CONSENSUS STATEMENT
OPTIMIZING THE DELIVERY OF MALARIA-IN-PREGNANCY INTERVENTIONS

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ITN demonstration at ANC in Rwanda (Credit: Kate Holt, Jhpiego)

Background

Malaria in pregnancy is a significant contributor to maternal and newborn morbidity and mortality. Approximately 125 million women living in malaria-endemic countries throughout the world become pregnant every year, of whom over 30 million live in tropical areas of Africa where there is intense transmission of *Plasmodium falciparum (1)*. In these areas, malaria infection directly contributes to adverse outcomes in maternal and newborn health. An estimated 11% of neonatal deaths in malaria-endemic African countries are due to low birth weight resulting from *P. falciparum* infections in pregnancy *(2)*.

This Consensus Statement on optimizing the delivery of malaria-in-pregnancy (MiP) interventions is the product of a series of interagency discussions and consultations. It was developed in partnership with technical and programmatic experts from both malaria control and reproductive, maternal, newborn and child health (RMNCH) programmes at global and country levels, and is based on World Health Organization (WHO) policy recommendations together with experience from ministries of health and their implementing partners. This document is intended to engender further commitment, momentum and partnership between RMNCH and malaria control programmes to prevent adverse maternal and newborn outcomes. Specifically, the aim is for these programmes to prioritize malaria in pregnancy as a core component of focused antenatal care (FANC), advocate for integrated policy-making and harmonized programme implementation, and reinforce key interventions to optimize the delivery of MiP programmes.

The impetus to produce this Consensus Statement emerged from the growing recognition that, despite clear global gains in malaria control, the delivery of MiP interventions remains suboptimal. For example, although pregnant women attend antenatal clinics at least once and often twice, only approximately 44% of women who attend antenatal clinics receive two doses of sulfadoxine-pyrimethamine for intermittent preventive treatment in pregnancy (IPTp-SP) *(3)*, far below the target of 80%. In addition, insecticide-treated net (ITN) coverage among pregnant women is also below the global target in many countries, with the highest coverage reported in Rwanda at 72.2%, followed by Tanzania at 56.9% *(4, 5)*. Given the devastating consequences of malaria in pregnancy, these poor coverage levels have ignited a renewed interest in improving MiP programmes by addressing missed opportunities and increasing coverage of these life-saving interventions for all pregnant women in malaria-endemic countries.

Target audience and priority areas for action

The target audience for this Consensus Statement includes national-level policy-makers and malaria control and RMNCH programme managers, as well as health-care providers who are jointly responsible for the delivery of MiP services at all levels of the health-care system. This document calls on these stakeholders to renew their commitment to fighting malaria in pregnancy and to urgently take action in the following priority areas:

- National reproductive, maternal, newborn and child health (RMNCH) and malaria control programmes should work together to ensure harmonized policies on MiP at the national level and effective and appropriate integration at the service-delivery level.

- Countries should focus on increasing coverage and equity of access for pregnant women to receive comprehensive MiP services through focused antenatal care. MiP programmes should work to strengthen the existing health-care system by addressing any weaknesses in policy dissemination, capacity development, quality of service delivery, community engagement, and supply chain management, to support improved outcomes for pregnant women and their newborns.

- Countries should continue to support and implement the WHO-recommended three-pronged approach to the prevention, diagnosis and treatment of malaria in pregnancy, delivered through focused antenatal care. The three prongs include: (1) use of insecticide-treated nets (ITNs) by pregnant women, (2) scale-up of intermittent preventive treatment in pregnancy with sulfadoxine-pyrimethamine (IPTp-SP) in all areas of sub-Saharan Africa with stable malaria transmission, and (3) prompt diagnostic testing of suspected malaria and treatment of confirmed malaria infections.

- An effective monitoring and evaluation framework that incorporates each of the three MiP prongs should be used to review programme effectiveness, identify bottlenecks and guide programme implementation based on what is working well.

These actions are described in more detail in this document.

I. The need for programming partnerships

To be successful, MiP programming must be underpinned by partnership between national RMNCH and malaria control programmes, where RMNCH programmes manage the programme implementation while malaria control programmes provide technical oversight. At the national level, this requires harmonization of RMNCH and malaria policies and coordinated planning for effective and non-duplicative programme implementation. It requires political commitment from champions and decision-makers within each country's ministry of health. At the programme implementation level, the focus needs to be on strengthening policy dissemination, capacity development, quality of service delivery, community engagement, monitoring and evaluation, and supply chain management. Several countries have successfully implemented this harmonization and coordination, and there are valuable lessons to be learnt. Zambia serves as a good example: a strong partnership between the national Reproductive Health Unit and the National Malaria Control Centre has resulted in harmonized policies, consistency in national-level training materials and coordinated programme implementation, leading to a high percentage of women (69.4%) receiving at least two doses of IPTp-SP *(6, 7)*.

II. Three-pronged approach for malaria prevention, diagnosis and treatment in pregnancy

WHO promotes three evidence-based strategies for the prevention, diagnosis and treatment of malaria in pregnancy in areas of sub-Saharan Africa with stable malaria transmission: (1) the delivery, distribution and routine use of ITNs, (2) scale-up of IPTp-SP, and (3) appropriate case management through prompt diagnostic testing of suspected malaria and effective treatment of confirmed infections in pregnant women.

This three-pronged approach should be delivered through routine focused antenatal care as part of a comprehensive package of evidence-based services to promote health, detect existing diseases, prevent and detect complications of pregnancy and encourage birth preparedness for all pregnant women. At present, WHO recommends at least four antenatal visits during pregnancy,[1] and each visit should be seen as an opportunity to deliver MiP services.

1. Promoting insecticide-treated net use for pregnant women

Notable progress has been made in the distribution of ITNs, but malaria control programmes are still far from achieving universal coverage targets for the availability and routine use of ITNs. Progress towards achieving universal coverage has been hindered by a recent decrease in the distribution of ITNs: deliveries to countries in Africa fell from 145 million ITNs in 2010 to 92 million in 2011 and then to 66 million in 2012 *(3)*. Countries are now beginning to feel the impact of the reduced availability of ITNs and are developing strategies for prioritizing ITNs. This is an important moment for malaria control programmes and RMNCH programmes to jointly advocate for all ITNs to be replaced in a timely manner, and to work together towards universal coverage of vector

1 The WHO Regional Office for Africa has prepared a new focused antenatal care (FANC) training manual that outlines the schedule of four visits in the second and third trimester, as well as a booking visit in the first trimester to ensure early entry into care.

control for all people at risk, including pregnant women, and to ensure that advances made in integrating ITN delivery into ANC services are sustained.

It is critical for all pregnant women in affected areas to sleep under an ITN throughout pregnancy, particularly early in the pregnancy (before the administration of the first dose of IPTp-SP) and during the postpartum period. Since many women will not know their pregnancy status immediately, malaria-endemic countries should also consider targeting women of reproductive age, to maximize preventive efforts. Delivery of ITNs through antenatal clinics should continue to be promoted but other strategies should also be used to ensure that all pregnant women sleep under an ITN from the beginning of their pregnancy, such as delivery of ITNs by community health workers.

2. Scaling up intermittent preventive treatment in pregnancy

In 2012, the WHO Malaria Policy Advisory Committee (MPAC) reviewed recent evidence on the efficacy and effectiveness of IPTp-SP and issued an updated WHO policy recommendation, promoting the increased uptake of IPTp-SP in all areas of Africa with moderate-to-high transmission of *P. falciparum* malaria *(8).* The MPAC did note, however, that there was insufficient evidence to recommend IPTp-SP outside of Africa. WHO's recent updated policy recommendation confirms the critical importance of scaling up IPTp-SP as part of routine antenatal care services and provides the following guidance for administration of sulfadoxine-pyrimethamine (SP):

- SP should be given at each scheduled ANC visit, with the first dose being administered as early as possible in the second trimester.
- Each dose of SP should be given at least one month apart.
- The last dose of SP can be safely administered up to the time of delivery.
- IPTp-SP should ideally be administered as directly observed therapy (DOT).
- SP can be given either on an empty stomach or with food.
- Folic acid at daily doses of 5 mg or more should not be given together with SP.
- SP should not be administered to women receiving co-trimoxazole prophylaxis.

Despite the spread of SP resistance and the reduction of malaria transmission in some areas of sub-Saharan Africa, IPTp-SP continues to remain effective in preventing adverse malaria-related maternal and newborn outcomes. Scientific evidence supporting these new recommendations, as well as information to assist in-country policy-makers and health-care providers with policy implementation, is summarized in *the WHO policy brief for the implementation of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine (9).*

3. Ensuring prompt and effective case management

Pregnant women with symptomatic acute malaria are a high-risk group, and they must promptly receive proper diagnosis and effective antimalarial treatment. The current WHO *Guidelines for the treatment of malaria* recommend that pregnant women in the first trimester with uncomplicated *P. falciparum* malaria be treated with quinine plus clindamycin for seven days (or quinine monotherapy if clindamycin is not available) (10). A combination of artesunate plus clindamycin for seven days is indicated if treatment with quinine plus clindamycin fails. Artemisinin-based combination therapies (ACTs) are recommended to treat uncomplicated falciparum malaria in the second and third trimesters of pregnancy. Alternatively, artesunate plus clindamycin (or quinine plus clindamycin) can be given for seven days during this period. For pregnant women with severe malaria, parenteral antimalarials should be administered in full doses without delay. Parenteral artesunate is preferred over quinine in the second and third trimesters. Prompt and effective case management reduces adverse maternal and newborn outcomes; this must be clearly articulated in all national policies and guidelines.

III. Effective monitoring and evaluation

Monitoring and evaluation (M&E) is critical for reviewing programme effectiveness and for guiding effective, targeted implementation. M&E tools can help programme managers verify whether MiP activities are being implemented as planned, and detect problems and constraints. They can also provide national-, district- and health-facility-level feedback, which can support efforts to improve integration of services. Below is a list of key MiP indicators recommended for review and consideration as countries update their M&E frameworks:

Indicators measured at health-facility level:

- percentage of ANC staff who received training during the past 24 months in the control of malaria during pregnancy (including IPTp, counselling on use of ITNs and case management) (source: health facility survey);
- percentage of pregnant women attending ANC at least once who received an ITN or ITN voucher[2] (source: monthly reporting);
- percentage of health facilities reporting stock-outs of SP (source: health facility survey or monthly reporting);
- percentage of pregnant women attending ANC receiving IPTp under direct observation, including first, second, third and fourth doses[3] (source: monthly reporting).

2 Best practice suggests that ITNs or ITN vouchers should be given at the first ANC visit. Accordingly, countries are also encouraged to report the percentage of women who received an ITN or ITN voucher at their first ANC visit to monitor progress in this area.

3 The number of IPTp doses monitored has been modified to reflect the updated WHO policy recommendation on IPTp (8). See also WHO's *World malaria report 2012 (3).*

Indicators measured by household surveys *(11):*

- proportion of currently pregnant women who slept under an ITN the previous night;
- proportion of women who received at least three doses of IPTp during ANC visits during their last pregnancy (note: the proportion of women who received at least one, two or four doses of IPTp during ANC visits during their last pregnancy should also be calculated as supporting indicators).

The use of standard indicators provides programmes with quantitative data on MiP interventions that allow monitoring of trends and tracking of progress over time, particularly on ITN delivery and use, and IPTp-SP uptake. This information helps programme managers to direct resources to the areas of most need, thus improving programmatic effectiveness. Successful M&E requires strengthening health management information systems where needed, ensuring systems are in place for supervision and quality control, and fostering a strong partnership between RMNCH and national malaria control programmes.

Next steps: setting an operational research agenda

In addition to reinforcing key MiP interventions and advocating for improved harmonization among programmes, especially at the service-delivery level, this Consensus Statement also acknowledges the need to set a global operational research agenda as a basis for moving forward. Research should focus on identifying challenges to the delivery of MiP interventions and validating practical, integrated solutions. Examples of potential research areas include: strategies to improve the delivery and utilization of ITNs for all women of reproductive age; evaluation of community-based strategies to increase IPTp coverage; and methods for using health management information systems and mobile technologies for routine monitoring of the delivery of MiP interventions. The results of research in these areas will guide the optimal allocation of resources and further improve the effective delivery of MiP interventions.

Conclusion

This Consensus Statement calls for action to prioritize malaria in pregnancy as a core component of focused antenatal care, to advocate for integrated policy-making and harmonized programme implementation, and to reinforce key interventions to optimize the prevention, diagnosis and treatment of malaria in pregnancy. With renewed global and national interest, there is a window of opportunity for donors and countries to pledge their commitment to ending the maternal and newborn deaths that are a devastating consequence of malaria in pregnancy.

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