malaria consortium



President's Maiaria Initiative

Malaria in Pregnancy in South East Asia: A Neglected Disease?

Results of Rapid Assessment of Malaria in Pregnancy in the Greater Mekong Sub-Region

Dr Prudence Hamade and Mitra Feldman MSc









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Pregnancy in Southeast Asia



- Pregnancy is a dangerous time for women even in developed countries and more so in areas where access to care is limited
- Malaria infection increases the risk of severe morbidity and mortality to both the mother, the developing foetus and the new born
- Reducing that risk should be an important feature of malaria control.

So why is it not so in SE Asia?

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Some effects of malaria in pregnancy

- Severe malaria and death
- Severe anaemia/anaemia leading to increase risk of pre and post partum haemorrhage
- Increase risk of early foetal loss and still birth
- Delayed intrauterine growth leading to:
 - higher risk of infant mortality
 - generational growth problems
 - increasing risk of disease in later life (diabetes, metabolic syndrome, heart disease)
- Congenital malaria
- Placental malaria increases risk of MTCT of HIV and prevents passage of immunoglobulin and therefore increases risk of early infant infections such as measles





Distribution of Pregnancies at risk in WHO Regions

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Comparison of risks: high and low transmission areas

	low transmission	medium to high transmission	
Severe malaria	+++	+	
Mortality	+++	++	
Primigravida at risk	+++	+++	
All pregnancies at risk	+++	+	
Increased risk of PPH	++	+++	
Severe anaemia	++	+++	
Foetal loss	+++	++	
Still birth	+++	++	
IUGR	++	+++	
Prematurity	+++	++	
Placental malaria	++	+++	
Anaemia of new born	++	+++	
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MIP data from the countries visited

- Trends: In all countries data shows a large decline in malaria among the general population since 2006, including a decline in MIP
- Malaria is becoming more focal so a 'one size fits all' intervention is not an appropriate approach
- MIP data unfocused and difficult to obtain in all countries



Data source	Myanmar	Cambodia	Thailand
Malaria clinics	Record those who attend	None	Do not record MIP
WHO	Collects records from HMIS	pregnant women screened in Ratanakiri showed 4% prevalence	Does not record data
Private sector	None	None	None
VMW	None	Only source of data from 1528 WMWs in 17 provinces all report cases : 2011 1086 pregnancies av prevalence 20%	Malaria clinics and malaria post do not record pregnancy status
NGOs	2% in Rakhine province Screened by MSF JICA Bago 0.05 OPD, 0.17IPD CAP- Mal screened 1200 migrant workers, 611 women 12 were pregnant 5 positive MOM-200710.6 prevalence in E Myanmar	CAP malaria 7 provinces positivity rate 16% (81 women tested)	Mae Tao clinic (Karen women) only test symptomatic women SMRU only serves ethnic minorities from Myanmar. Point prevalence 0.6% cumulative prevalence 36%
Hospitals and health centres	Report to township level	Do not record pregnancy status	Data not fully amalgamated into HMIS

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Prevention of MIP

- LLINs/ITNs: huge efforts have been made in Cambodia and are now being expanded in Myanmar (Burma) to achieve universal coverage.
- Efficacy of ITNs not as high as in Africa due to the presence of vectors who prefer to bite outdoors and in the early evening /morning, when people are not in their beds
- Use of nets is high in the areas we visited almost 100%
- The population prefer their own conventional soft larger family sized nets and do not like the LLINs very much





Style of net preferred by most at risk pregnant women

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Other preventive measures

IPTp is promoted by WHO in high to moderate transmission areas, high drug resistance has prevented ITPp with SP being implemented. Suitable alternatives have not been found (*MQ*, *AQ*, *DHA/pip How*, *when and where*)

ISTp has been trialled by SMRU Thailand (along the Thai-Myanmar [Burma] border) using weekly testing and implemented in Myanmar (Burma) by MSF and MAM

- How often
- o By whom
- o Cost

• Diagnostic sensitivity of RDTs /microscopy/ PCR



Other preventive measures

BCC/IEC: Little focus on MIP in material found in health centres and hospitals in all three countries.

Community delivered interventions:

Cambodia: Community delivered early diagnosis and treatment of symptomatic infections villages (but cannot treat MIP)

Myanmar:

- Midwives visiting villages can test and treat for malaria
- CHWs are being trained to detect and treat malaria diarrhoea and pneumonia (ICCM)

Thailand:

Malaria clinics and malaria posts in all malaria endemic areas (but cannot treat MIP)



Problems associated with control of MIP in SE Asia

- Infection with recurrent *P.v* (and *P. ovale*): drugs for radical treatment contraindicated in pregnancy.
- Extreme variability of transmission within countries makes national planning for MCH and malaria control difficult.
- Recent discovery of high levels of asymptomatic infections in low transmission zones.
- Vectors prefer outdoors and early evening biting, making nets less effective
- No suitable drug been identified for IPT or for chemoprophylaxis
- MIP is not deemed to be a problem : focus is on men and resistance containment

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Populations at risk of malaria live in the most remote areas and access to care is constrained by poverty and geographical, financial, cultural and linguistic barriers. These barriers can include discrimination and conflict.

Transport problems and treatment costs e.g. an ambulance in Cambodia costs around USD\$40 for 50 kilometre drive. A caesarean section costs around USD\$60



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Migrant populations: hard to reach and lack access to care

- Non immune to endemic areas
- People from endemic areas into very low transmission /no malaria zones
- Due to increasing infrastructure development and agricultural production in the region there are large movements of populations seeking work (including women)
- Reforestation with teak trees, rubber and fruit trees means forest malaria threatens a comeback
- Health care seeking
- Increasingly woman are part of the workforce as well as military personal and accompanying families
- Migrant groups include refugees and people displaced by conflict



Health provision and training

Cambodia

- Strong push by government and partners to increase attendance at ANC,
- TBA discouraged from providing home delivery
- Several innovative financial schemes to increase facility based delivery (do not cover the whole country)
- Only 2 training schools for midwives
- Shortage of secondary midwives outside hospitals
- Maternity waiting homes not utilised
- Laboratory provision limited
- Midwives knowledge of malaria diagnosis and treatment limited
- NMCP and MCH guidelines are not aligned



Report of MIP Working Group of RBM 2011

- In low to moderate transmission settings, MIP is associated with high morbidity and mortality for mothers and their babies
- MIP intervention strategy should be included in national policies
- There are gaps in evidence of the most effective intervention methods
- Early detection and prompt treatment could be the best option available to save lives
- Integration and coordination between RH/MCH units and NMCP is central to ensure program implementation
- ANC is the focal point for the delivery of MIP intervention programmes
- Community participation plays a major role in achieving universal coverage of programmes



Summary of findings

- Limited co-ordination in policy and planning between MCH and malaria programmes
- Lack of data on the true burden of MIP, especially from areas where malaria transmission is highest and pregnant women most at risk
- Perceived lack of effective tools to control MIP
- Malaria programmes focused on elimination and containment of artemisinin resistance have ignored the role of pregnant women (no policy of how to manage MIP in the containment zones)
- Fear of diversion of funds from containment and elimination programmes
- HIV detection and prevention of MTCT is considered to be much more important than prevention of MiP despite lower prevalence of HIV than malaria among pregnant women and the serious effects of MIP



Possible operational solutions

- 6 monthly coordination meetings between MCH/Departments of Disease Control, Nutrition and School Health to review data and refine policies
- Cooperation during training of midwives between RH and NMCPs to ensure midwives have a high level of awareness of the need for testing pregnant women for malaria and anaemia
- Guidance from WHO on the safety of ACTs in the first trimester

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- Determine the levels of transmission when IPT remains appropriate and do research to identify a safe and effective drug for this (ACTs, MQ)
- Keep up coverage of LLINs by offering nets to women attending ANC

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Possible operational solutions

- Introduction of ISTp in malaria endemic areas to detect and treat asymptomatic infections and ensure adequate clearance of parasites (*Particular focus on high transmission zones and areas where resistant malaria may make complete cure problematic*)
- Incentive schemes for women to attend ANC and deliver in the health facility one (example the RHAC scheme in Cambodia)
- Development of ethnically appropriate BCC materials directed to the prevention and early treatment seeking for malaria and the need for regular testing
- Pre pregnancy counselling to include radical treatment of Pv malaria to eliminate hypnozoites before conception. PNC to include primaquine where Pv infection has occurred during pregnancy



More operational solutions

- VMW/CHW/malaria clinics to be allowed to treat simple malaria in pregnant women
- Provide quinine +/- clindamycin to lower level health workers to treat MIP in 1st trimester
- Public health centre provision in Thailand to inlcude simple testing for malaria, and anaemia for pregnant women
- Community mobilisation schemes to develop methods of improving geographical and financial access to care for pregnant women and children



Research gaps

- Implications of MIP for containment of Artemisinin resistance: Safety of MDA MSAT FSAT in pregnancy
- *Pv* infections: How to manage *Pv* infections as Primaquine is contraindicated in pregnancy and early lactation
- Very low parasitaemias
 - how to diagnose in routine practice
 - Effects of low parasitaemias on outcomes of pregnancy



Research related to IPTp and ISTp

ISTp

- Feasibility and costs of implementation of ISTp
- At what level of transmission to introduce /stop ISTp
- VMW/CHWs and ISTp in remote areas and effects on uptake of ANC
- Frequency of screening for optimum detection balanced against costs

IPTp

- At what level of transmission to introduce IPTp
- Suitable drug for IPTp





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Thank you



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