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# Community-based approach to intermittent preventive treatment for malaria in pregnancy in Kisumu, Kenya

Exploring the value of utilizing community health workers in malaria in pregnancy prevention

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## Introduction

Malaria in pregnancy (MiP) is a significant contributor to maternal and newborn morbidity and mortality. In malaria-endemic countries, especially those in tropical areas of Africa where there is intense transmission of *Plasmodium falciparum* (*P. falciparum*), 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.<sup>1</sup> According to the Roll Back Malaria (RBM) Initiative, malaria accounts for over 10,000 maternal and between 75,000 and 200,000 infant deaths per year in Africa.<sup>2</sup> Prevention of MiP is thus a key public health intervention.

The World Health Organization (WHO) recommends a multi-pronged approach to MiP. Intermittent preventive treatment for malaria in pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP) with at least three dosages, in addition to ensuring that pregnant women sleep under insecticide-treated nets (ITN) is critical to successfully preventing MiP.<sup>1</sup> The government of Kenya's current policy on IPTp-SP supports a minimum of two doses of SP before birth. Recent data from Kenya demonstrates that 25 percent of Kenyan women are receiving the mandated two doses.

The most recent DHS survey demonstrates that 60 percent of infants' deaths occur during the first month of life.<sup>2,4</sup> Given the high neonatal mortality rate and that many of these deaths could be attributed to MiP, it is imperative to improve adherence to the WHO MiP recommendation.<sup>5</sup> Furthermore, the WHO most recent recommendation requires greater dosage than previous recommendations; therefore, it is critical that new and innovative approaches be implemented to improve IPTp-SP adherence.<sup>3</sup>

The WHO recommends also the use of community health workers (CHWs) to deliver IPTp-SP for pregnant women living in endemic areas, with targeted monitoring and evaluation.<sup>5</sup> The effects of using CHWs to distribute IPTp-SP to pregnant women may be mixed, as there is currently only low to moderate evidence for this approach. However, the WHO concluded that this intervention is probably acceptable and feasible, may have few undesirable effects, and may reduce inequalities by extending care to underserved populations.<sup>5</sup>

## Activities

PATH adopted a two-phased approach to:

- increase coverage of MiP activities, with a special focus on increasing the uptake of IPTp-SP, and
- strengthen antenatal care (ANC) in Kisumu, Kenya

During the first phase PATH utilized a consultant to identify barriers and facilitators to ANC and the uptake of IPTp-SP. The consultant held focus group discussions with CHWs, pregnant women, and ANC nurses to identify specific enablers and limitations to women attending ANC clinics and receiving their IPTp-SP dosage. Additionally, the consultant held key informant interviews with district officials, health workers, and community health extension workers (CHEWs) to gain specific perspectives on community approaches to IPTp-SP distribution. The consultant compiled the results of this qualitative review into a final report.

During the second phase, PATH collaborated with health clinic staff and district officials to design and pilot a community-based approach to strengthening ANC and uptake of IPTp-SP in the East Kisumu district:

- CHWs received a refresher training on malaria and the current Kenyan policy relevant to malaria control with an emphasis on current policies and the most recent WHO recommendations for MiP.
- After the training, the CHWs returned to their communities to identify pregnant women.
- During the CHWs' routine home visits, they encourage pregnant women to attend the ANC clinic, review the maternal health booklets with the pregnant women and provide the missing dosage of IPTp-SP if it was not given during the ANC appointment or if an appointment was missed.
- The CHWs note in the maternal health booklet the dosage provided to the pregnant women and included the uptake on their reporting sheet to the health clinic.

#### *Focus group discussions and key informant interviews.*

Between October and November 2013, the PATH consultant conducted a series of focus group discussions with pregnant women, CHWs, and community leaders. Additionally, he conducted interviews with key informants including representatives from the District Health Management Team, maternal and child health nurses, health facility leadership, and CHEWs.

From the formative inquiry, we learned that a major reason why pregnant women don't attend the ANC clinics is the negative attitude of some health workers. Staff attitudes and unfair treatment by the service providers were reported by most pregnant women as the reason why they fail to go to the ANC clinic. Women inform each other about their negative experiences, hence diminishing attendance and compliance further. Other reasons cited for not attending the ANC clinics included: lack of information, trust in traditional birth attendants (TBAs), stigma on HIV testing, long queues especially due to staff shortage, distance to health facilities, and shortage of essential drugs, including IPTp-SP tablets.

There was consensus between the groups that CHW engagement in the distribution of IPTp-SP would be instrumental in both increasing ANC clinic attendance and the uptake of IPTp-SP. It was, however, noted that there would be a need for some adjustments in the current reporting and supervision systems to encourage CHW and to accurately account for drugs distributed, but that with proper implementation this could lead to a feasible and effective model for improving ANC and IPTp-SP uptake.

There was little receptivity for a non-directly observed treatment (DOT) approach from health staff or community leaders. Some, however, suggested that men (husbands) could be targeted to be the ones to administer the IPTp-SP to their spouses.

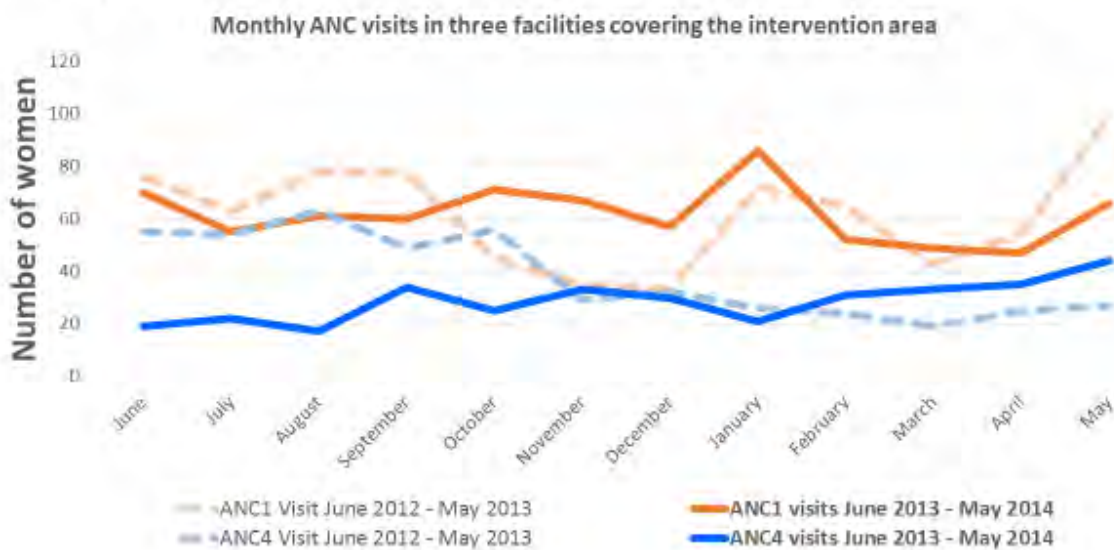
Overall, the consensus is that CHW engagement in the distribution of IPTp-SP would be instrumental in both increasing ANC clinic attendance and uptake of IPTp-SP. This would, however, require support by the community and from the health care system to ensure reliable reporting, appropriate drug supplies, and overall education on MiP prevention.

### *Pilot community-based approach to strengthening ANC and uptake of IPTp-SP*

PATH initiated field activities in West Kisumu in October 2013. CHWs received a refresher training on malaria, including MiP, and were familiarized with the new reporting tools. The focus was first on raising awareness about the need for women to attend ANC clinics and prevent malaria during pregnancy by taking multiple monthly doses of IPTp-SP and sleeping under an ITN. During the month of November 2013, CHW registered ANC-defaulters in their communities and prepared for community-/home-based IPTp-SP distribution to these defaulters, while the community health extension workers (CHEWS) and facility workers supported the community-based activities through supervision and by increasing the SP supply. Community-based distribution was established in community health units covering three health facilities in December 2013.

As there was a concern that community based distribution of IPTp-SP would decrease ANC attendance and facility based uptake of IPTp-SP, PATH assessed the effect of these community activities on ANC attendance and IPTp-SP uptake in the three health facilities frequented by pregnant women in the communities covered by the CHWs trained in community-based distribution of IPTp-SP up to May 2014. We accessed data available through the national health information system in Kenya (dhis2) to monitor IPTp1, IPTp2, ANC1, and ANC4. A review of the ANC clinic attendance and IPTp uptake data covering the intervention area shows a moderate increase in ANC4 uptake as compared to the same period the previous year (figure1).

**Figure 1: ANC attendance in intervention area**



We also compared ANC clinic attendance in the facilities covering the areas (intervention facilities) in which CHWs were trained in MiP with the ANC clinic attendance in similar facilities in Kisumu without the pilot (control facilities) and found that ANC4 clinic attendance was far better in the area covered by trained CHWs (figure 2).

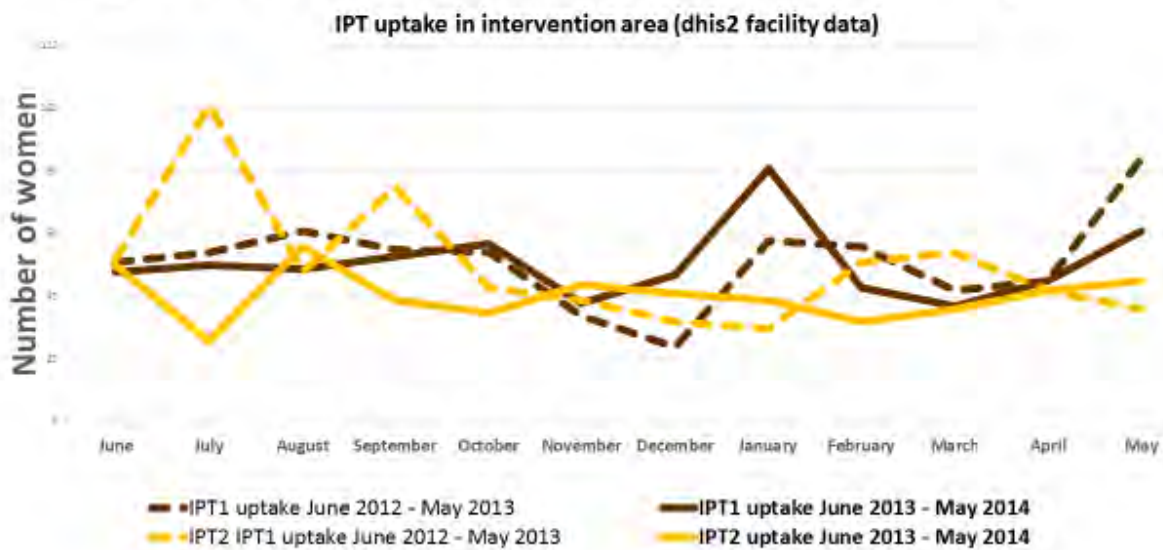
**Figure 2: ANC<sub>4</sub> attendance in intervention and control facilities**



We did not see a drop in ANC clinic attendance and IPTp uptake in the clinics serving the areas where CHWs distributed IPTp-SP. Whereas we had noted a drop-off in ANC clinic attendance (and IPTp uptake) in the months of November and December in 2012 and expected a bigger decrease in ANC clinic attendance in December 2013 due to a health worker strike on top of the end-of-the-year holidays. The start of the community-based activities, including IPTp-SP distribution, seemed to have had no negative impact on ANC clinic attendance and IPTp uptake in December 2013 and January 2014, as we saw an increase compared to the 2012/2013 baseline (figure 3).

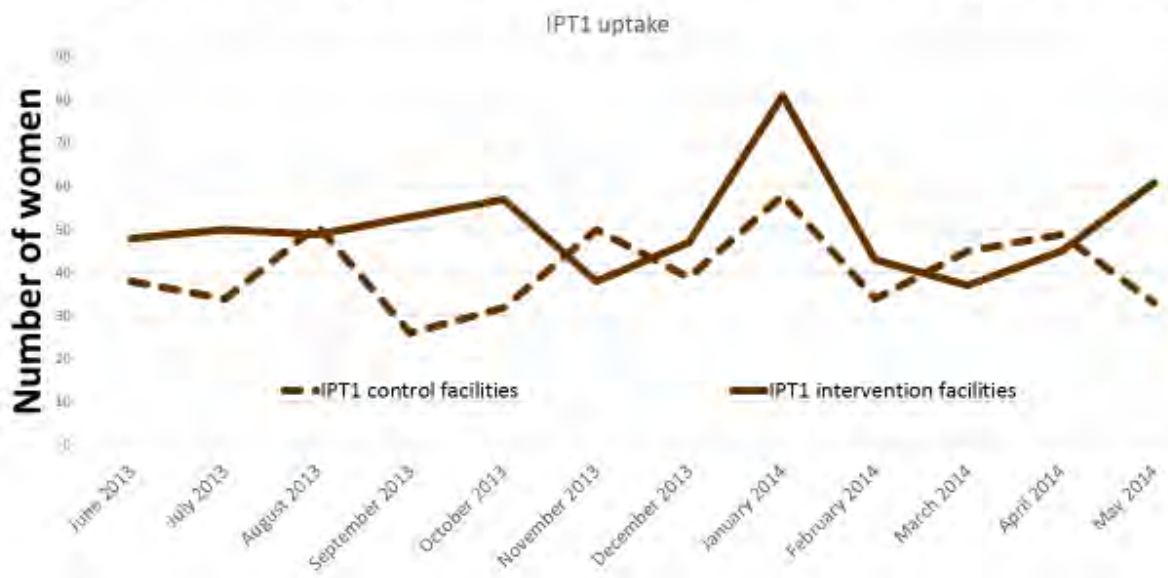


**Figure 3: IPTp-SP uptake in facilities (intervention area)**



The same increase in IPTp uptake was not seen in the control facilities (figure 4 and 5).

**Figure 4: IPT1 uptake in facilities (intervention and control area)**

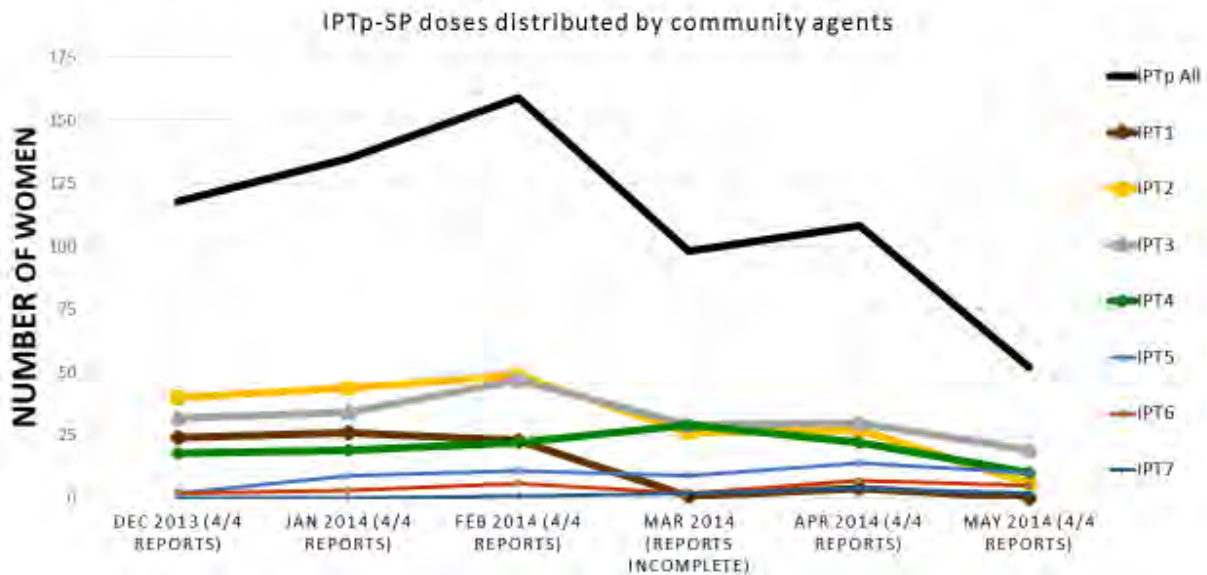


**Figure 5: IPT2 uptake in facilities (intervention and control area)**



In addition to the IPTp-SP distribution during ANC at the facilities, CHW distributed IPTp-SP in their communities. During the first six months of community based IPTp-SP distribution, over 50 additional IPTp-SP treatments were distributed monthly by CHWs. CHWs provided an additional 50 percent doses of IPTp2 to pregnant women and increased the uptake of IPTp3 and IPTp4 (figure 6).

**Figure 6: Community Based IPTp-SP distribution**



In addition to IPTp, an additional 300 monthly doses of iron/folic acid were distributed by the CHWs in these first six months of the pilot.

Community-based administration of IPTp-SP was thus well accepted by CHWs and pregnant women. CHWs showed enthusiasm for the additional tasks of identifying pregnant women, encouraging them to attend ANC clinics, and providing IPTp-SP to defaulters. They did this out of a sense of duty to serve their communities and because this activity added a sense of importance to their role in society.

## Conclusion

### *Community-based approach*

Overall, a community-based approach through CHWs' support showed promising results. CHWs expressed ongoing willingness to continue these activities, as they recognized the trust that pregnant women have in their advice and expertise. Furthermore, results indicate that ANC clinic attendance did not decrease (and might have increased) while SP uptake greatly improved.

Additionally, this methodology is very feasible, requiring a small investment in conducting a one- or two-day training for CHWs and health clinic practitioners. Furthermore, the CHWs will need to be equipped with a small supply of SP to distribute when necessary and additional support in reporting and supervision.

### *Health facility interventions*

Given that many women reported that they are reluctant to attend ANC clinics because of the poor attitude of some health workers, there is the need for health managers to identify issues surrounding this attitude and develop strategies and design interventions as appropriate. Other facility interventions could include but should not be limited to: training and technical updates, supportive supervision, and provision of necessary materials and supplies at these health facilities. Other measures to address barriers to attending ANC clinics include continuous community sensitization on the many benefits of ANC clinic attendance.

### *Overall*

Community-based approaches are a proven effective implementation strategy to improve drug adherence. CHWs are trusted members of the community who can appropriately advise pregnant women on best practices for a healthy pregnancy. The community-based approach still requires supply-chain management through the health clinics to assure a reliable supply of SP. In addition to consistent training, support and supervision of CHWs are necessary to assure accurate information/reporting on implementation activities and drug distribution.

Community-based approaches to improving MiP coverage, including IPTp-SP uptake and adherence, have demonstrated positive results in studies in Kenya, Uganda, Nigeria, and Malawi. Improved MiP adherence can result in a decrease in low birth weight and thus neonatal mortality.

## Challenges

There were a number of manageable challenges in implementing this approach. Data collection presented the greatest concern as the process required additional data collection and reporting by the CHWs. This required designing monthly reporting sheets. Eventually, this data needs to be incorporated into the national data-collection process. Both the CHWs and the data processors will need to receive



training on collecting and processing the additional data. Within the current data collection and reporting practices, it is not possible to add information to the national data-collection tool (e.g., to report on SP doses three, four, and beyond).

Other challenges arose during the implementation of the pilot, including personnel changes at both the district and national levels. All new staff, however, continued to support the work. Additionally, during the pilot there were immunization campaigns which diverted many officials', including health workers', attention away from the MiP activities.

## Next Steps

There have been a limited number of community-based studies conducted in Africa demonstrating the success of community-based MiP interventions. Like this pilot, many were small, and the results cannot be generalized to larger populations. The results, however, demonstrate the need for a scale-up in Kenya and other countries to fully demonstrate the impact community-based approaches can have on MiP outcomes.

Through both the quantitative and qualitative approaches, it is clear that CHWs and health care providers need to receive ongoing training and supervision to assure high-quality and consistent implementation of ANC, including MiP, guidelines, and policies.

## Bibliography

- 1 World Health Organization. A strategic framework for malaria prevention and control during pregnancy in the African region. *World Health Regional*. 2004.
- 2 Kenya National Bureau of Statistics (KNBS) and ICF Macro. *Kenya Demographic and Health Survey 2008-2009*. Calverton, MD: KNBS and ICF Macro; 2010.
- 3 World Health Organization. Roll back malaria consensus statement: Optimizing the delivery of malaria in pregnancy interventions. 2013. Available at: <http://www.rbm.who.int/docs/2013/MIP-consensus-statement-en.pdf>. Accessed August 2014.
- 4 World Health Organization. Roll back malaria progress & impact series: The contribution of malaria control to maternal and newborn health. Available at: <http://rbm.who.int/ProgressImpactSeries/docs/report17-en.pdf>. Accessed August 2014.
- 5 World Health Organization. WHO recommendations: Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting. Available at: [http://www.who.int/reproductivehealth/publications/maternal\\_perinatal\\_health/978924504843/en/](http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/978924504843/en/). Accessed August 2014.