12TH MEETING MALARIA IN PREGNANCY WORKING GROUP
BALI, INDONESIA,
25-27 FEBRUARY 2010

A JOINT ROLL BACK MALARIA PARTNERSHIP AND WORLD HEALTH ORGANIZATION MEETING

Report prepared by:

Koki Agarwal (Jhpiego)
Viviana Mangiaterra (WHO/HQ/MPS)

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World Health Organization

ROLL BACK MALARIA

BAKTI HUSADA

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Annexes

Abbreviations

ACT	Artemisinin based Combination Therapy
ACCESS	Access to clinical and community maternal, neonatal and women's health services
ANC	Ante-Natal Care
AFRO	World Health Organization Regional Office for Africa
ASEAN	The Association of Southeast Asian Nations
CDC	Centres for Disease Control
DHP	Dihydroartemisinin-piperaquine
DHS	Demographic Health survey
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GMAP	Global Malaria Action Plan
HCW	Health care workers
HMIS	Health management information system
INDEPTH	International Organization for the Demographic Evaluation of Populations and Their Health in developing countries
IPT	Intermittent Preventive Treatment
IPTp	Intermittent preventive treatment of malaria in pregnancy
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Nets
IST	Intermittent screening and treatment
Jhpiego	Jhpiego Corporation
JHU/CCP	Johns Hopkins University, Center for Communication Programs
LBW	Low birth weight
LLIN	Long-lasting Insecticidal Net
MDG	Millennium Development Goals
MIP	Malaria in Pregnancy
MIPESA	Malaria in Pregnancy for East and Southern Africa
MIPWG	Malaria in Pregnancy Working Group
MIS	Malaria Indicator Survey
MMR	Maternal Mortality Rate
MNH	Maternal and Newborn Health
MoH	Ministry of Health
MPS	Making Pregnancy Safer
MQ	Mefloquine
NGO	Non-governmental Organization
NMCP	National Malaria Control Program
QN	Quinine
PNG	Papua New Guinea
PMTCT	Preventing mother-to-child transmission of HIV
PMI	President's Malaria Initiative
RAOPAG	Réseau d'Afrique de l'Ouest contre le Paludisme pendant la Grossesse
RBM	Roll Back Malaria
RH	Reproductive Health
RDT	Rapid Diagnostic Test
RPM Plus	Rational Pharmaceutical Management Plus
SADC	The Southern African Development Community
SP	Sulphadoxine Pyrimethamine
SRN	Sub-Regional Networks
STI	Sexually transmitted infection
TOR	Terms of Reference
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VMW	Village malaria workers
WHO	World Health Organization
WB	World Bank

1. Executive Summary

The 12th Malaria in Pregnancy Working Group Meeting was held from 25 to 27 February 2010 in Bali, Indonesia and was organized by RBM Partnership and WHO/UNICEF with the support of MoH of Indonesia.

The objectives of the meeting were the following:

Overall objective:
Strengthening Antenatal care for MIP and other key MNCH services for positive outcomes on MDGS 4,5 and 6

Specific Objectives:
1. Provide updates on
   - the status of MIP in the Asia-Pacific and Africa regions.
   - relevant technical issues, research and tools in development.
2. Share relevant experiences from the regions and countries.
3. Revise and refine the terms of reference of the MIP Working Group to address better the needs of regional and countries and develop a draft plan for the next two years.
4. Select MIP WG Chair and Co-chair.

These objectives were achieved through a diverse combination of opportunities for information exchange, including plenary presentations and group work.

Participants:
Forty five participants (list in Annex3) from different organizations and from 9 countries (Cambodia, Papua New Guinea, Solomon Islands, Indonesia, Zambia, Uganda, Kenya. Nigeria, Mozambique) participated in the meeting. Participants included 25 regional and country staff of MoH, WHO, RBM, RH, MIP Consortium, UNFPA, UNICEF, NGOs, research organizations, academic institutions, and professional associations with expertise in the area of control of malaria during pregnancy. MIPESA network was represented. Unfortunately representatives from the *Réseau d'Afrique de l'Ouest contre le Paludisme pendant la Grossesse* of the West Africa sub-region (RAOPAG) were unable to attend the meeting.

The **main conclusions** of the meeting were the following:

1. MIP is still a major public health problem in Asia and Africa Regions. The meeting has provided an opportunity to review existing scientific information, discuss evidence and gaps on evidence and to address the specific issues of the Asian pacific Region.
2. MDG5 is today at the top of the Global Health Agenda with the support of all the International public health leaders, bilateral partners, the private sector and the CSOs. There is political and financial momentum for positioning MIP in the context of mutual benefit for both Malaria and MCH programmes. The MIP working group should become instrumental for supporting the integration of MIP interventions in national plans and for scaling up the ongoing activities.
3. The meeting focused its sessions on ANC as a key entry point for MIP interventions. The forum identified good practices and suggested promising strategies for leveraging the ANC platform for scaling up MIP interventions.
4. The meeting has reiterated the importance of strengthening the collaboration between Malaria, MCH programmes and the RBM Partnership for accelerating MIP implementation in countries.

The **final outcomes** of the meeting are:

1. The action plan for 2010-2011 developed jointly by MIPWG representatives in accordance with the RBM partnership strategic plan (GMAP)
2. The new TORs defined for the MIP WG for 2010-2012
3. The nomination of MIP WG Chair and Co-chair provided for 2010-2012.

2. Background

Though there has been a declining trend in the last decade, malaria in pregnancy continues to contribute to a significant burden of communicable diseases in the South-East Asia and Sub Saharan Africa Region. Each year, approximately 50 million women become pregnant in malaria endemic areas and are at risk of plasmodium falciparum malaria, which greatly contributes to maternal and neonatal morbidity and mortality; each year 200 000 infants die due to malaria infection during pregnancy. Focusing on the priorities may help to galvanize support towards work with greater potential to contribute to achieving Millennium Development Goals 4, 5 and 6 over the 5 years left before 2015.
In line with overall scope set out for the MIP Working Group, which is to build consensus on how to scale up WHO policies and interventions on MIP, the 12th MIP meeting was designed to focus on:

1. key strategic area highlighting the targets and priorities that need to be addressed to control of malaria during pregnancy since most maternal deaths could be prevented if women had access to appropriate health care during pregnancy, childbirth and postnatal period;
2. the best and latest information on what the participating countries have achieved in terms of the preventing and controlling malaria in pregnancy;
3. collecting information and evidence to formulate recommendations on technical challenges and research priorities;
4. redefining the terms of reference of MIP Working Group to better address the needs of regions and countries in the next 2-3 years.

Proceedings of the meeting
The following issues are highlights from the presentations made during the meeting.
Detailed presentations outlines can be requested from the MPS department at WHO/HQ.

DAY 1 - 25 February 2010

1. Session 1

a) Opening - Welcoming

Opening speech was delivered by the Provincial Health Office in Bali (as host), followed by opening remarks by the MIP Chair and the Representative from the MoH Indonesia who offered words of welcome, introduction and background on RBM, remarks from the representative from UNICEF,WHO.

The objectives of the MIPWG Meeting and agenda were presented.

b) Update from RBM Partnership Secretariat - *Dr Thomas Teuscher*

Dr Teuscher gave an overview on the status of the work of the RBM Secretariat. He addressed the following key points:

1. Global Malaria Action Plan (GMAP) is the essential ground document where all 3 objectives are fully expressed and the role of RBM partnership is clearly defined, as well as its relationship to both Sub-Regional Networks and country level partnerships.

2. Global Malaria Action Plan proposes a 3-part global strategy to achieve targets.
3. There is need to address MIP and GMAP: different settings, different approaches.
4. Research strategy in 3 areas:
   - Research & development for new tools
   - Research to inform policy
   - Operational and implementation research
5. The 2010-2011 RBM Partnership Workplan, targets, deliverables and budget highlighted the steps required and resources needed to scale up interventions.
6. Ensuring quality reporting for countries.

c) MIP and the MDGs - *Dr Bill Hawley*

Dr Hawley gave a brief overview of the MDGs and stressed that malaria control in pregnancy can assist in attaining MDGs 4 and 5 and have great impact. The interventions are implemented at individual and community level. Dr Hawley presented the approach in Indonesia including the data on annual parasite incidence and the DPT-HB3 coverage from the integration programme in 2 health centres in South Halmahera, which started in 2007. He informed that that this programme has been replicated into the whole district in 2008. Dr Hawley highlighted that the integration of a reporting system is a challenge and good reporting is essential for evaluation and evaluation is essential for strengthening evidence base. Operationally, there is still need to know what interventions might next be usefully integrated into malaria control.

2. Session 2

a) Integrated service delivery for MNH, HIV, malaria in the context of HSS - *Dr Bill Hawley*

Dr Hawley pointed out the following:

1. WHO recommends implementing PMTCT and MIP as integral components of essential MNH services within functioning health systems /benefits of integration.
2. GF is a resource to address MIP and PMTCT within MNH framework.
3. Need to conduct capacity building workshops for GF proposal writing to include MNH service delivery area for Health Systems Strengthening to ensure continuum of care and universal coverage of key MNH interventions using malaria and HIV as entry points.

b) H4 - *Dr Melania Hidayat - UNFPA*

Dr Hidayat presented the summary of the main elements related to the work of the H4 (WHO, UNICEF, UNFPA and the World Bank). Since the signing and launch of the **Joint Statement on Maternal and Newborn Health**, all the four UN agencies have been working together for a more coherent and consistent approach for support to regions and countries for MDG 5. A joint operational plan has been prepared within a framework for joint action which includes 7 main areas of work. A list of 25 priority countries has been established as priorities for joint support. Within the 7 main areas of work, the operational plan provides a great opportunity for the integration of MIP interventions to increase coverage, access and quality of care.

The value is the joint statement and of the joint plan of action is that they represent a key instrument for joint planning, implementation and resource mobilization, operationalizing the principles of aid effectiveness; collaborative planning and co-financing; and country-driven initiatives for accelerating progress towards MDG5. It reinforces the commitment of the UN family to the cause of mothers and babies.

Discussion points

- The main discussion point was related to the interest of Indonesia to be included in the list of the priority countries established by the H4

c) RBM, Global Fund and MIP - *Dr Betty Udom*

Dr Udom gave a short historical review on RBM's progress since 1998 highlighting the main milestones in the fight against malaria, and in particular as it relates to the steps taken towards the achievements in resource mobilization for the countries with successive Global Fund grants since round 6. With a growing partnership, RBM has instituted regular consultations with various programmes providing either technical support or contributing towards the achievements of the malaria control programme such as RH, MPS, etc.

A description of the GF proposal writing process was presented which highlighted the effectiveness of the peer review by the countries in a mock TRP, the collaboration at country level of all stakeholders and the need for greater involvement of various implementers at national level in providing strong technical input for proposal writing. RBM therefore advocated for greater involvement of National Reproductive Health Services in GF proposal writing processes.

3. Session 3 and 4; MIP - Country Context, programmes, challenges and opportunities

a) Cambodia : *Malaria in Pregnancy Pilot Project in Ratanakiri province, Cambodia - Dr Po Ly*

Dr Ly reported on the MIP situation in the country and highlighted the following issues:

- In Cambodia, malaria is prevalent in the forested areas. Plasmodium falciparum is the main species (around 75%) of malaria.
- Malaria is still ranked among the leading causes of mortality and morbidity in Cambodia. It is also a key contributor to anaemia complications during pregnancy, low birth weight and poor child growth. The burden of malaria in pregnancy has not been established and it is not clear if additional measures are needed to protect pregnant women and their babies. At the moment there are no guidelines for asymptomatic malaria in pregnancy in Cambodia.
- Currently (2010-2011) a pilot study is being implemented in a north-eastern province of Cambodia (in 3 health centres and 38 villages) to assess the prevalence of malaria among pregnant women (sample size 1600 pregnant women). The study also aims to assess the feasibility of routine malaria screening and treatment among pregnant women, and to assess the effectiveness of the intervention outcome.

Dr Ly pointed out the following main issues:

- MIP is exacerbated by the poor access to maternal health services in rural and remote areas due to remoteness, cultural barrier, financial barrier, bad road infrastructure etc.
- Lack of trained/qualified midwives in the health facilities in remote rural areas causes inadequate pregnancy-related health care delivery services.
- Routine screening for malaria in pregnancy is not yet endorsed by national health policy, whereas all the forested provinces including the pilot study site (Rattanakiri province) are prevalent for malaria. Scaling up the routine screening for malaria in all endemic areas is essential.

Discussions points

- The issues of Artemisinin resistance which is high in Cambodia-Thai border areas. The MIP pilot project is currently being implemented in a north-eastern province of Cambodia where the Artemisinin resistance is not yet a concern. The 1st line treatment for Pf malaria has switched from artesunate + Mefloquine to DHA-Pip in the Cambodia-Thai border areas (called as artemisinin resistance containment zone 1) in 2009; whereas for the rest of the country, the

current first line treatment for Pf is artesunate & mefloquine, this regimen is also applicable for pregnant women during 2nd & 3rd trimester of pregnancy. Quinine is being used to treat malaria in the 1st trimester of pregnancy.

- ANC as a key entry point for MIP screening. In Cambodia, the screening for malaria in pregnancy takes place (by RDT and microscopy) during each ante-natal care visit at the health centre. At the community level, each month the Village Malaria Workers (VMWs) screen for malaria in pregnancy with RDTs.

b) Papua New Guinea - *Malaria in Pregnancy – Dr Sarah Hanieh*

Dr Hanieh gave an overview of MIP situation and ongoing research in PNG. She pointed out that malaria remains a major reason for health centre attendance, admission and death of pregnant women. Malaria in pregnancy is identified as a priority area in the National Health plan. In the country, there is a low rate of antenatal coverage and of supervised deliveries. The current standard for prevention is SP and chloroquine at first visit, followed by weekly chloroquine-associated with poor compliance and high levels of CQ resistance.

The Health care in PNG is made up of Churches, government, private sector and traditional healers. The major challenges to improving health are the perceptions of illness and health among the population.

Dr Hanieh presented current studies on malaria in pregnancy in Madang through

1. IMR-PREGVAX initiative - measure burden and consequences of P. vivax in pregnancy. Recruitment initiated in 2008. Microscopy results to date - minimal malaria found;
2. IPTp study - azithromycin-containing regimens for the prevention of malarial infections and anaemia and the control of sexually transmitted infections in pregnant women in Papua New Guinea. Initiated in Nov 2009, with the aim to recruit 3000 patients, with randomised controlled, single blinded trial.

Primary objective of the studies is to determine whether administration of IPTp with SP plus AZ results in a significant decrease in the proportion of infants born with LBW. The studies include high vaginal swab collection for detection of sexually transmitted infections and ultrasound.

Additional researches are ongoing on:

1. the effect of chewing betel nut on placental blood flow determined by ultrasound scanning,
2. the evaluation of causes of perinatal illness and death,
3. the prevalence and risk factors of STI infections in pregnant women in Madang,
4. Pharmacokinetic studies (UWA) on Piperaquine in pregnancy.

A short presentation by the representative of the National Malaria Control Programme followed.

Discussion points

- Why chloroquine is still being used as prophylaxis in PNG despite evidence for resistance and poor compliance. The hope is that results from the IPTp project will help to change this policy in the country.
- Have low rates of malaria been found? The study is based on town clinics, and there is minimal malaria in town. There may be more malaria further out in rural clinics; however there is a challenge with logistics and access to these places. Rural patients are a neglected segment of the population.
- Good follow-up rates of patients - assisted by community liaison officers improving study awareness, creating link with community help to dispel rumours and myths.

c) Solomon Islands - *Dr Lyndes Wini*

Dr Wini updated on MIP status and implementation in the country.
Solomon Islands consist of 1,000 islands spread between PNG and Vanuatu with a population of 525,220 and selected indicators are the following:

- Antenatal coverage at least one visit: 85%
- Births attended by skilled health personnel: 85%
- Births at health facility: 80.4%
- Any anaemia: 4.8% to 69% (depending on source)
- LBW: 5.8% to 12.5% (depending on source), Primip 18.1, multip 10% (DHS 2007)
- Clinical MiP: 1.7% to 9.7% (depending on source)
- Maternal parasitaemia: 1.5% to 18.0% (depending on study and diagnosis method)
- MMR 2009: 12.2/100,000 (15/122,757)
- IMR 2009: 8.4/1000 live births

The country faces multiple challenges in their efforts to scale up their malaria control programmes due to lack of Integration, difficulties in acceptance of the treatment and geographic access.

Country has MIP policy and guidelines and currently there is a move to gain information based on scientific evidence to further develop MiP control strategies.

Dr Wini presented a current study on the IPTp effectiveness which began in August 2009 (IPTp: SP versus CQ prophylaxis). 550 women are enrolled, of which 217 women delivered already.

The main outcomes are:

1. identification of placental & peripheral malaria by species,
2. identification of LBW anaemia at first visit, at 36 weeks and at the delivery
3. identification of prematurity, still-birth related to malaria in pregnancy

Discussion points:

- ANC as an entry point for MIP interventions: In the country ANC coverage is very high, due to culturally acceptable practice for pregnant women to go to ANC during pregnancy

d) Indonesia : *Malaria Programme and Malaria in Pregnancy in Indonesia- Dr Rita Kusriastuti, Director VBDCB MoH Indonesia*

Dr Kusriastuti pointed out that Indonesia is among the countries in Asia who has planned to embark on Malaria Elimination process which will be carried out stepwise, province by province, island by island. The Incidence of malaria in pregnancy in the country is 2% or about 95,000 pregnancy/year (SKRT, 2001).The incidence is higher in East part of Indonesia: 3.9%.

Dr Krusiartuti presented the main interventions that are taken towards the elimination campaign which is lead by the National Malaria Programme. These include:

- Confirmation of all malaria cases by quality malaria microscopy
- Full coverage by effective antimalarial drugs given free of charge
- Total coverage by IRS the main prevention measure in active foci (coverage >85%)
- Use LLIN as prevention and vector control
- Strong malaria information system covering all health facilities including community surveillance
- Surveillance system to classify all cases and all foci with their present functional status (in real time)
- Active Case Detection
- Geographical Reconnaissance

Within the Elimination campaign framework, the MIP policy focuses on ANC and include:

- Malaria Screening for pregnant women at the 1st visit Ante Natal Care
- LLIN as prevention
- vector control.

Integration activities for MIP have been established in several provinces: Sumatera Island, West Nusa Tenggara, East Nusa Tenggara, Maluku, North Maluku, Papua and West Papua. The next areas targeted are Kalimantan Island & Sulawesi Island.

The programme policy includes a strong training component:

- 2008 Trained 176 HC M.D
- 2000 midwives and 304 microscopist
- 2009 Trained 179 HC M.D 118 midwives and 20 microscopist
  Training Cadre(West Nusa Tenggara) ; 1000 people

It was reported that from 2008 to 2009:

- 260,000 pregnant women have been screened for malaria
- Protection for malaria risk by using LLIN is prioritized for pregnant women and children under 5 years in the mentioned provinces
- 1,100,000 LLINs have been distributed.

Dr Kusriastuti also presented opportunities and challenges for MIP implementation in Indonesia.

Opportunities

- Strong Commitment of national and provincial governments
- Legal support
- Community-based understanding and support

Challenges

- Shortages of Human resources at local level
- Logistics dependency on central/national level

Dicussion points

- Resistance to Artemisinin-based Combination Therapy -ACT (artesunate/amodiaquine) was discussed. Only very low level of resistance is so far reported; resistance reported is probably due to amodiaquine as there is already resistance in the country for chloroquine; however the evidence to the resistance to artesunate still need to be determined. IPTp is not used in Indonesia since Sulphadoxine Pyrimethamine is known to be slow acting drug in the treatment of P. vivax; the national programme guidelines suggest to give treatment upon test confirmation.
- How many patients seek treatment in the private sector? ACT is under control of government and it is provided for patients for free; It is presumed that in rural areas 100% of patients seek consultation at the government health centres but patients in the city likely go to the private clinics, which is usually a preference. Moreover, malaria treatment is shared by government to private clinics and patients can get drugs if they have laboratory confirmed malaria test.

e) MIP research agenda, ongoing research and progress - *Malaria in Pregnancy Consortium Presentation- by Dr Sarah Hanieh on behalf of Professor Feiko Ter Kuile (Liverpool School of Tropical Medicine, UK)*

Dr Haineh presented the function and current work of Malaria in pregnancy consortium which is a network of 47 institutions based in 32 countries.

Dr Haineh described the 5 year research programme (2008-2013) of the MIP Consortium and pointed out that the main aim is to identify & evaluate new ways of preventing and treating malaria in pregnancy to improve the evidence base for its control.

The research programme include four main categories of activities:

1. Comprehensive and standardized approach to research on the control of malaria in pregnancy
2. Resource centre (MIP Library of published and unpublished data)
3. Advocacy for MIP
4. Communication between members and stakeholders to share information (e.g. annual meeting, quarterly updates, portal)

Research areas are covering 4 main themes:

1. **Treatment** in Africa, Asia, Latin America- 3 major multi-centre treatment trials comparing different ACTs for treatment of malaria in pregnancy in parasitaemic women with uncomplicated malaria.
2. **Prevention Africa** - 3 trials : IPTp with SP versus IPTp with low dose MQ, Intermittent Screening and Treatment West Africa, Intermittent screening and Treatment Malawi
3. **Prevention Asia and Latin America :** PNG- Randomised controlled trial of IPTp (SP plus azithromycin) compared with current standard preventive treatment (weekly chloroquine prophylaxis).
   India- Randomised controlled trial of intermittent screening and treatment compared with current policy of passive surveillance.
   Latin America and Pregvax- observational study to better understand burden of P.vivax and P.Falciparum.
4. **Public Health Impact**

The research programme also include: Cross-cutting activities of different working groups in the areas of: pharmacokinetics, drug safety, immunity and pathogenesis, and capacity development.
Dr Haineh presented the studies being done on:

- Intermittent screening and treatment (scheduled screening and treatment of RDT positive patients with ACT). Trials being done in West Africa, Malawi and India aiming for early detection and treatment of asymptomatic and symptomatic parasitaemia, with a long lasting ACT (treatment and prophylactic effect) that will be useful for areas with high SP resistance, and areas with low transmission risk.

There are still many questions to be answered on this method and evidence to be gathered. E.g. timing and frequency of screening, choice of drug, screening method and operational reality; missing placental infections

- Quantification of the number of pregnancies at risk of malaria

Different data sources existing are used for this study: malaria risk map, plus demographic data from UNDP on women of child bearing age, plus information on pregnancy outcome (miscarriages, stillbirths, and induced abortions)
Key findings:
In 2007, 125m pregnancies resulting 83m live births occurred in malaria endemic areas, representing about 60% of all pregnancies globally.
It is important to always consider whether estimates involve ‘all pregnancies’ or ‘live births only’ (difference is about 34%)
Previous WHO/RBM estimates were based on number of live births, but excluded stillbirths, miscarriage and induced abortions. Areas with unstable transmission and infection due to P.vivax may also not have been included.

Estimates for Africa are similar to previous WHO/RBM findings. However, estimates for Asia are double to previous WHO findings- number at risk grossly underestimated. (25 to 30 m live births from WHO/RBM estimates compared to 56m live births (88 million pregnancies) with new study.
'At risk' is not the same as 'burden''. Next step is to define the clinical burden and consequently the

economic burden.

Discussion points

- Main discussion point from this speech was about intermittent screening and treatment and pros and cons. Main concerns expressed by the audience and discussed were on missing placental infections, the challenges of implementation and the operational reality of this method in different global settings.

f) Treatment of malaria in pregnancy with DHP: experience from Papua New Guinea and Indonesia. *Study-Artemisinin regiments reduce morbidity and mortality in pregnancy in Timika, Papua, Indonesia- Dr Jeanne Rini et Al*

Dr Rini pointed out that maternal and infant malaria remains a major public health issue in Timika, Papua (Indonesia). Their study shows that parasitaemia at delivery occurs frequently (18%) and even asymptomatic malaria is associated with adverse outcomes (maternal anaemia, low birth weight, preterm delivery, perinatal deaths and congenital malaria). About 70% of pregnant women with malaria are asymptomatic. The effect is evident following *P. falciparum* malaria but is also apparent with *P. vivax.* She pointed out that the emergence of multidrug resistance malaria poses a significant health risk to this vulnerable group and that Chloroquine and quinine remained as the standard treatments for *vivax* and *falciparum* malaria in pregnant women until March 2006.

The Treatment policy change in March 2006 has recommended locally effective ACT (dihydroartemisinin-piperaquine-DHP) as the first line regiment for malaria treatment. In view of the limited alternatives in pregnancy, DHP also becomes first line treatment of malaria in the second and third trimester of pregnancy. Our experiences with more than 1,000 antenatal DHP exposures shows that DHP reduces the risk of having malaria at delivery, perinatal deaths and congenital malaria compared to women with history of chloroquine or quinine treatment. Furthermore, DHP use in the second and third trimester of pregnancy is relatively safe and is not associated with either severe adverse reactions or an increased risk of congenital malformation.

In summary, the study demonstrates the benefit of early diagnosis and prompt treatment with an effective antimalarial drug – in this case DHP – in reducing morbidity and mortality in pregnant women and infants. Further study of delivery method is urgently required in order to achieve universal coverage particularly in resource constraint settings. In view of the high prevalence of asymptomatic pregnant women, intermittent malaria screening and treatment could be the best option but the effectiveness of the many forms of this method should be assessed.

As a new antimalarial drug, additional study on pharmacokinetics (to identify the optimum dosing) and long-term efficacy of DHP for malaria treatment in pregnancy should be put as a priority; particularly in reducing *P. vivax* relapses. In order to evaluate programme effectiveness, a follow study in assessing the health impact of malaria treatment in pregnancy to mothers and infants should be done. This includes pharmacovigilance system in monitoring the outcomes of inadvertent exposure to DHP in the first trimester of pregnancy.

Discussion points

- Malaria screening and prompt treatment with DHP is effective in reducing malaria burden in pregnancy. Intermittent screening and treatment with locally effective ACT could be the best option available as malaria control strategy in pregnancy.
- Universal coverage of this strategy needs to be defined through operational research on the effectiveness of intermittent screening and treatment (IST) in terms of the most feasible frequency of screening, especially in resource-constraint settings.
- As shown in the presentation, DHP can also be a good candidate for preventive treatment. However, more safety data from the pharmacokinetic and follow-up study are still required before using this regiment for prevention.

DAY 2- 26 February 2010

1. Session 1

a) Malaria in Pregnancy; challenges on the Western border of Thailand - *Dr Marcus Rijken*

Dr Rijken reported on the MIP situation in the low endemic area and outlined the following:

- At the Thai Burmese border early detection and treatment reduced maternal mortality to zero.
- Those women who do not follow regularly still die from malaria, even with active case management 24/7 available.
- MIP incidence reduces by having a good treatment in the whole population. Every village/ small area should have a malaria post for screening and treating.
- Placentas are negative for malaria if it is well treated during pregnancy.

Dr Rijken pointed out that both P. Vivax and P. Falciparum have impact on mother and babies and outlined the following case management issues:

- On the Thai Burmese border no drugs available for IPTp , there is SP resistance!
- IPTp SP in areas with SP resistance may be not good (selection of resistant parasites.
- Case management of MIP means pregnant women should be treated if they have parasitemia, not only if symptomatic.
- Bednets in Asia have a small impact on malaria- but mainly on anaemia. Mosquitos in Asia are different from Africa in biting behavior.
- ACTs have been studied in pregnancy and show clear benefit over quinine. However the drug concentration changes in pregnant women: importance of pharmacokinetics studies.
- Dihydroartemisinin-piperaquine (DHA PPQ) probably is the best drug to eradicate malaria.
- For severe Malaria the treatment of choice is IV artesunate (35% reduction in death in Asia compared to IV quinine)

Dr Rijken proposed that MIP studies should have regular ultrasound examinations during pregnancy. He underlined that Post partum women are still at increased risk.

Discussion points:

- There are different biting patterns, but bednets are still effective in reducing at least anaemia.
- Optimal timing of screening and treatment is an issue: it was mentioned that screening should be done ideally once a week, looking at the parasite lifecycle, but this approach in large scale is maybe hard to achieve although proven effective.

b) MCHIP Malaria in Pregnancy case studies: Rationale, Approach and Findings from Zambia- *Dr Koki Agarwal*

Dr Agarwal pointed out that most countries are far from achieving the goals.

- RBM target indicators for 2010 and started out with real country experience in MIP programming. There was concern on the fact that the number and type of surveys that collect data related to MIP have grown over the last decade to include malaria indicator survey, Multi indicator Cluster survey and DHS, but there remain gaps in information especially information to explain the data/results. Dr Koki shared findings from Zambia, pointing out the factors influencing achievements.
- Findings from Zambia suggest that the best practices rest in ensuring that the right policies and guidelines are in place and are implemented. In addition, a strong emphasis on integrated pre-service and in-service education and the partnership and joint planning of the MIP activities by the National Malaria Control Centre and the ministry of health was a central factor in

achieving the successful scale-up. The Zambian Ministry of Health is implementing an ambitious six-year national strategic plan to ensure the MIP target of 80% by 2011 by aggressively scaling up nationwide coverage of the core malaria interventions: Zambia has made considerable progress, having already achieved national targets for IRS and Roll Back Malaria (RBM) Abuja targets for IPTp, and they are well on our way to achieving targets for ITN coverage and case management. These need to be confirmed by other case studies.

- Strong MIP policies, well trained staff and good ANC attendance are not enough to guarantee that RBM and PMI targets will be reached.

Discussion points:

- The challenge is how to integrate these programmes into primary care programmes.
- Is there any evidence that antenatal care is also well provided, not only malaria aspect of pregnancy?
- Tanzania – seen reduction in anaemia, impact on all elements of focussed ANC.
- The message it wants to communicate- use opportunity to strengthen focused ANC so all elements are strengthened, not only MIP.

c) Update on MiP implementation in the WHO/AFRO Region- *Dr Akpaka Kalu*

Dr Kalu highlighted the following issues:

- AFRO is implementing MIP based on three approaches: case management; IPTp; ITN
- In stable high to moderate transmission areas, the 3 approaches are implemented; but in unstable epidemic-prone low transmission areas, only case management and ITN is implemented
- Challenges to MIP in AFRO abound and they include the following:

1. In case management, there is scanty data on malaria treatment during pregnancy. Also malaria diagnosis before treatment needs to be strengthened. There is need for early detection of malaria cases especially in primiparus pregnant women.
2. Malaria prevention among pregnant women is implemented as part of FANC or ANC. Implementation of FANC in AFRO is not universally implemented with the traditional ANC having higher coverage than FANC and malaria treatment still considered outside of ANC package although implied.
3. Use of SP for IPTp has been a hard sell in AFRO due to the ACTs roll out IEC messages that demonized SP as ineffective; this is one of the causes of low IPT coverage (especially IPTp-2).
4. There remains the challenge of how to target pregnant women who do not attend ANCs for IPTp and ITNs.
5. There is need for MIP strategies to take into account HIV – In places with HIV prevalence of more than 10%, 3 doses of IPTp are recommended.
6. Determining the real burden of MIP in AFRO.
7. How to expand MIP access in an environment of weak health systems including poor referral system, transport and delayed ANC attendance.

Discussion points:

- Participants sought clarification on the MIP approaches in AFRO and what AFRO is doing on MIP in low transmission areas.

d) Update from MiP Sub-regional Coalitions (MIPESA)- *Dr Chilunga Puta*

Dr Puta provided a comprehensive update on MIPESA activities.
The MIPESA mission is to provide technical support for intercountry programme collaboration in accelerating prevention and control of MIP to help countries in the African region. MIPESA represents a coalition of partners and countries- WHO, USAID, CDC, Jhpiego, and others and include 10 member countries. Funding are coming from partner contributions and country

contributions.
All MIPESA countries present commonly a high burden of MIP as well as scarcity of resources to address MIP challenges.
Common problems are shared among the network countries: lack of HR, low staff morale, weak logistics, need to build capacity.

The achievements include:

- Rapid uptake of AFOR strategy for MIP which succeeded in countries to varying degrees.
- Effective collaboration between malaria control and reproductive health programmes.
- Build capacity of quality health care. This is not happening to the extend we would have liked this to happen.
- Promote peer learning and documentation for best practice in malaria control.

Targets
- IPTp2 60% by 2010 – not achieved in the majority of the countries (only in 2 countries).
- ITNs is harder to implement due to social issues related to ITNs, e.g. too hot to sleep under.
- Case Management is a challenging area due to logistic problems, acceptability, changed to ACT, loyalty to chloroquine.

Status of MIP implementation
- ITN -Higher use in urban areas is reported across the MIPESA countries, rural areas disadvantaged.
- Zanzibar, great results in terms of IPTp2, Malaria positivity dropped dramatically, ACT coverage high.
- Zambia- use of ITNs still low.
- Rwanda- use of ITNs increased from 13% to 60% in 3 years, ITP2 increased from 0 to 60%, indications gone up overall dramatically resulting in a decline in malaria cases.
- Malawi- first to adopt IPT2- 60% coverage, but struggling with ITNs.
- Data are not available from Mozambique, Namibia and Zimbabwe .

Specific roles of the different partners
- Partners cover mainly areas of advocacy and development of tools for capacity building (e.g. training packages).
- Institutions are supporting efforts for quality improvement, scaling up and skills capacity building

Lessons learnt

- Countries should set their targets, and be accountable for their achievement.
- Capacity building and in-service training is still a weak area that need to be strengthened and consistently supported by active supervision.
- Documenting experiences and sharing good practices is important to learn from each other.

Discussion points

- There was a discussion on difficulties in moving from academic acceptance of collaboration between RH and NMCP to actual implementation. It was noted that friction still exists and in some cases the RH units did not fully oversee IPTp activities adequately. The working relationship between RH and NMCP needs to be improved and RH needs to be more proactive regarding malaria during pregnancy and should participate fully in grant applications (e.g. GF) which should clearly delineate funding for MIP activities for RH and NMCP funds for general malaria control.
- It was also noted that some countries in MIPESA were not reporting and this was of concern because the same countries are lagging behind.

e) Evaluation of Malaria in Pregnancy in Kenya, 2009 - *Dr Ayub Manya*

Dr Manya presented how malaria in pregnancy is a major public health problem affecting pregnant women in Kenya. The country adopted Malaria in Pregnancy intervention in 1998. The interventions adopted included: intermittent preventive treatment in pregnancy (IPTp) using Sulphadoxine Pyramethamine (SP), insecticides treated nets (ITNs), effective case management and treatment of anaemia. The entry point was through focussed antenatal care and maternity.
The Kenya Malaria Programme review of 2009 identified some gaps in relation to MIP implementation. The notable gaps were: the relatively low IPTp coverage of 12.5% (Malaria indicator Survey, 2007), low ITN coverage of 39.8% amongst pregnant women (Malaria indicator Survey, 2007) and inadequate assessment of malaria treatment during pregnancy. To establish the causes of these gaps, a comprehensive review of the malaria in pregnancy programme was conducted in 2009. The main objective of the review was to evaluate MIP activities and make recommendations.
The methodology of the review included review of documents at the National Malaria Control programme, Key informant interviews with implementers, development partners and the managers in the Ministry of Health. Health facilities were visited and observation of the implementation of MIP observed using checklists. Focused group discussions and interviews were conducted.

Key findings
The assessment showed that IPTp was not fully integrated into the ANC services and was not seen as an important key component of these services. At national level, there were challenges of coordination between the malaria programme and the reproductive health programme. There was no MIP technical working group and there was lack of integrated guidelines, job aides and supervision tools. The use of data for planning purposes was not evident.
At the health facility level, Implementation was not done according to policy. It was noted that pregnant women came late for ANC services leading to high default rate. It was noted that there was frequent Stock outs of SP and limited community participation. Many partners were involved in the MIP but areas of their operation were not clearly delineated and known to all involved so that geographical coverage could be realized.
Some of the recommendation given by the review included formation of an MIP technical working group, proper quantification of SP and harmonization of training health workers to improve implementation of MIP according to policy. It was also hoped that a newer drug would be found that would improve the uptake of IPTp as resistance of SP was an issue.
Following the evaluation, an MIP technical working group has been constituted and messages on MIP have been developed and will be disseminated soon.

2. Session 2- Strengthening monitoring and evaluation

a) MIP Implementation Guide and the Malaria Resource Package- *Dr Koki Agarwal*

Dr Agarwal provided information on update on product to support MIP programme implementation and scale-up in Africa. The contributors to the development of the document are: USAID, ACCESS partners, WHO, CDC,JHU/CCP, Academy for Educational and Development: Africa's health in 2010, MoHs, PSI, Net Mark and others; The malaria Implementation Guide details a step-by-step process for implementing appropriate MIP control programming targeting policy makers, programme managers and healthcare providers. The guide is developed as a companion tool to the WHO Strategic Framework for Malaria in Pregnancy in the African region.
The MRP contains training documents, fact sheets, job aids and relevant documents and resources on malaria. The orientation package consists of tools that include training, programme and reference materials. These tools are intended to support implementation and scale-up of MIP programmes. The training and programming tools are meant to be adapted to the country context.

Most tools are available in English, French and Portuguese. All the tools and resources need to be adapted for use in country.
Participants were invited to go to the website and give their inputs.

Discussion points

- Some participants requested that Jhpiego monitor the frequency of use of this resource package so we can make informed decisions about supporting future updates.
- The website should not remain static, they are planning how to include MIP issues in Asia and research abstracts can be updated. It was suggested that Jhpiego use the same website to enhance the MIP WG activities and maintain an active community of practice.

b) MIP M&E guidelines implementation - *by Dr Bill Hawley on behalf of Dr Kwame Asamoa*

Dr Hawley gave a presentation on measuring key indicators for malaria prevention and control during pregnancy. He highlighted that the essential action for scaling up interventions for MIP is strengthening M&E systems, incorporating MIP indicators into maternal registers and cards and HMIS and collect data as much as possible into routine HIS and strengthen it.
Dr Hawley pointed out that guiding principles for data collection, interpretation and corrective actions should be primarily efforts of RH programmes rather than MC programmes and indicated that creation of new or parallel systems of data/collection should be avoided.
He presented the Indonesia example and the country progress in implementation and the several pilot studies ongoing. Indonesia has broad and continuing scale-up of the interventions and the national government has made rules in place for the routine reporting of pregnant women infected, sleeping under an LLIN the previous night and ACT stock out reports.

c) Programmatic evaluation of MIP in Indonesia - *Dr Din Syafruddin*

Dr Syafruddin presented Hospital based study results in 2007, MIP outcomes and he informed that there is ongoing programme on integration MIP into MCH. The programme includes monitoring malaria infection during pregnancy, distribution of mosquito net to pregnant mothers and babies. The approach is piloted in several districts in eastern provinces and it will be implemented in all Eastern Provinces (GF) in 2010. Dr Syafruddin pointed out some programmatic issues, including the need of sustainable training on malaria for midwifes, RDT quality control, simple, non-invasive diagnostics, appropriate treatment, quality control for microscopy, integrated vector control.

3. Session 3

a) Pharmacovigilance & pregnancy registry- *Dr V. Mangiaterra and Prof L. Schuler-Faccini*

Dr Mangiaterra presented the “Pregnancy Register”, a WHO interdepartmental protocol specially developed to be established in resource-limited settings.
They outlined the rationale for a pregnancy register in developing countries :

1. for most malaria endemic areas there is a lack of background data on birth defects and limited capacity for assessing congenital anomalies,
2. ACTs shown to be teratogenic in animal models and knowledge is still limited on ACTs teratogenicity in the first trimester of pregnancy
3. Malaria endemic areas using ACTs treatment also have high prevalence of other diseases (HIV, TB, parasitic disease, malnutrition etc…) with potential teratogenic treatments.
4. Concerns about safety in pregnancy could undermine public confidence in life-saving therapies.

Therefore, malaria/HIV drug safety is still a reason of concern in pregnancy, where the benefit compared to the risk of harm for the fetus is a key equation to be solved. In this sense the

Pregnancy register is a platform aiming to promote quality of care for mothers and babies, as well as the safety of pregnant women and their children (from conception). In malaria-endemic countries the pregnancy registry has the potential to provide evidence to assess the safety of public health medicines used in pregnancy including artemisinin-based antimalarial therapies (ACTs). Dr Mangiaterra underlined the qualitative and quantitative objectives of the protocol study, the minimum requirements to enroll countries in the study and how pregnancy register could be included as an important component of Global Fund proposals preparation for both , the Malaria and the HIV tracks.
Prof. Schuler-Faccini also informed participants about ongoing pilot project in selected countries in Africa, and more recently, in Brazil. One of the key points in this register is to obtain comparable data from different countries, allowing the pooling of data for analysis. This registry will, therefore, provide baseline risks of congenital malformations and other newborn adverse outcomes, in different countries as well as associated risk factors associated to it. The research protocol was briefly presented, as well as methodological and operational details. A DVD was developed to improve skills of the health professionals in detecting newborn anomalies by a surface exam.

Discussion points

The discussion after presentation was mainly on the possibility of using already existent registries, like INDEPTH in Africa, instead of carrying out a parallel study. It was mentioned that the rationale for the study is creating knowing baseline prevalence of birth defects. This baseline is critical and without it, it will be impossible to determine the ADDITIONAL contribution of single drug (or other exposure) on birth defects. Also it is important to be clear that INDEPTH is not doing a pregnancy registry. The Pregnancy Register research team is working closely with INDEPTH to make links that will allow the follow-up of patients in In-Depth sites (e.g. Dodowa, Iganga and other sites) and links looking at the contribution of exposure on additional risks, so that the procedure can be incorporated to the extent possible in INDEPTH sites.

b) Group work on identifying key issues for implementation and Group work presentation

The second day of the meeting was devoted to Group work activities. 3 working groups were set up. The working groups focused on the following programmatic areas:

Group I
Linking with existing MNH/RH programmes to integrate MDG4, 5, 6 services and to strengthen health systems; opportunities and challenges.

Group II
In low malaria transmission settings: which are the key questions that operational research should address for guiding the identification of the effective strategies for MiP implementation.

Group III
Current compilation of data and information available (e.g.: drug resistance, LBM, etc) for assisting countries in policy development.

c) Discussions and recommendations on way forward for MiP in Asia Pacific region and application of various tools

The working groups presented the results of their work in a plenary chaired by Dr Khancit, WR Indonesia. Detailed reports of the WGs are in Annex1. On the basis of the groups presentations and of the discussions that took place, the Chair recommended that the WGs reconvene and work on identifying priorities and recommendations to be taken into consideration for the preparation of the work plan.

DAY 3- 27 February 2010

a) Presentations of the WGs

The 3 Working groups reconvened and met to identify priority areas of work in the specific 3 programmatic areas and develop a MIP workplan within the MIPWG for the 2010-2011.

The Working Groups presented in a plenary session the key outcomes of their discussion . These outcomes also included suggested future TORs of the MIP Working group for next 3 years (Annex 4) and recommendations on the inclusion of several additional members.

The working group outcomes represent the main final recommendations of the meeting and they are summarized below.

b) Conclusions and recommendations, as discussed in the WGs

Group I

- **Strengthening linkages for MiP interventions within existing MNH/RH programmes and services in the context of health systems strengthening for achieving MDGs 4,5 and 6**

Group I listed the following priority areas and proposed the following activities and products to be achieved within the coming 2 years.

Priority area 1. Strengthening of Health Systems

WG I proposed the product: **Compendium of guidelines and tools** and in order to do that, the following activities:

- Review of existing materials from GFATM, World Bank, Jhpiego, Community health worker tool from USAID, WHO, Jhpiego quality of care.
- Preparation of a compendium of tools and guidelines for strengthening MIP interventions in the context of health system strengthening to be used by MoH for planning, for GAVI/GF proposal preparation, etc…

- Timelines: by May 2010.
- Responsibility WHO (lead) with Jhpiego MIPESA, RAOPAG, RBM
- Resources: Human: - consultant to consolidated on-going work

Priority area 2. Documentation of Case Studies: Indonesia

WG I decided that case study should be done in Indonesia based on previous case studies, so that would be good to be comparable with West Africa, South-Africa and Asia case studies in order to get better understanding of MIP programming.

- Elements
  - Model case study around WHO six elements health systems strengthening: procurement; HR; removing financial barriers, leadership; including how MIP data is collected
  - Compare with Zambia and Senegal case studies by Jhpiego
- By August 2010
- Lead: Indonesia (Dr Rita)/MOH/UNICEF/WHO
- Product: Case Study
- Resources: human resource – steering committee to coordinate production of case study document

Priority area 3. Data Collection

There is a need to increase number of countries reporting MIP indicators from 9 to 20
- Advocate to utilization of data at facility level
- MIPWG and RBM partnership advocate for better surveillance for MIP

- Make part of joint planning meetings, case study and strengthening of health system
- Make part of Timing: on-going
- Lead: RBM working committee

Priority area 4. Joint planning between RH and Malaria programme

WG I proposed Regional joint planning meetings between RH and Malaria programmes in order to strengthen collaboration between RH and Malaria programmes at Regional and country levels. It is very important to strengthen collaboration between RH and NMCP within WHO and RBM, and AFRO and SEARO should participate in these joint planning meetings. WG suggested also where funds could be provided for this activity:

- Create funding opportunities e.g. GFATM grant application of MIP
- SEARO create malaria/RH regional planning meetings (similar to AFRO) but require resources
- Indonesia to organize MIP joint planning meeting through USAID /UNICEF
- Resources: ASEAN? Africa – request AFRO if MIP planning can be piggy backed on malaria planning meeting.

Priority area 5. Development of establishment of mechanism for sharing information

WG I proposed the following activities for sharing information among partners:

- Mechanisms for sharing information: Lead: RBM
  - To create web site, or sharepoint network as a forum for sharing research findings, good practices, case studies and to carry out informal discussions across regions, countries and organizations
  - Lead Jhpiego, All WG members
  - Advocate for more effective utilization of data at facility level
  - Assist countries on reporting data from RH and maternal health in a integrated framework
  - Circulate questionnaire to countries on data collection and progress to MIP WG will wards MDG goals
  - Lead:USAID
- (Asia to identify focal point : lead USAID/Jhpiego; Africa: MIPESA/RAOPAG)

Group II

- **Key questions that operational research should address for guiding the identification of the effective strategies for MiP implementation in low malaria transmission settings**

Group II listed the following priority areas and proposed the following activities and products to be achieved within the coming 2 years.

Priority area 1. As malaria prevention improves globally, better information on the burden of malaria (including pregnant women) is needed. Mapping of the burden is the responsibility of each country programme. The Rapid Assessment Tool should be updated and might be used, as this has been tested and evaluated. This tool might be supplemented by more extensive surveys, where national capacity exists. This should inform policy makers in each country to develop specific strategies in controlling malaria in pregnancy.

- **Improve information systems and data collection in low malaria transmission settings using the Rapid Assessment Tool to inform policy makers to develop specific strategies in controlling malaria in pregnancy.**

  - Product :Country MIP profiles
  - Responsible: JHPIEGO, CDC, RBM

Priority area 2. As concern was expressed by some African programmes about the slow rollout of intermittent preventive treatment (IPT) due to doubts about its efficacy, the working group recommends more intense programmatic monitoring of IPTp with SP. The efficacy of SP treatment in pregnant women (not prevention) should be assessed in each country where it is used for IPTp, using standard WHO methods. Where national programmes can achieve this they should do it but collaboration with research institutions is possible if required. We recommend that this activity be coordinated with MIP Consortium and its CEO Prof Feiko ter Kuile. Other drug options as well as the optimal timing of doses for IPTp should be studied as well.

- **Support the research on more intense programmatic monitoring of IPTp with SP and explore other drug options as well as the optimal timing of doses for IPTp .**

  - Product: Documented research results
  - Responsible: MIP Consortium, MIP WG for dissemination, RAOPAG, MIPESA

Priority area 3.As recommended by WHO, early detection and prompt treatment with an effective ACT should be available to all pregnant women living in malaria's area. This means all severe malaria cases should be treated with IV artesunate to reduce mortality and uncomplicated malaria in the 2nd and 3rd trimester with locally available ACT. In order to ensure a universal coverage, effectiveness studies on delivery methods are urgently required. Intermittent screening and treatment (IST) programme in pregnancy has been suggested as the best option available (ideally weekly screening), but the best feasible option in terms of frequency of screening has to be determined. Research on efficacy and effectiveness of IST should be given a high priority in the work-plan of the MIP consortium. In addition, national programmes already implementing IST should ensure good routine monitoring and rapid publication of their data

- **Research on efficacy and effectiveness of IST**

  - Product: Documented research results
  - Responsible MIP consortium, Countries for the monitoring of existing data on IST treatment and screening

- **Support to national programmes already implementing IST in ensuring good routine monitoring and rapid publication of their data**
  - Product: Documented research results
  - Responsible: MIPESA , RAOPAG, Asian networks

Group III

- **Compilation of available data and information for assisting countries in policy development**

Group III listed the following priority areas and proposed the following activities and products to be achieved within the coming 2 years:

Priority area 1. As initial data indicate that DHP is effective and safe for treatment of peripheral and placental malaria, IPT, and IST, and that iv artesunate has been in the WHO treatment guideline, therefore we recommend WHO to facilitate prequalification of those drugs and support more research on DHP in other regions.

- To do prequalification of IPT and IST drugs and support more research on DHP in other regions.
- Product: Prequalification obtained
- Responsible: WHO

Priority area 2. Evidence from Asian region shows that IST has a good impact on MIP : it is recommended to generate more evidence on effectiveness and cost-effectiveness of IST in different regions, and provide guidance. MIP Consortium to lead on this area.

- **Research on efficacy and effectiveness of IST**

  - Product: Documented research results
  - Responsible MIP consortium, Countries for the monitoring of existing data on IST treatment and screening.

Priority area 3. As Asian and South American regions are characterized by high prevalence of P. Vivax; and as African region is changing in its malaria transmission setting; It is recommended to organize an expert meeting on the use of chemoprophylactic in MiP in area with P.vivax prevalence to provide updated advise on the use of SP for IPT in Africa. The current treatment guideline do not deal with IPT and chemoprofilaxis.

- To organise **expert meeting** to revise reasearch on the use of chemoprophylactic in MiP in area with P.vivax prevalence to provide the treatment guideline .

  - Responsible MIP consortium, Countries for the monitoring of existing data on IST treatment and screening.

c) Nomination and election process - Next meeting dates and venue

The MIPWG representatives nominated Dr Viviana Mangiaterra, from WHO as Chair of the MIP WG and Dr Koki Agarwal, from JHPIEGO as Co-Chair.
Next meeting will be organized at the end of 2011 with the following possible suggested venues: Delhi, India or Nairobi, Kenya. Availability of funds and agreement of possible hosting country will be explored.

d) Closing remarks by MoH Indonesia, Chair and co-Chair

The meeting was closed by the MoH of Indonesia and closing remarks were provided by Chair and Co-Chair

Annex 1

RESULTS OF WORKING GROUP DISCUSSIONS

Group I

- **Linking MiP interventions with existing MNH/RH programmes to integrate MDG4,5,6 services and to strengthen health systems; opportunities and challenges**

Group I listed the following issues:

Services being Implemented

- ANC services
- PMTCT/HIV testing/TB screening
- OPD services
- IPTp
- ITNs/LLINs distribution
- Intermittent Screening and testing (IST)
- Rapid diagnostic testing
- Case management of malaria
- Mother class
- Post natal visits
- Birth preparedness/complication/counseling
- Labor and delivery

Opportunities for integration

- Focused ANC (integrated ANC)
  - ITN/LLINs distribution
  - RDT
  - Counseling/mother class
- Integrated post natal visit (continuum of care)
  - Post-partum use of LLIN (and Screening and testing for malaria)

Opportunities/ Creating Synergy

- Redistribution of functions among available staff to avoid overburdening of staff ; More efficient use of available human resource (both health facility and community based) e.g. nurse can do RDT (no need for mid-wife to do it) (task shifting)
- None-specialist functions can be done by other people beside the mid-wife (ideally mum gets orientation on ANC process)
- Link all identified pregnant woman to trained midwife
- For the mother it should be a one stop service
- Integrate net distribution with first trimester visit so that care starts early
- From donor perspective: significant support is available for integration

What are the barriers

- Finances
- Cultural
- Physical
- Gender relations
- Inter-personal relationships
- Provider competencies uneven
- Security issues
- Logistics management of supplies so that everything is available when needed (for integrated ANC)
- Limited human resource and rapid turnover of staff
- Ability to retain qualified staff especially in remote areas

What can be done to address challenges

- Analysis of human resource issues including task shifting
- M&E framework/selection of indicators to assure MIP indicators are reflected
- Integrated training packages to assure the competencies of midwives/HW
- Anthropological study to determine barriers to MIP interventions (Why do mothers not come after first visit?)
- Increase community awareness/ address gender based barriers
- Survey /audit of maternal/neonatal deaths (looking for linkages to malaria)
- Address issue of TBA especially in Africa (incentive system?)
- Strengthen supportive supervision to assure quality of care and assure supervisor competence to provide appropriate supervision
- Assure data recording includes MIP information

Group II

- I**n low malaria transmission settings: which are the key questions that operational research should address for guiding the identification of the effective strategies for MiP implementation.**

1. Basic research to inform OR:
Pharmacokinetics of antimalarial drugs in pregnant women (ethical issues)

2. Baseline Data:
Community surveys on malaria burden: example: Indonesia has plan to carry out community study this year (including quantify malaria burden in pregnancy) to identify which places can use IST and which IPT.
What is the good method of collecting baseline data?
What is the method of diagnosing malaria?

3. Operational research:

IPT:
is not relevant right now in this area because no drugs available: DHP is a good candidate but not enough safety data and also use for confirmed malaria
Evaluation of IPT programmes in Africa

IST:
Community based IST: logistic? Drug choice
frequency/intervals and methodology
impact on ANC coverage, attended birth by skilled health personnel and on maternal and child health
Behavioural research of ANC visit: why K2-4 low?

ITN:
Determinant of Net use
Evaluation on the impact of nets to pregnancy outcomes to pregnant women
Alternative measures: What other measures that can prevent mosquito
Synergistic effect of ITN to other maternal and child health programme
Still need impact study on ITN

Case management:
Iron tablets and malaria in pregnancy?

Treatment:
Drug trial: 1st trimester: quinine alone? Or quinine and clindamycin?
Evaluation of case management in health centres and hospital (e.g. Availability of drugs; microscopy)
Utilization of services
How private physician treated malaria in pregnancy?

Public and private sector: what proportion of pregnant women using private sector for malaria
Pregnancy registry
Pharmacovigilance system of drug effect monitoring in first trimester of pregnancy

Group III

- **Current compilation of data and information available (e.g. drug resistance, LBW, etc) for assisting countries in policy development**

I. TREATMENT

1. Encourage WHO to speed up the prequalification process for DHP and artesunate iv; for better treatment in Malaria in Pregnancy.
2. Concern on the use of SP for IPT; WHO to advise on alternative drug for SP.
3. Treatment for uncomplicated malaria in pregnancy should be changed to ACT (trimester 2 & 3)

II. IST/IPT/Chemoprofilaxis

1. Not enough data for IST; need study on cost effectiveness of IST to help countries in the approach for MiP programme
2. Some countries are using CQ for prophilaxis in MiP programme; WHO to give advise on CQ for prophylaxis.
3. Need more advise on Presumptive treatment (first visit) combine with chemoprofilactic/IST.

III. Prevention

ITN should be use for prevention of MiP in all transmission setting.

IV. Data

Country should integrate MiP Data on General HIS

V. Other relevant issue

Not enough data on Post Partum Malaria : need more study on pathophysiology & strategy.
Pregnancy registry Pharmacovigilance . To be discussed with TDR

Annex 2

MALARIA IN PREGNANCY WORKING GROUP
12TH MEETING
BALI, INDONESIA, 25-27 FEBRUARY 2010
AGENDA

Overall Objective:
Strengthening Antenatal care for MIP and other key MNCH services for positive outcomes on MDGS 4, 5 and 6

Specific Objectives:
- Provide updates on
  - the status of MIP in the Asia-Pacific and Africa regions.
  - relevant technical issues, research and tools in development.
- Share relevant experiences from the regions and countries
- Revise and refine the terms of reference of the MIP Working Group to address better the needs of regiona and countires and develop a draft plan for the next two years
- Selection of MIP WG Chair and Co-chair

DAY 1		
8.00 - 8.30	**Registration**	
8:30 –9.30	**Opening ceremony**: Welcome remarks by Provincial Health Office Bali (as host) WHO Representative UNICEF Representative Remarks by MIP Chair/co-Chair Opening remarks by MOH Indonesia Representative Group photo	
9.30 - 10.00	***Break***	
10:00 – 11:00	Review of meeting objectives and agenda Update from RBM Partnership Secretariat: • MIP and GMAP • MIP and Landscape / WMR • MIP and Independent Evaluation; Task Force 2 TOR review Achieving the MDGs – linking MDGs 4,5&6	V. Mangiaterra Thomas Teuscher RBM W. Hawley
11.00 - 11.15	H4	M. Hidayat
11.15-11.30	The Global Fund and MIP	B. Udom-Udoh and V. Mangiaterra
11.45 - 12.30	MIP - Country Context, programmes, challenges and opportunities • Cambodia • Papua New Guinea	Country participants Sarah Hanieh
12.30 - 1.30	***Lunch***	
1:30 – 3:30	MIP - Country Context, programmes, challenges and opportunities • Solomon Islands (Dr Lyndes Wini)	Country participants

	• Indonesia (Dr Rita Kusriastuti)	
3.30 - 4.00	***Break***	
4:00-4:30 4:30- 5.00	MiP research agenda, ongoing research and progress Treatment of malaria in pregnancy with DHP: experience from Papua	Sarah Hanieh Dr Jeanne Rini Poespoprodjo
DAY 2		
8.30 -10.15	Malaria in Pregnancy; challenges on the Western border of Thailand	Marcus Rijken
	MCHIP Malaria in Pregnancy case studies: Rationale,Approach and Findings from Zambia	Koki Agarwal
	Update on MiP implementation in the WHO Africa Region	Dr Akpaka Kalu
	Update from MiP Sub-regional Coalitions(MIPESA)	MIPESA
	MiP best practices, bottlenecks and lessons learned in Kenya	Ayub Munya
10.15 - 10.30	***Break***	
10:30-12:30	**Strengthening monitoring and evaluation:**	
	MIP Implementation Guide and Resource Package	Koki Agarwal
	MIP M&E guidelines implementation	W. Hawley
	Programmatic evaluation of MIP in Indonesia	Dr Din Syafruddin
12.30-1.30	***Lunch***	
1:30 – 2:00	Pharmacovigilance & pregnancy registry	L. Schuler Faccini, V.Mangiaterra
2.00 - 3.00	Group work on identifying key issues for implementation	V.Mangiaterra, B.Hawley
3.00-3.30	Group work presentation	
3.30 - 4.00	***Break***	
4:00 – 5:00	Discussions and recommendations on way forward for MiP	Dr Khanchit
DAY 3		
8:30-10:00	Working Group TOR and action plan Develop MIP WG workplan for the next year	Thomas Teuscher
10.00 - 10.30	***Break***	
10.30-11.15	Presentations of the WGs	
11.15-12:30	Nomination and election process Election of Officers: MIP WG Chair and co-Chair Summary of deliberations and recommendations from the meeting including follow-up actions - Next Meeting Dates and Venue - AOB Closing remarks by Chair & co-Chair	

Annex 3

WORLD HEALTH ORGANIZATION

Twelfth Meeting Of The RBM Malaria In Pregnancy Working Group (MIP)
25-27 February 2010,
Bali, Indonesia.

PROVISIONAL LIST OF PARTICIPANTS

PARTNERS		
1.	**Dr Sarah Hanieh** Liverpool School of Tropical Medicine PNG Trial	Tel: +44 (0) 207 927 2322 Email: managaba@hotmail.com
2.	**Dr Chilunga Puta** Infectious Disease Advisor Regional Centre for Quality of Health Care Makerere University School of Medicine Next to Physiology P.O.Box 29140, Kampala Uganda	Tel: +256 41 530888 Fax: +265 41 530876 Mobile: +256392722003 Email: cputa@rcqhc.org
3.	**Dr Koki Agarwal** MCHIP Program Director Jhpiego-an affiliate of Johns Hopkins University 1615 Thames Street Baltimore, MD 21231, USA	Email: kagarwal@jhpiego.net
4.	**Dr Markus Rijken** Shoklo Malaria Research Unit POBOX 46, 68/30 Bantung Road 63110 Mae Sot Thailand	Tel: +66 55 545021 Mobile: +66 8 34102208 Email: marcus@shoklo-unit.com

COUNTRY PARTICIPANTS		
5.	**Professor Lavinia Schuler Faccini** MEDICAL DOCTOR / PROFESSOR FEDERAL UNIVERSITY OF RIO G DO SUL Departamento de Genetica, UFRGS - Avenida Bento Goncalves 9500, C Postal 15053 91501-970 Porto Alegre Brazil	Tel: 55 51 33599826 Mobile: 55 51 99756770 Email: lavinia.faccini@ufrgs.br
6.	**Dr Po Ly** Team Leader,VMWs Project.	Mobile: (855)16 886 836 / (855) 11 886 836 Email : poly@cnm.gov.kh or

	National Malaria Centre Ministry of Health, Cambodia Phnom Penh Cambodia.	poly_teng@yahoo.com
7.	**Dr Kim Rattana** Medical Doctor National Maternal and Child Health Centre French street, Sangkat Sraschak,Khan donPenh Phnom Penh Cambodia	Tel: (855)23 427 300 Mobile: (855) 12 880 745 Email: adminnmchc@camnet.com.kh or rattanamch@yahoo.com
8.	**Dr Frank Baiden** Kintampo Health Research Center PO BOX 200 Kintampo Ghana	Email: baidenf@yahoo.co.uk
9.	**Mr Leo Sora Makita** Principal Advisor Malaria & Vector borne diseases Department of Health P.O.Box 807 Waigani, NCD Papua New Guinea	Tel: 675 3013819 Fax: 675 3253523 Mobile: 675 76830834 Email: makitals@global.net.pg
10.	**Dr Lyndes Wini** Medical Officer Vector Borne Diseases Control Programme Honiara Solomon Islands	Phone/fax: +677 30410 Mobile: +677 77382 Email: lwini@simtri.gov.sb or lyndes@solomon.com.sb
11.	**Ms Bridget Appleyard** Consultant on malaria and pregnancy Honiara Solomon Islands	Email: Bridget.Appleyard@qimr.edu.au
12.	**Dr Ayub Manya** Medical Epidemiologist Division of Malaria Control Ministry of Health P.O box 19982 00202 Nairobi Kenya	Tel: +254202716935 Mobile: +254722221266 Email: amanya@domckenya.or.ke
13.	**Dr Mufungo Marero (MIPESA)** Programme Manager Ministry of Health and Social Welfare P. O. Box 9083 Dar es Salaam United Republic of Tanzania	Tel: + 255 22 212 4977 Email: marerom@yahoo.com
14.	**Dr Sibone Mocumbi** MD, Consultant Gyn&Obst	Tel: +258 21 320826 Mobile: +258 82 3250540

	Hospital Central de Maputo Av. Agostinho Neto 1164 00110 Maputo Mozambique	Email: sibone.mocumbi@manhica.net
	Indonesia	
15.	**Dr Bill Hawley** Project Officer, Health (Malaria) P.O. Box 8318/JKSMP Jakarta 12083 UNICEF	Email: whawley@unicef.org or whawley@cdc.gov
16.	**Dr Richard Embry** Country Director JHPIEGO/Indonesia Jl Brawijaya 1A No 10 Jakarta 12160	Tel: 62 21 720 3546 Email: rembry@jhpiego.net
17.	**Dr Jeanne Rini Poespropodjo** RS Mimika Menzies School of Health Research John Mathews Building (Bldg 58), Royal Darwin Hospital Campus, Rocklands Dve, Casuarina NT 0810 Australia	Email: didot2266@yahoo.com
18.	**Dr Rita Kusriastuti** Director, Vector Borne Diseases Control Ministry of Health Jl. H. Rasuna Said Kav. X 5 N°: 04-9 Jakarta 12950	Email: ritakus@yahoo.com
19.	**Dr Din Syafruddin** Eijkman Institute for Molecular Biology Diponegoro 69 Jakarta 10430	Email: din@eijkman.go.id
20.	**Dr Melania Hidayat** National Programme Officer on RH UNFPA 7th floo Menara Thamrin Jl. M.H. Thamrin, Kav 3 PO Box 2338 Jakarta	Email: hidayat@unfpa.org
21.	**Dr Lukman Hendro** Head, Indonesia's Maternal Health Program Ministry of Health Jl. H. Rasuna Said Kav. X 5 N°: 04-9 Jakarta 12950	Email: kebidanan@yahoo.com
22.	**Dr Tjandra Yoga Aditama** Director General, Disease Control and Environmental Health, Director of Direct	

	Transmitted Disease Control	
23.	**Dr Detty SpOg** Universitas Gadjah Mada	
24.	**Dr Ali Sungkar, SpOG** **POGI** POGI Jaya; Klinik Raden Saleh - Jl. Raden Saleh Raya No. 49 Jakarta Pusat or Department of Obstetrics and Gynaecology Dr Cipto Mangunkusumo Hospital Diponegoro St. No.71, Kenari Village, Senen, Central Jakarta City, 10430	Email: alisungkar@hotmail.com
25.	**Dr Ekarini** POGI Jaya Klinik Raden Saleh Jl. Raden Saleh Raya No. 49 Jakarta Pusat	
26.	**Dr Bangkit Hutajulu** **Depkes** Ministry of Health Jl. H. Rasuna Said Kav. X 5 N°: 04-9 Jakarta 12950	
27.	**Sesantia** Kasubdin Kab.Jayapura	
28.	**Neni Sukameni** IBI Pusat	
29.	**Ibu Mustika Sofyan** Wakil IBI	
30.	**Drg.Wara Pertiwi** Subdit Bumil	
31.	**Dr Emiliana Tjitra** Litbangkes	
32.	**Dr PR.Arbani**	KOMLI
33.	**DrThomas Suroso**	
34.	**Caroline Mei**	Subdit Malaria
35.	**Mila Mayangsari**	
36.	**Achmad Nursyam**	
37.	**Budi Pramono**	
38.	**Dr Minerva Theodora**	
39.	**Dr Niken Wastu**	

40.	**Dr Bobby** Kasubdin Prov NTT	
41.	**Cecilia Hugo** ACT Malaria	
42.	**Puspa** Depkes	
43.	**Dr Silvanus Sumule, SpOG** Rumah Sakit Umum Daerah (RSUD) Jl. Kesehatan No. 1 Abepura	Tel: +62 (0967) 581064
Observers		
44.	**Mildred Pantouw** USAID Indonesia	
World Health Organization		
	Headquarters	
45.	**Dr Viviana Mangiaterra** Department of Making Pregnancy Safer World Health Organization Avenue Appia, 2 1211 Geneva Switzerland	Tel: +41-22-791-3396 Email: mangiaterrav@who.int
46.	**Dr Boi-Betty Udom** Roll Back Malaria Partnership World Health Organization Avenue Appia, 2 1211 Geneva Switzerland	Tel: +41 22 791 2482 E-mail: udomb@who.int
47.	**Dr Thomas Teuscher** Roll Back Malaria Partnership World Health Organization Avenue Appia, 2 1211 Geneva Switzerland	Tel: +41 22 791 3741 E-mail: teuschert@who.int
	AFRO	
48.	**Dr Akpaka Kalu** WHO/Kenya PO Box 45335 Nairobi Kenya	Email: Kalua@KE.AFRO.WHO.INT]
	SEARO	
49.	**Dr Limpakarnjanarat Khanchit** WHO Representative	Tel: +62 21 5201166 Email: khanchitL@who.or.id

	PO Box 1302 Jakarta 10350 Indonesia	
50.	**Dr Martin Weber** Technical Officer, MAL/VBD WHO Bina Mulia 1, Lt.9 Jl Rasuna Said, Kav.10 Jakarta Indonesia	Tel: + 62 21 5204349 Email: weberm@who.or.id
51.	**Dr Joshi Anand** WHO/Indonesia PO Box 1302 Jakarta 10350 Indonesia	Email: joshia@searo.who.int
52.	**Dr Mohammad Amin Asri** TNP Vector Borne and Zoonotic Disease	Tel: +62 21 5204349 Email: asrim@who.or.id
53.	**Ms Rustini Floranita** National Professional officer Vector Borne and Zoonotic Disease	Email: floranitar@searo.who.int
54.	**Dr Khanchit Limpakarnjanarat** Regional Adviser, Communicable Disease Surveillance and Response Email:khanchitl@searo.who.int	
	WPRO	
55.	**Dr Rashid Abdur** Medical Officer Malaria and other Vectorborne and Parasitic Diseases Office of the WHO Representative in Cambodia No. 177-179 corner Pasteur (51) and 254 Phnom Penh Cambodia	Tel: (855)23-216610 Fax: (855) -23-216211 E-mail: rashid@cam.wpro.who.int

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Annex 4

Terms of Reference for the MIP working group for 2010-2012

The TOR MIPWG were proposed, reviewed and revised during 12th Meeting, Bali, Indonesia, 25-27 February 2010.

MIP working group will have the following functions:

1. **MIP advises RBM partnership mechanisms** on consensus strategies to achieve GMAP targets regarding MIP interventions (IPT or IST, LINN, case management)

2. **Support country MIP programmes to go to scale and advocate for appropriate interventions for effective MIP control through:**
   - promoting collaboration and information sharing on MiP
   - providing practical advise on policy which is relevant to specific Asian Pacific and African context
   - supporting multicenters studies in the region on the issues associated with MiP
   - **supporting Ministry of Health to strengthen collaboration** among Malaria – MCH – EPI programme for the integrated programme
   - **advocating for integration of MIP interventions into ANC** for effective progress tracking

- **Identify critical strategic programmatic barriers and knowledge gaps** for reaching universal access by :
  - operational research to policy research questions and
  - Identifying strategies for addressing capacity gaps

  MIPWG will also assign responsibilities to WG members of partners for action.

3. **Establish coordination mechanism for Asia and support the existing coordination mechanism in Africa (MIPESA &RAOPAG)**
   One of the main scope of the coordination mechanisms will be to **Synthesise and disseminate country experiences, good practices** related to scaling -up MIP interventions

4. **Identify linkages with research for effective implementation and policy Development and compile data** produced by research activities and routine health information system submitted by countries to be used to guide policy.
   Dissemination and Knowledge management of country experiences and research results

5. **Interface and share relevant information with other RBM mechanisms** to

ensure strategic harmonization in resource mobilisation, implementation support and progress tracking (MAWG,MERG,HWG,PSMWG) to reach GMAP targets

Membership

Open to all with expertise and experience in reproductive health or malaria control related to scaling up MIP interventions, in particular:

MEC

- Implementing countries(according to agenda; at least three)

Multilateral

- WHO RH/MPS
- UNICEF
- UNFPA
- World Bank
- CDC

Research & Academics

- Malaria in pregnancy Consortium
- Transmission consortium
- APMEN
- Asia pacific P.Vivax network

Bilateral donors

- USAID
- UK
- Norway
- Canada

NGO

- ACCESS/JHPEIGO, RPM+

Private Sector

Foundation B.Gates, PMI, Clinton Foundation

MIPWG workplan

MIP Working Group to develop deliverables/activities in support of reaching biannual RBM partnership targets(2010-2011)

1. 100% of all country roadmaps are tracked
2. Appropriate response to 80% of country TA requests via Sub-regional Networks
3. RBM Community and Heads of State informed on the achievements of 2010 Universal Coverage and preparation for 2015 targets
4. Resources mobilised to fill the gap to reach the 6bUSA annual target for GMAP implementation

5. 45 countries /territories to align their strategic /operational plans with GMAP
6. Prepare for elimination(8 countries supported to align their strategic/operational plans with GMAP)
7. Implement global and regional strategies for drug and insecticide resistance management

Workplan identifies milestones, timelines, responsibilities for each deliverables

1. Management & Structure

- MIP WG membership has nominated two Co-chairs from different constituencies(1 WHO, 1 NGO/JHPEIGO)
- Co-chairs will convene jointly with RBM Secretariat periodic WG meetings
- Co-chairs will support WG Secretariat to ensure timely WG workplan implementation
- Co-chairs will report annually to RBM Board on progress in workplan implementation