on neonatal survival; and (c) a decision making tool to identify priority actions at the country level.
2. Identify lessons (both positive and negative) from countries and projects that have attempted to achieve high coverage of malaria prevention and care during pregnancy.
3. Identify the main challenges to achieving high coverage of quality malaria prevention and care during pregnancy, and the short- and medium-term strategies and activities needed to achieve this goal, particularly in relevant SSA settings.
4. Determine next steps to strengthen and institutionalize collaboration between the malaria and maternal, newborn, and child health (MNCH) communities.

The meeting deliverables included:

1. Identification of missed opportunities and obstacles to increased coverage of malaria prevention and care among pregnant women.
2. Preliminary list of core next steps and implementation strategies, including promising new ideas for selected sub-Saharan countries to overcome barriers to improved coverage of malaria prevention and care during pregnancy.
3. Creation of a prioritized action plan.

3. Meeting Sessions

The first two days of the meeting consisted of presentations and roundtable discussions by experts working on MiP throughout SSA. Day one of the meeting focused on understanding the scope of MiP with special attention to coverage of interventions and the state of ANC as a platform for prevention in SSA. The roundtable on day one centered on learning from the experiences of Mozambique, Nigeria, and Zambia. Day two of the meeting focused on distilling existing evidence around current MiP interventions and exploring innovative new approaches to reaching pregnant women with prevention efforts. The roundtable on day two centered on learning from programs at the global and regional-level. (Please see Appendix C for summaries of each of the sessions.)

4. Major Themes

Over the course of the meeting, five prominent themes arose as critical issues relating to the current state of coverage of MiP interventions in SSA:

1. Collaboration: Programming and policymaking for MiP needs to involve the malaria, maternal health, and newborn health communities at the global and country levels. There are three main reasons for this need: (1) The ANC platform appears to be the strongest platform for the delivery of MiP interventions; (2) MiP is a crosscutting issue that clearly impacts the health of mothers as well as newborns; and (3) crafting strong partnerships between the communities serves as an opportunity to strengthen malaria programming as well as the ANC platform.

2. Leadership: While funding is a critical issue, leadership (and partnership) matters equally. Where champions exist, coverage for MiP interventions improves. Several presentations pointed to examples of countries (and regions within countries) that have struggled with external funding issues but, nevertheless, have succeeded in increasing coverage of MiP interventions due to strong champions for the issue. Examples include Mali, a country that has seen significant improvements in coverage of ITNs, and Zambia, a country that has seen significant improvements in coverage of intermittent preventive treatment in pregnancy (IPTp). Clearly, some level of funding is critical in order for gains to be made, but numerous examples from countries in SSA have demonstrated that gains are extraordinarily difficult to achieve without strong leadership around the issue.

3. Harmonization: The content of current guidelines for addressing MiP, specifically the timing and dosing of sulfadoxine-pyrimethamine (SP) for IPTp, exemplify significant variations and contradictions. Within WHO alone, numerous versions of the IPTp guidelines exist. Globally and specifically in SSA, confusion exists between the global, regional, country, and district levels regarding which guidelines to follow. In addition, current guidelines for IPTp are not consistent with the FANC guidelines and platform. There is a critical need for IPTp guidelines to be harmonized with the most current evidence base (taking into consideration regional variations in prevalence between and within countries), to be consistent throughout all WHO policies, to be adopted consistently across all levels of the national health systems, and to be synchronized with the ANC platform for more effective delivery.

4. Communication: The various guidelines for timing and dosing of IPTp with SP are confusing and often lacking in important content. It is crucial that the messaging around MiP interventions is consistent with the evidence (as mentioned above), offers clear and direct guidelines, provides answers to the critical (often context-specific) safety questions, and is framed in a way that fosters a sense of urgency around MiP. Many of the current guidelines recommend “at least two doses” of SP, leaving significant ambiguity around whether three to four doses might actually offer more protection from malaria for pregnant women. Throughout the course of the meeting, various colleagues working at the country-level explained that guidelines are lacking in terms of how to deliver IPTp for specific cases (such as HIV-positive women) as well as how to address potential side effects. These colleagues also explained that, in the face of confusion and fear of doing harm, health workers often opt to do nothing—leading to a major barrier to

increasing coverage of IPTp. Finally, several discussions centered on the framing of prevention efforts for MiP—and the need to frame MiP interventions as urgent and lifesaving, in the same way that tetanus has been framed.

5. Strengthening the ANC platform to deliver quality care: In many places across SSA, the global health community is seeing growing resistance of the malaria parasite to SP. It is unclear what the replacement combination of drugs will be, but it is clear that the new combination will likely be more expensive and more complicated to deliver. It is critical that the ANC platform be strengthened now with special attention to quality of care so that this platform is equipped to adopt these changes to IPTp if and when they come. In recent years, the global health community has made significant progress in malaria control. With malaria programming facing serious funding challenges, strengthening the quality of ANC services is one strategy to help ensure that pregnant women do not fall even further behind in access to malaria prevention and treatment services. More evidence is needed on the current quality of ANC and the identification of the specific components that need to be strengthened in order to increase capacity for improved delivery of MiP interventions.

Additional themes worth mentioning include the following:

- Questions surfaced about whether the ANC platform is being overburdened with interventions. Specifically, there were a number of conversations about prevention of mother to child transmission (PMTCT) of HIV taking precedence over other interventions during ANC due to the urgency of the issue and availability of funding. Participants discussed concerns about how the ANC platform can be strengthened and how synergies with the ANC, malaria, and HIV platforms can be created to support and manage the delivery of numerous interventions without neglecting critical interventions like MiP.
- Throughout the meeting, participants discussed the need to carefully consider resource allocation in places where malaria endemicity is dropping. Discussions centered on alternative approaches to prevention such as a stronger focus on intermittent screening and treatment, the use of rapid diagnostic tests, and prioritizing case management. Participants described case management as the "forgotten prong" of WHO's three-prong approach to addressing MiP, and explained that knowledge is lacking about how to use case management effectively at the facility and community levels.
- While this meeting focused specifically on SSA and *Plasmodium falciparum* (the most common type of malaria in SSA), there were numerous references to *Plasmodium vivax* (more common in Latin America and Asia). Participants were keen to also explore the lessons learned and next steps for addressing *Plasmodium vivax*—considering the substantial burden of disease across Asia and some parts of the Americas and the differing approaches for prevention and treatment of *Plasmodium vivax*.
- Participants also discussed the need for more operational research to better understand issues around integrating maternal health and malaria control interventions in specific contexts. Important questions remain: How can programs be most effectively integrated? How much will it cost to integrate programs? Will it be cost-effective? How can the impact of integration be measured?

5. Identification of Pressing Barriers to Increasing Coverage of MiP Interventions

On day three of the meeting, participants broke out into small working groups to engage in a focused dialogue about the most pressing barriers to improving coverage of MiP interventions, as well as next steps for overcoming those barriers.

Group 1 discussed approaches and partnerships at the community level for increasing coverage of malaria prevention and care for pregnant women—with a focus on increasing demand, access, and use of ANC and MiP services. While recognizing that numerous barriers impact the delivery of MiP interventions at the community level, the group identified the following barriers as most pressing:

- Lack of information and knowledge about malaria risks to pregnant women and their fetuses
- Limited existing information is directed towards providers and does not take local knowledge and perspectives into account
- Attitudes, perceptions, and aspirations at the patient and provider levels (related to risk of malaria, safety of preventative measures, etc.)
- Costs, including those associated with increasing women's access and user fees

Group 2 discussed approaches and partnerships at the district and facility level for increasing coverage of malaria prevention and care for pregnant women—with a focus on operationalizing guidance and standard operating procedures, creating linkages with the community, and improving quality of care in facilities. While recognizing that numerous barriers impact the delivery of MiP interventions at the district and facility level, the group identified the following barriers as most pressing:

- Staffing/training (including on MiP guidelines)
- Commodities (drugs, ITNs, etc.), quality of drugs, and stock outs
- Quality of ANC (including supportive supervision)
- Access barriers
- Data tracking system (including commodities and registers)

Group 3 discussed approaches and partnerships to support national policies and activities for increasing coverage of malaria prevention and care for pregnant women—with a focus on national guidance and standard operating procedures, facilitating coordination between the malaria and maternal health communities, information systems, commodities, and human resources. While recognizing that numerous barriers impact the delivery of MiP interventions at the national policies and activities level, the group identified the following barriers as most pressing:

- Lack of harmonization across programs (e.g. malaria, HIV, immunization, MNCH)
- Clarification and operationalization of global guidelines (e.g. training, supervision) across national programs
- Quality and supply chain management of SP
- Funding and cost issues

Group 4 discussed approaches and partnerships to support global policies and activities for increasing coverage of malaria prevention and care for pregnant women—with a focus on building consensus on strategies and guidance, global priority setting, communications, and financing. While recognizing that numerous barriers impact the delivery of MiP interventions at the global policies and activities level, the group identified the following barriers as most pressing:

- Harmonization of vertical programs
- Different policies at the global, national, district, and facility levels
- Policies related to drug availability, distribution, and dosage
- Dearth of champions

6. Next Steps

The meeting concluded with a plenary discussion that resulted in a preliminary list of next steps for addressing the "most pressing" barriers (identified above) to improving coverage of MiP interventions at the various levels of the health system. A small working group will be forming in the coming months (described in the following section of the report) with a mandate to refine these next steps as well as develop a detailed action plan, time line, and description of roles and responsibilities for addressing the next steps.

Community level

1. Facilitate communication between the private sector and end users in the community so that the needs and preferences of the community are better integrated into product design

District and facility level

1. Work with the WHO Global Malaria Program, Roll Back Malaria (RBM), and others to ensure that inventories of bed nets at ANC clinics are maintained and not rerouted for distribution through other channels such as campaigns that often taken precedence over ANC distribution
2. Use opportunities such as PMTCT to increase access for women of reproductive age to access bed nets (especially pre-conception and during the first trimester)
3. Facilitate the inclusion of adequate questions relating to MiP on supervision and monitoring tools at the facility level

Country level

1. Within countries with regional differences in malaria endemicity, support the process of developing and implementing context specific screening and treatment guidelines
2. Facilitate effective and evidence-based advocacy at the country level
3. Identify one to two countries where endemicity is falling and resistance is increasing but policymakers are supportive of MiP interventions and new MiP guidelines can be implemented and tested with relatively few barriers. Test the implementation of new guidelines with a focus on screening in these countries and share the results as country case studies.
4. Encourage the inclusion of indicators in the newly developed LSTM decision-making tool to improve the delivery of IPTp and ITNs
5. Recommend the inclusion of reproductive, maternal, newborn, and child health (RMNCH) specialists in national coordinating mechanisms, working groups, and meetings
6. Recommend to national-level malaria control programs that they collaborate with national-level safe motherhood and/or reproductive health task forces (with support from international groups)
7. Identify in-country research organizations to identify critical MiP operations research questions

and implement projects in order to generate needed evidence about context-specific challenges and solutions.

8. Capitalize on and contribute to in-country discussions to improve training to reflect country realities
9. Broker discussions (and convene meetings if/as needed) within and between implementing partner organizations on MiP

Global level

1. Encourage coordination with national and global partners and stakeholders such as the African Leaders Malaria Alliance (ALMA) and the U.S. Special Envoy's Office
2. Explore platforms to highlight MiP as an indirect cause of maternal morbidity and mortality and engage those platforms in order to raise awareness of the importance of the contribution of MiP and other indirect causes to the global burden of maternal morbidity and mortality
3. Expand the RBM MiP Working Group membership to include more members of the MNCH communities
4. Raise the visibility and urgency of MiP through mechanisms such as publishing a scientific article in *The Lancet,* coordinating with the Global Maternal Health Conference and Women Deliver, and taking advantage of other opportunities that arise
5. Recommend that WHO better coordinate their units and programs and, in particular, request the WHO Global Malaria Program to work closely with the Maternal, Child, and Adolescent Health Unit and the Integrated Management of Pregnancy & Childbirth group
6. Work with WHO to make sure that MiP is included in their upcoming indicators discussion in July 2012 and beyond.
7. Explore opportunities to incorporate SP into the work of the United Nations Commission on Life-Saving Commodities for Women and Children and advocate for its inclusion

7. Action Plan

At the conclusion of the meeting, David Brandling-Bennett noted that all meeting participants would be invited to participate in a smaller working group to carry priority ideas for next steps forward. The small group will be charged with refining these next steps as well as developing a detailed action plan, time line, and description of roles and responsibilities for addressing the next steps. The MHTF will contact meeting participants regarding the formation of the small working group.

Appendix A: Participant List

Bose Adeniran (Federal Ministry of Health – Nigeria)
Koki Agarwal (Maternal and Child Health Integrated Program; Roll Back Malaria)
Chioma Amajoh (National Malaria Control Programme Nigeria)
Rifat Atun (Imperial College)
Anne Austin (Maternal Health Task Force)
David Brandling-Bennett (Bill & Melinda Gates Foundation)
Bill Brieger (Johns Hopkins Bloomberg School of Public Health)
Ib Christian Bygbgerg (University of Copenhagen)
Marcia Castro (Harvard School of Public Health)
Leonardo Chavane (Maternal and Child Health Integrated Program)
Elizabeth Claise (Maternal Health Task Force)
Martin de Smet (Médecins Sans Frontières)
France Donnay (Bill & Melinda Gates Foundation)
Tom Eisele (Tulane School of Public Health and Tropical Medicine)
Mary Hamel (Centers for Disease Control and Prevention; President's Malaria Initiative)
David Hamer (Boston University Schools of Public Health and Medicine; Zambia Center for Applied Health Research and Development)
Jenny Hill (Liverpool School of Tropical Medicine)
James Kisia (Kenya Red Cross)
Ana Langer (Maternal Health Task Force)
Samantha Lattof (Maternal Health Task Force)
Viviana Mangiaterra (World Health Organization; Roll Back Malaria)
Clara Menendez (Barcelona Centre for International Health Research Hospital Clinic – Universidad de Barcelona)
Kate Mitchell (Maternal Health Task Force)
Abdunoor Mulokozi (Ifakara Health Institute)
Stephen Munjanja (University of Zimbabwe)
Nancy Nachbar (Abt Associates)
Elena Olivi (Population Services International)
Bamigbe Osuntogun (Federal Ministry of Health – Nigeria)
Elaine Roman (Maternal and Child Health Integrated Program)
Joseph Ruminjo (EngenderHealth)
Isabella Sagoe-Moses (Ghana Health Service)
Erin Shutes (Bill & Melinda Gates Foundation)
Mary Ellen Stanton (United States Agency for International Development)
Rick Steketee (Malaria Control and Evaluation Partnership in Africa; PATH)
Kate Teela (Bill & Melinda Gates Foundation)
Feiko ter Kuile (Liverpool School of Tropical Medicine)
Annemieke van Eijk (Liverpool School of Tropical Medicine)
Jayne Webster (London School of Hygiene and Tropical Medicine)
Mary Nell Wegner (Maternal Health Task Force)
Susan Youll (President's Malaria Initiative)

Appendix B: Meeting Agenda

MALARIA *in* PREGNANCY

Bringing the maternal health and malaria communities together

Day 1: Scope of the Problem: Where are we now?

Meeting Moderator: Mary Nell Wegner, Maternal Health Task Force

26 June 2012
Mercury Meeting Room

6:00-8:45	Breakfast, Bosphorous Terrace, the Hilton Istanbul	
MORNING SESSION (PLENARY)		*Chair: Rick Steketee, PATH*
9:00-9:30	**OPENING/WELCOME**	*David Brandling-Bennett, Bill & Melinda Gates Foundation (BMGF) and Ana Langer, Maternal Health Task Force (MHTF)*
	Introductions, Objectives and Deliverables of the Meeting	*Mary Nell Wegner, MHTF*
	MALARIA IN PREGNANCY	
9:30-10:00	Malaria in Pregnancy: An overview	*Feiko ter Kuile, Liverpool School of Tropical Medicine*
10:00-10:30	Assessing the association between malaria prevention in pregnancy and risk of low birth weight and neonatal mortality	*Thom Eisele, Tulane School of Public Health and Tropical Medicine*
10:30-11:00	Q and A	
11:00-11:30	COFFEE BREAK	
	PROBLEM STATEMENT/SCOPE	
11:30-12:00	Coverage of MiP interventions in malaria-endemic African countries	*Annemieke van Eijk, Liverpool School of Tropical Medicine*
12:00-12:30	Determinants of IPTp and ITN coverage among pregnant women: Systematic review	*Jenny Hill, Liverpool School of Tropical Medicine*
12:30-1:00	Q and A	
1:00-2:00	LUNCH	*Bosphorous Terrace*
AFTERNOON SESSION (PLENARY)		*Chair: David Brandling-Bennett, BMGF*
2:00-2:20	Antenatal Care: An Overview	*Ana Langer, MHTF*
2:20-2:45	Coverage and quality of ANC in high-burden, malaria-endemic countries and capacity to incorporate MiP activities	*Stephen Munjanja, University of Zimbabwe*
2:45-3:15	Q and A	
3:15-3:45	COFFEE BREAK	
3:45-4:00	Findings from Roll Back Malaria Meeting in Kigali	*Elaine Roman, MCHIP*
4:00-5:00	Learning from the Field: A Country-level Roundtable • Mozambique: *Leonardo Chavane* • Nigeria: *Bose Adeniran, Chioma Amajoh* • Zambia: *David Hamer*	*Moderator: Elaine Roman*
	CLOSE OF DAY 1	
7:30-9:30	Drinks and dinner, Şadırvan Terrace, the Hilton Istanbul	

MALARIA in PREGNANCY

Bringing the maternal health and malaria communities together

Day 2: Distilling what we know: How can we maximize impact?

Meeting Moderator: Mary Nell Wegner, Maternal Health Task Force

27 June 2012
Mercury Meeting Room

6:00-8:45	Breakfast, Bosphorous Terrace, the Hilton Istanbul	
MORNING SESSION (PLENARY)		*Chair: Stephen Munjanja, University of Zimbabwe*
9:00-9:15	**RECAP OF DAY 1**	*Isabella Sagoe-Moses, Ghana Health Service*
9:15-10:30	Learning from Programs: A Global- and Regional-level Roundtable • Rollback Malaria: *Viviana Mangiaterra* • PMI: *Susan Youll* • PSI: *Elena Olivi* • CDC/Malaria Branch: *Mary Hamel*	*Moderator: Koki Agrawal, MCHIP*
10:30-11:00	COFFEE BREAK	
	WHAT DO WE KNOW ABOUT EFFECTIVE APPROACHES?	
11:00-11:30	Assessing the effectiveness of delivery of IPT and ITNs: Lessons from Mali and Kenya	*Jayne Webster, London School of Hygiene and Tropical Medicine*
11:30-12:00	An analysis of achievements and limitations to meeting women's comprehensive needs during pregnancy	*Rifat Atun, Imperial College*
12:00-12:30	Q and A	
12:30-1:30	LUNCH	*Bosphorous Terrace*
AFTERNOON SESSION (PLENARY)		*Chair: Jenny Hill, Liverpool School of Tropical Medicine*
	NEW IDEAS	
1:30-2:00	Innovative approaches to identify and apply context-specific interventions	*Marcia Castro, Harvard School of Public Health*
2:00-2:30	Malaria in Pregnancy: Threats, opportunities, and new technologies	*Ib Christian Bygbjerg, University of Copenhagen*
2:30-3:00	Q and A	
3:00-3:30	COFFEE BREAK	
3:30-4:00	A decision-making tool to improve the effectiveness of the delivery of IPTp and ITNs	*Jayne Webster, London School of Hygiene and Tropical Medicine*
4:00-4:30	Malaria in Pregnancy: The role of the private sector	*Nancy Nachbar, Abt Associates*
4:30-5:00	Q and A	
	CLOSE OF DAY 2	
7:30 – 10:00	Dinner and drinks, 360 Istanbul (20 minute walk or shuttle service provided)	

MALARIA in PREGNANCY

Bringing the maternal health and malaria communities together

Day 3: Charting next steps

Meeting Moderator: Mary Nell Wegner, Maternal Health Task Force

28 June 2012
Mercury Meeting Room

6:00-8:00	Breakfast, Bosphorous Terrace, the Hilton Istanbul	
MORNING SESSION (PLENARY + BREAK OUT SESSIONS)		*Chair: Annemieke van Eijk, Liverpool School of Tropical Medicine*
8:00-8:15	**RECAP OF DAY 2 AND REVIEW OF DELIVERABLES**	*James Kisia, Kenya Red Cross*
8:15-10:00	Breakout Groups to Address the Deliverables • Group 1: *Jenny Hill, Liverpool School of Tropical Medicine* • Group 2: *Ana Langer, MHTF* • Group 3: *Jayne Webster, London School of Hygiene and Tropical Medicine* • Group 4: *David Brandling-Bennett, BMGF*	
10:00-10:30	Report out from Small Groups 1–4, including identification of priorities	
10:30-11:00	COFFEE BREAK	
11:00-12:15	Plenary discussion on the way forward	*France Donnay, BMGF*
12:15-12:30	Articulation of next steps	
	CLOSE OF MEETING	*David Brandling-Bennett, BMGF*
12:30	Lunch, Bosphorous Terrace	

Appendix C: Session Summaries

Day One: Understanding the Scope of MiP

Day one of the meeting focused on understanding the scope of MiP with special attention to coverage of interventions and the state of ANC as a platform for prevention in SSA.

David Brandling-Bennett of the BMGF opened the meeting by explaining that ambitious goals have been made for malaria prevention and significant achievements have been made, but coverage of malaria interventions for pregnant women is a missed opportunity. It has not received adequate attention despite the fact that pregnant women and their fetuses are at considerable risk in many locations across SSA. Brandling-Bennett made the point that, in order to overcome barriers, the public health community must create stronger linkages between the maternal health and malaria communities.

Ana Langer of the MHTF provided important context for understanding MiP from the maternal health perspective. She explained that, while maternal deaths due to direct obstetric complications are on the decline, maternal mortality and morbidity due to indirect causes are on the rise. She also cited a recent study published in *The Lancet* that showed that more adults are dying of malaria complications than previously thought. While there are no concrete numbers for malaria deaths among pregnant women, it is clear that they are a particularly vulnerable group. Increasing coverage will rely on improved quality of and access to focused antenatal care (FANC).

Feiko ter Kuile from LSTM provided an overview of MiP in SSA. He discussed issues of dosing with SP, as well as the messaging around it, highlighting the need to harmonize the messages with both the evidence-base and national and global policies. He also explained that promoting 3-4 doses of SP might be a better option than the current standard of "at least 2." Ter Kuile pointed out that harmonizing the dosing with the number of recommended ANC visits might actually increase uptake of IPTp. Noting the growing resistance to SP in certain areas (especially in East Africa) Ter Kuile noted that whatever the new combination of drugs, they will likely be more complicated to dose and expensive to deliver. For this reason, it is critical to strengthen the ANC platform now so that it is prepared to adopt these changes if and when they come.

Thom Eisele from Tulane School of Public Health and Tropical Medicine discussed his recent research on the association between malaria prevention in pregnancy and the risk of low birth weight (LBW) babies, as well as neonatal mortality. Eisele explained that malaria prevention in pregnancy was associated with a significant reduction in the odds of LBW and neonatal mortality in first and second parities under routine program conditions across Africa—and that prevention efforts were also protective against LBW and neonatal mortality in third or higher parities. These findings support the continued effort to scale up access of both IPTp and insecticide-treated nets (ITNs) to pregnant women of all parities in areas of stable malaria transmission.

Annemieke van Eijk from LSTM spoke in more depth about coverage of MiP interventions in malaria-endemic African countries. She described slow increases in MiP coverage overall and large discrepancies between countries. Van Eijk also made the point that external funding and assistance are important for coverage, but not the most critical factors; she called "determination" (at multiple levels) the most crucial factor. She stressed the importance of paying attention to countries with inequities in

coverage—and called on implementers to remember that malaria is mainly found in rural areas and, for this reason, rural women should be the priority.

Jenny Hill, also of LSTM, shared findings from a recent systematic review of the determinants of IPTp and ITN coverage among pregnant women in SSA. She explained that many of the barriers to the delivery of IPTp and ITNs reflect broader weaknesses in health systems. Hill said that a better understanding of malaria and IPTp is important and needed for both providers and pregnant women. She stressed the importance of paying attention to demand- and supply-side issues. She explained that, while alternative distribution strategies exist for ITNs, free ITNs through ANC appear to be the most effective approach to distribution. She also discussed a need for decentralised data for decision-making and accountability at the national and sub-national levels. Hill concluded by raising the issue of champions, saying that the issue of MiP needs to have more champions.

Langer and Stephen Munjanja, of the University of Zimbabwe, provided an overview of the coverage and quality of ANC in SSA, pointing out that ANC should be seen as an invaluable tool for the management of indirect causes of maternal mortality and morbidity—such as malaria. They noted that ANC coverage is mainstream among both users and providers, and that norm can be capitalized on, simultaneously strengthening malaria programs and ANC, while easing some of the burden on healthcare workers. Langer and Mujanja reiterated Brandling-Bennett's earlier point that crafting and maintaining strong partnerships between the malaria and MNCH communities will be key.

The first day concluded with a country level roundtable discussion, focused on learning from the experiences of Mozambique, Nigeria, and Zambia. Roundtable participants included Leonardo Chavane, of the Maternal and Child Health Integrated Program (MCHIP) in Mozambique; Chioma Amajoh, of the National Malaria Control Program in Nigeria; Abosede Adeniran, of the Ministry of Health of Nigeria; and David Hamer, of Boston University and the Zambia Center for Applied Health Research and Development. The roundtable participants talked through some of the major issues relating to MiP in their contexts. Striking similarities arose from each of their presentations, including:

- Funding is not the most important issue—partnership and leadership (at all levels) are crucial.
- The ANC platform is swamped with interventions—and often PMTCT of HIV seems to take over.
- Chronic shortages of human resources as well as supply chain management and commodities issues are major barriers to coverage with MiP prevention.
- There is a need to support and empower communities to take ownership of MiP programs to ensure sustainability.
- The situation at the country level can be seen as a mirror of what is happening at the global level. Confusion at the global level about integration between maternal health and malaria programs is mirrored by confusion at the country level.

Day Two: Distilling What We Know—How Can We Maximize Impact?

Day two of the meeting focused on distilling existing evidence around current MiP interventions and exploring innovative new approaches to reaching pregnant women with prevention efforts.

The first session of the day was a roundtable discussion focused on learning from programs at the global and regional-level with panelists from the WHO, RBM, Centers for Disease Control and Prevention (CDC),

President's Malaria Initiative (PMI), and Population Services International (PSI). Koki Agrawal, of MCHIP and RBM, moderated the session and opened with a description of the evolution of the concept of FANC. She also called on the global and regional panelists to consider a number of concepts in their remarks: (1) the current state of ANC as a platform for IPTp and ITN delivery for pregnant women in SSA; (2) ideas for how to not only fund interventions but more comprehensive systems; (3) thoughts on how to better measure quality of care, integration of programs, and processes that facilitate the delivery of care; and (4) the concept of taking health services beyond the walls of the health facility—and creating stronger linkages between the facility and the community.

Viviana Mangiaterra, of the WHO and RBM, described a number of systematic issues relating to MiP. She pointed out that the Global Fund, the major funder of malaria programming in recent years, is currently undergoing organizational restructuring. As a result, numerous countries are struggling to secure the necessary funds for malaria programming and commodities. Mangiaterra also discussed the importance of considering different entry points as a way to improve and strengthen prevention and treatment along the continuum of care. As an example, she cited community case management as a component that could be bolstered with this approach.

Mary Hamel, of the CDC and the PMI, described the variations and contradictions in the WHO guidelines for dosing of IPTp. She discussed examples of how these discrepancies in guidelines translate into confusion at the country and program implementation levels. She pointed out that health workers, faced with confusion and a fear of doing harm, often opt for doing nothing. Hamel shared an experience from Kenya in which a senior government health official shared a memo with clear and direct messages and guidelines for IPTp with all of the health facilities in one district. The distribution of the memo combined with explanation of the guidelines in follow-up supervision visits resulted in significant increases in uptake of IPTp in the districts. This example made the point that innovation is not necessarily high-tech and/or complicated.

Susan Youll, of the PMI, pointed to a lack of availability of data, challenges with securing commodities, and hidden user fees for ANC services as major barriers to uptake of IPTp. She also explained that SP is not tracked in the same way that other important drugs are tracked. Youll said that creative approaches to generate demand for malaria prevention services at the community level should be explored.

Elena Olivi, of PSI, focused on ITNs and argued that lack of funding is the major problem when it comes to nets. Olivi explained that the delivery mechanism for nets is well established and it works. The challenge is that nets expire after three years and must be replaced—and without a new and substantial source of funding, the public health community runs the risk of losing significant ground in malaria control. She said that she believes the advocacy community has not yet recognized the severity of the funding crisis. Olivi also discussed the lack of incentives for companies to produce truly long-lasting bed nets. She shared an example from Burundi as a creative approach to addressing some of the supply chain management issues related to nets. Olivi said that bed nets were "prescribed" by a provider through the ANC platform and the "prescription" was filled by a pharmacist, allowing for better tracking and forecasting of nets.

Jayne Webster, of LSTM, presented recent research on the effectiveness of the delivery of IPTp and ITNs in Mali and Kenya. She looked specifically at intermediate process indicators for delivery. Her analysis revealed that the delivery of both interventions is ineffective in both countries. The assessment also showed that while stock-outs contribute to the problem, they are far from the only issue. Even when supplies were in stock, delivery was still ineffective. Lack of knowledge and misinformation emerged as a major barrier. Webster urged the meeting participants to consider how guidelines for IPTp dosing might be reviewed—particularly for specific cases such as HIV-positive women.

Rifat Atun, of Imperial College, discussed the challenges with diffusion of innovation throughout health systems. He explained that health systems often take a very long time to adopt innovations, citing scurvy as an example. He described key barriers to the adoption of innovations from a health systems perspective, noting a linear view of innovation adoption, limited evidence for new ideas, an imbalance in health and financing policies, not enough emphasis on demand side factors, inadequate incentives, and institutional logic as critical challenges. He explained that integration is a complex process—and is not binary. He said that when exploring integration as an approach to a health problem, groups must consider what is being integrated, into what, and why. Atun made the point that communities need to feel that they are part of the solution and only then will they join in the process of delivering and/or demanding the innovation. He also discussed inequities in malaria funding and the fact that funding is often not in line with the actual burden of disease.

Marcia Castro, of the Harvard School of Public Health, explored the distribution of ANC services in Kenya (a malaria-endemic country) using survey data and Geographic Information Systems. She explored the extent to which availability of services correlates with use of these services, controlling for potential social, economic, environmental, and spatial effects. Her work considered barriers to uptake of IPTp at three levels: the woman, the facility, and the district. Her assessment revealed that cost was not a considerable issue, but distance and waiting times were significant barriers to uptake. Castro explained that there is far more to the story than access, pointing out that roads do not equal access but lack of roads does serve as a proxy indicator for isolation. She suggested better tracking of pregnant women as an approach to improving forecasting of commodities. Castro also discussed big challenges with measuring quality of care, explaining that the global health community does not fully understand the various perceptions of quality among users.

Ib Christian Bygbjerg, of the University of Copenhagen, discussed the potential of technology, especially e-health or m-health innovations to strengthen efforts to address MiP. He said that in the past ten years, phone connections have more than tripled around the world. Bygbjerg sees this as an enormous opportunity. He shared promising results from an m-health project aimed at improving maternal health in Zanzibar, and asked questions about whether a similar project could work to address MiP. Bygbjerg also explained that mobile phones were designed for communication (not health) and raised important ethical questions surrounding m-health: Who picks up the phone? Who reads the text message? Who owns your health data? Bygbjerg said that he sees m-health as an under-used and under-researched tool with great potential. He told participants that when he ran a PubMed search for “malaria” and “m-health”, it returned zero results. He called on the group to consider more operations research for m-health initiatives. In closing, Bygbjerg shared a mobile app that explains step by step how to manage

post-partum hemorrhage. He asked participants to spend some time thinking about what a mobile app for the management of MiP might look like—and if it would be useful.

Jayne Webster, of LSTM, presented her recent work to develop a decision-making tool for use by countries to assess barriers and priority actions required to increase coverage of MiP interventions. Webster explained that major research questions remain about the effectiveness of the delivery of MiP interventions—and that improvements in data collection and collation are needed. But, in the meantime, the global health community must use the wealth of knowledge that already exists to start taking action. Webster described the newly developed decision-making tool, explaining that it was designed for use by health managers to assess country and/or sub-national barriers and priority actions required for effective scale-up of the two key MiP control interventions: IPTp and ITNs.

Nancy Nachbar, of Abt Associates, focused on the current and potential involvement of the private sector in addressing MiP. She explained that in planning any health intervention, the complete health system must be considered. She said that if the global health community fails to consider the role of the private sector, they are failing to consider the whole system. Nachbar described challenges to private sector participation from the perspective of the public sector such as quality concerns, lack of trust and corresponding lack of dialogue, profit motives, equity concerns, fragmentation, and lack of information. She also described challenges to private sector participation from the private sector perspective such as lack of appreciation of investment requirements; data ownership; market planning; challenge of proving safety; tender system focuses on lowest cost—drives out innovation; limited or no access to financing, preferential pricing, tax/tariff waivers; and missing or inability to access supportive quality assurance systems. In conclusion, Nachbar shared a number of factors that she sees as opportunities for improving private sector participation in MiP prevention: giving consumers products they prefer; addressing communication and mobilization gaps; filling supply gaps; improving supply and distribution; tackling human resource gaps; addressing quality issues; expanding access to financing; and improving stewardship.