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SCALING UP MALARIA IN PREGNANCY PROGRAMS: WHAT IT TAKES!

The Jhpiego Experience

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The authors gratefully acknowledge the valuable input of colleagues who have contributed to the development of this paper. Special thanks to Robert Newman and Kwame Asamoa, Centers for Disease Control and Prevention, Malaria Branch, for their insight and recommendations. Thanks also to Harshad Sanghvi, Ronald Magarick, Alain Damiba and Barbara Deller for their helpful feedback.

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ABBREVIATIONS AND ACRONYMS

ACT	Artemisinin combination therapy
ANC	Antenatal care
CDC	Centers for Disease Control and Prevention
CHW	Community Health Worker
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DOMC	Division of Malaria Control
DRH	Division of Reproductive Health
FBO	Faith-based organization
FP	Family planning
HMIS	Health management information system
IPTp	Intermittent preventive treatment for pregnant women
ITN	Insecticide-treated bed net
MDG	Millennium Development Goal
MIP	Malaria in pregnancy
MNH	Maternal and neonatal health
MOH	Ministry of Health
MOHSW	Ministry of Health and Social Welfare
PMI	President's Malaria Initiative
PQI	Performance and quality improvement
RBM	Roll Back Malaria
RH	Reproductive health
SDG	Service delivery guidelines
SIP	Syphilis in pregnancy
SMWG	Safe motherhood working group
SP	Sulfadoxine-pyrimethamine
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

Malaria is a leading cause of morbidity and death in Africa, with the greatest burden on pregnant women and young children. Nearly 10,000 pregnant women die annually as a result of malaria. This paper discusses the importance of strengthening the quality of malaria in pregnancy (MIP) services across the continuum of care, including focused antenatal care (ANC) services and increased involvement of communities in the prevention and case management of MIP, and presents recommendations for scale-up.

We review MIP program implementation efforts in five sub-Saharan African countries: Burkina Faso, Kenya, Madagascar, Tanzania and Uganda. In each of these countries, Jhpiego has provided technical assistance to test innovative concepts for MIP programming and apply proven practices at a national level. In Burkina Faso, Jhpiego tested the feasibility of MIP implementation using focused ANC as a platform for care. In Madagascar, Jhpiego tested the performance and quality improvement approach. In Uganda, Jhpiego tested the feasibility of working with faith-based organizations for MIP programming. In Kenya and Tanzania, Jhpiego applied innovative and evidenced-based practices on a national scale.

JHPIEGO'S APPROACH

Jhpiego's approach promotes the World Health Organization's three-prong strategy for the prevention and case management of MIP in areas of stable malaria transmission. Recognizing that malaria in pregnancy is both a maternal and a newborn health issue, Jhpiego aims to strengthen health systems across the continuum of care.

Key elements of Jhpiego's approach are:

- Strengthening the partnership between reproductive health and malaria control programs;
- Improving provider and supervisor skills;
- Creating and applying performance standards to improve service delivery;
- Strengthening record keeping, reporting and decision-making;
- Advocating for commodity availability; and
- Mobilizing communities to use MIP interventions.

RESULTS

In each of the five countries, a combination of key program elements was applied, based on the context and needs in that country. These efforts yielded improvements in MIP intervention coverage, especially the first dose of intermittent preventive treatment (IPTp1) and to a lesser extent the second dose (IPTp2), and promotion of insecticide-treated bed nets (ITNs). While comparisons across countries cannot be made because the program elements applied, data collection methods and time frames varied, Jhpiego has drawn some important conclusions from these country experiences.

Jhpiego found the highest level of IPTp1 coverage (80.5%) in Madagascar, and the highest level of IPTp2 coverage (75.0%) in Burkina Faso; both countries' programs focused on a very small number of facilities. While some country programs made efforts to promote and distribute ITNs or ITN vouchers, ITN linkages through MIP programs using the ANC platform are generally weak and need to be improved. The same is true for case management of pregnant women; although case management training is incorporated with provider ANC/MIP training programs, treatment of pregnant women is often not tracked or documented, which is essential, especially with the introduction of artemisinin combination therapies (ACTs).

CHALLENGES AND LESSONS LEARNED

Implementation efforts across countries have demonstrated a number of challenges and have also yielded important lessons learned that should be considered as MIP programs move toward wide-scale implementation.

CHALLENGES	LESSONS LEARNED
1. Lack of and late attendance at ANC.	1. Involve the communities from the start.
2. The forgotten prongs: ITNs and case management.	2. MIP is not only IPTp!
3. Lack of MOH policy and program coordination.	3. Advocate for stronger MOH partnerships.
4. Human resource shortages.	4. Collaborate with MOH to address unskilled providers.
5. Stock-outs at the ANC clinic.	5. No product! No program!
6. Monitoring and record keeping.	6. Integrate monitoring and record keeping into programs.
7. Little support for pre-service education.	7. Get MIP into pre-service!
8. Inconsistent involvement of the private sector.	8. Target the public and private sectors together.

In the five countries showcased in this paper, IPTp uptake increased substantially—in two countries in the context of wide-scale coverage (Tanzania and Kenya) and in three countries in the context of testing new concepts (Burkina Faso, Madagascar and Uganda). Improved ITN promotion/ownership and ANC utilization are evident as well in selected countries that targeted these results. Application of the key program elements is helping countries improve outcomes for MIP. This paper demonstrates that Jhpiego's comprehensive approach to preventing and controlling MIP is effective, can be successfully scaled up and is designed to move toward global MIP targets in a sustainable manner.

While each of the five countries presented has made notable achievements in MIP prevention and case management, none have achieved national targets. A platform of ANC coupled with community mobilization efforts leads to improvements in MIP intervention coverage; however, it may not be enough to reach all pregnant women and achieve national targets. To achieve national coverage, programs should consider proven approaches that can augment existing strategies. Jhpiego continues to test new approaches that will support MIP scale-up and help countries achieve their target goals. These approaches, which can enhance countries' existing MIP strategies, include: a) community-based distribution of IPTp and ITNs and promotion of ANC services; b) social mobilization efforts that will increase communities' role in the delivery of health care services; and c) integration of a monitoring and evaluation module with routine maternal and newborn health care.

INTRODUCTION

Malaria is a leading cause of morbidity and death in Africa, with the greatest burden on pregnant women and young children. Nearly 10,000 pregnant women die annually as a result of malaria (WHO 2008). Simple interventions for pregnant women can reduce the burden and consequences of malaria in pregnancy (MIP) in stable transmission countries. These interventions include: a) uptake of intermittent preventive treatment (IPTp), with an appropriate anti-malarial, currently sulfadoxine-pyrimethamine (SP) delivered through focused antenatal care (ANC); b) use of insecticide-treated nets (ITNs); and c) prompt diagnosis and case management of malaria illness (WHO 2004b). Since 2002, Jhpiego has helped to establish appropriate MIP policies in 10 countries and supported program implementation for MIP prevention and case management in 12 countries across Africa.

This paper reviews the importance of strengthening the quality of MIP services across the continuum of care, including focused ANC services and increased involvement of communities in the prevention and case management of MIP.

This paper will:

1. Review the context for programs addressing MIP prevention and case management, including global recommendations and targets;
2. Document Jhpiego's approach, results and lessons learned; and
3. Discuss recommendations for scale-up.[1]

BACKGROUND

While many African countries have made great strides in addressing the prevention and case management of MIP, no countries have achieved global targets set during the Roll Back Malaria (RBM) Summit in Abuja, Nigeria, in 2000, which stated that by the end of 2005, 60% of pregnant women at risk for malaria would have access to IPTp and ITNs. The newer RBM goals,

[1] For purposes of this paper, scale-up refers to attaining national coverage and reaching target goals.

stating that by 2010 the world's malaria burden will be reduced by 50%, and 80% of pregnant women will receive at least two doses of IPTp and sleep under an ITN (RBM Partnership 2005), and the President's Malaria Initiative (PMI) goal to reach 85% of pregnant women with these same interventions, are ambitious. Achieving them will require a collective sense of urgency among countries and partners.

Uptake of IPTp1 has accelerated rapidly in the last five years; however, two doses or more of IPTp still remains a challenge. Two doses of IPTp (or three doses in countries where HIV prevalence is greater than 10%) are essential to achieve the beneficial impact of IPTp. Achieving the global targets could have a notable effect on the attainment of the Millennium Development Goals (MDGs) (UN 2007), specifically, MDGs 4, 5 and 6, which focus on reducing maternal mortality, child mortality and the incidence of malaria. With support from the RBM Partnership, the World Health Organization (WHO), and multiple donors including the Global Fund, PMI, the World Bank Booster Program and the Bill and Melinda Gates Foundation, countries are undertaking implementation and positioning themselves for scale-up. Application of proven approaches for MIP programming taken to scale at the national level will lead to lasting results.

JHPIEGO'S APPROACH

Jhpiego's approach promotes the WHO three-prong strategy for the prevention and case management of MIP in areas of stable malaria transmission. Recognizing that MIP is both a maternal and newborn health issue, Jhpiego aims to strengthen health systems across the continuum of care, reaching pregnant women at both the community and facility levels and fostering the synergetic link between communities and facilities to improve health systems, especially for women and their families. The approach is flexible, which allows for greater coverage among pregnant women and wide-scale implementation.

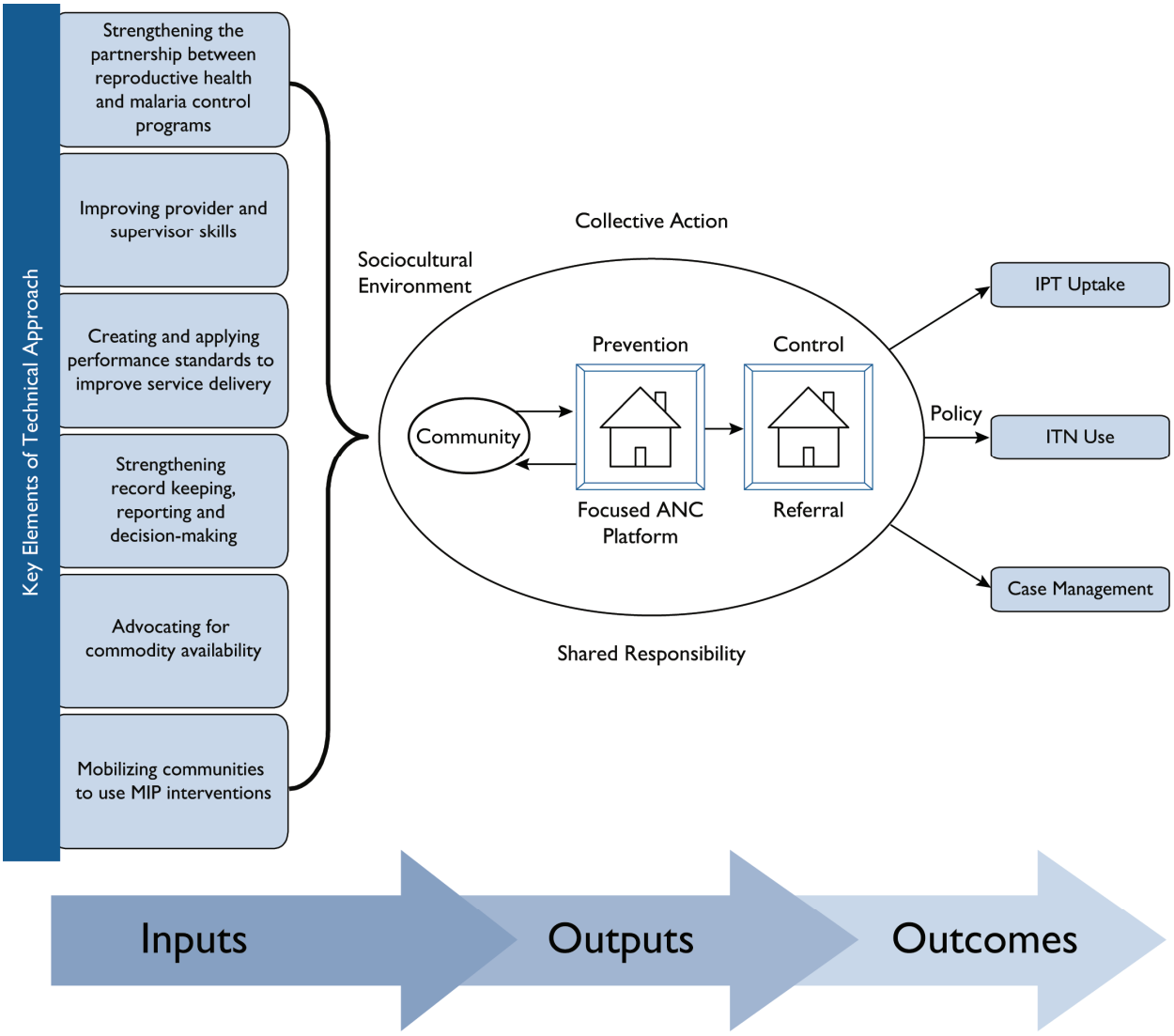
World Health Organization three-prong strategy for prevention and case management of MIP in areas of stable transmission:

1. Intermittent preventive treatment monthly, beginning in the second trimester through routine ANC services;

2. Promotion and use of insecticide-treated nets; and

3. Prompt and effective treatment for malaria.

Figure 1: Malaria in Pregnancy: Continuum of Care



First, Jhpiego focuses on strengthening the enabling environment for successful MIP program implementation by assisting with the development of policies, norms, guidelines and clinical standards relevant to MIP. Second, Jhpiego reaches communities to engage pregnant women and their families early in pregnancy to increase understanding of the effects of MIP and increase demand for ANC services. Third, Jhpiego works with health facilities to improve the delivery of focused ANC services emphasizing MIP. Jhpiego's approach is straightforward yet comprehensive and is adapted to the current situation and particular needs of each country; each key element is applied within this framework. Some countries may need only one or two key elements applied, whereas other countries may need all key elements applied.

KEY ELEMENTS OF JHPIEGO'S APPROACH

The key elements of Jhpiego's technical approach across the continuum of care include:

- **Strengthening the partnership between reproductive health (RH) and malaria control programs**

  The underpinning of MIP program implementation is the partnership between national RH programs and national malaria control programs. RH programs, which support all maternal and newborn health efforts, play a vital role in the management of MIP program implementation, and malaria programs play a vital role in providing technical oversight throughout implementation. As an example, in Kenya, Jhpiego is a member of the national safe motherhood working group (SMWG), which is chaired by the Director of Reproductive Health. The SMWG, with representation from the Division of Malaria Control, reviews, monitors and evaluates MIP program implementation throughout Kenya. The SMWG reinforces the role of the RH program to manage implementation and malaria control to provide the technical oversight required for program implementation. As programs develop, partnerships will expand to include national HIV programs, national health management information systems (HMIS) partners, national diagnosis and laboratory programs, and national tuberculosis (TB) programs. Fostering these partnerships from the outset of implementation leads to more integrated implementation compared to vertical programming. Additionally, such collaboration is an opportunity for MIP programs, which often lack resources, to draw on additional funding that will augment implementation. Jhpiego fosters these partnerships in each country to develop an enabling environment at the national level to set policy standards and guidelines and at the regional and district levels to ensure integrated implementation.

- **Improving provider and supervisor skills**

  Improving health care provider and supervisor skills is done in the context of both prevention and case management—prevention through a platform of focused ANC and community interventions, case management of uncomplicated malaria through ANC and outpatient services, and case management of severe malaria through appropriate referrals.

  Training and Supervision

  Jhpiego applies its training and supervision approach to meet the needs of each individual country. When reaching providers on a national scale, we have implemented a simple orientation package, which includes user-friendly materials and job aids, using a cascade approach to in-service training. This proven cascade approach (Stanback et al. 2007) trains a core group of trainers at the national and district levels, who then train

providers, who then orient their colleagues to MIP prevention and case management policies and standards. This approach allows a maximum number of providers to be reached with a minimum of resources and lost work time. In Kenya and Tanzania, this cascade training has been very successful to support programmatic roll-out for prevention and case management of MIP. In other countries like Madagascar and Burkina Faso, we have used a full training package, which includes a reference manual, participant's handbook and facilitator's notebook, to target front-line providers. Jhpiego links training with supportive supervision to ensure continued mentoring of providers and to address gaps in knowledge and delivery of services. Supervision is a key aspect of any training program and helps to maintain the consistency and quality of training.

Pre-Service Education

Jhpiego advocates for the inclusion of focused ANC/MIP in pre-service education curricula to support malaria prevention and case management, especially for nurses and midwives, who are most likely to be providing ANC services. Pre-service education complements in-service training and allows graduates to enter the workforce ready to serve their clients, without need for additional training. In Tanzania, efforts to strengthen pre-service education have led to the integration of focused ANC/MIP with the curricula of all 51 national nursing and midwifery schools. As a result, in August 2007, approximately 1,600 nursing and midwifery school students graduated in Tanzania and were ready to enter the workforce with the knowledge and skills to provide focused ANC/MIP services. A nurse-midwife graduate from Kahama Nursing/Midwifery Certificate School in 2005 said of her experience:

> *I feel that the focused ANC information I was taught in school was very current—such that when I was posted to a health facility after graduation I was the most up-to-date provider at the site. All tutors and preceptors should be trained in focused ANC so that all students are well-prepared before they graduate. All other providers should be updated in focused ANC so that clients are getting good services.*

- Creating and applying performance standards to improve service delivery

  The application of performance standards to monitor and improve the quality of provider and health care facility performance requires the development and dissemination of evidence-based national service

delivery guidelines (SDGs). Jhpiego supports countries to develop guidelines that are based on national policy and best practices. With SDGs in place, performance and quality improvement (PQI) strategies can be implemented, including the creation of national performance standards to operationalize national policy and the SDGs.

In Burkina Faso, Tanzania and Madagascar, Jhpiego applied an innovative PQI strategy to ANC services that put clinical standards into practice, resulting in improved quality of care for pregnant women. Using Jhpiego's PQI approach, program managers and health care providers identified gaps in the quality of care using operational performance standards (e.g., IPTp uptake, four ANC visits) and identified local solutions to address those gaps. PQI has also been successfully applied with engagement from the community. In Burkina Faso, for example, application of PQI has resulted in stronger ownership of MIP programs among providers and community members, improved quality of health services and increased demand for ANC/MIP services. PQI also alleviates the burden of formal external supervision and provides the opportunity for on-site supervisors and health care providers to self-assess service delivery and quality of care based on evidence-based standards adapted to the country context.

- Strengthening record keeping, reporting and decision-making

  A key component of program implementation, as seen in Burkina Faso and Tanzania, is addressing the gaps in record keeping, reporting and decision-making. When attention to these gaps is integrated as a component of implementation, through training and ongoing support supervision, providers and supervisors have a better understanding of how to incorporate routine monitoring of ANC/MIP services into their daily routine, and how the data collected can be used to improve service delivery. Motivating health care providers to record and use service delivery data can help to improve aspects of program implementation. Furthermore, helping health care providers understand the importance of record keeping can lead to better supply management of essential items like SP and treatment drugs. In Tanzania, Ministry of Health (MOH) ANC registers have not been revised in more than 20 years and do not capture MIP-related service provision. To address this gap, Jhpiego oriented ANC service providers during ANC/MIP in-service training on the importance of recording provision of IPT in blank extra columns at the end of the ANC register.

- Advocating for commodity availability

  Ensuring that ANC clinics have available SP, as well as other MIP-related supplies, including water and cups, and ITNs or vouchers for ITNs per national policy, is critical. MIP implementation programs must

coordinate and link with national and local partners supporting the distribution of drugs like SP when problems with stock-outs are detected. Additionally, advocacy for correct drugs for treatment of malaria illness is essential, especially as countries transition to the use of artemisinin combination therapies (ACTs). In Tanzania, through its program monitoring system, Jhpiego successfully documented and brought to the attention of national stakeholders a persistent and widespread problem with stock-outs of SP across the country.

- **Mobilizing communities to use MIP interventions**

  While the majority of women attend ANC at least once, this visit often occurs late in pregnancy. Reaching pregnant women during the first trimester of pregnancy (and ideally even before pregnancy), is not only important but also necessary to address their comprehensive health needs, and should include the promotion and use of ITNs, counseling and awareness about IPTp, and prompt case management of malarial illness. Reaching out to communities to increase awareness about the detrimental effects of MIP on women and newborns and linking communities with facilities to collectively address the burden of MIP are also important components of comprehensive MIP prevention and control. Jhpiego worked with communities in Burkina Faso, Kenya, Tanzania and Uganda to disseminate comprehensive messages on MIP in the context of RH services. These efforts led to increased awareness of MIP among community members. The Burkina Faso program, implemented in Koupéla District, also measured changes in behavior and documented increases in net ownership and ANC utilization. Results from a population-based follow-on survey in the Koupéla project showed that more than half the pregnant women in the Koupéla District reported owning a bed net in 2004. This was more than a one-third increase over the number of women who reported owning a net in 2001. In addition, the percentage of women with four ANC visits increased from 21% to 44% (Jhpiego/MNH Program 2004).

IMPLEMENTATION

Jhpiego supports MIP prevention and case management efforts at the global level through RBM's Malaria in Pregnancy Working Group, at the regional level through the RBM regional networks and the MIP coalitions,[2] and at the country level through the MOH.

This section summarizes highlights from Jhpiego's experience in five African nations: Burkina Faso, Kenya, Madagascar, Tanzania and Uganda. In each of

[2] The Malaria in Pregnancy East and Southern Africa (MIPESA) Coalition and the West African Regional Coalition for MIP (RAOPAG).

these countries, Jhpiego has provided technical assistance to test innovative concepts for MIP programming or apply proven practices at a national level. In Burkina Faso, Jhpiego tested the feasibility of MIP implementation using focused ANC as a platform for care. In Madagascar, Jhpiego tested the PQI approach. In Uganda, Jhpiego tested the feasibility of working with faith-based organizations (FBOs) for MIP programming. And in Kenya and Tanzania, Jhpiego applied innovative and proven practices on a national scale. *A comprehensive case study for each of the five countries, describing implementation, results and lessons learned, is presented in Appendices 1–5.*

Each of the five countries has adopted a MIP approach that is based on the WHO three-prong strategy and supports implementation of MIP prevention and control interventions through ANC and community involvement. Implementation support has varied according to country-based needs, priorities and resources available for implementation of MIP interventions.

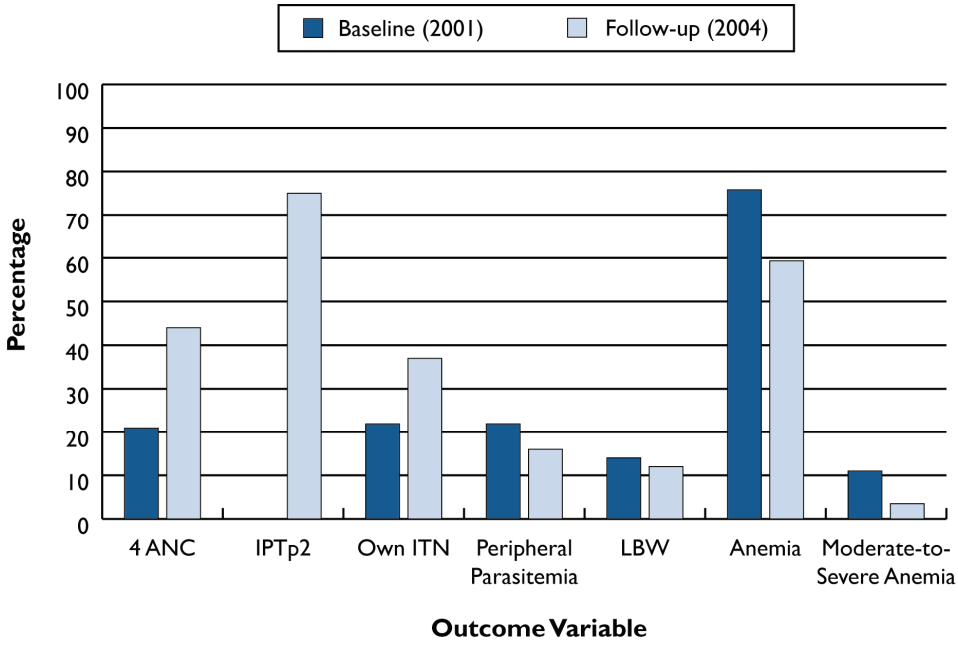
Kenya and Tanzania, where Jhpiego has worked closely with the MOH to implement its approach, have achieved the widest coverage and are showing impressive results. In Uganda, technical support from Jhpiego resulted in increased coverage through the faith-based sector. A pilot study of MIP in one district of Burkina Faso, conducted by the Centers for Disease Control and Prevention (CDC), Jhpiego and the MOH, influenced the adoption of a national MIP policy, followed by replication of the approach in additional districts. In Madagascar, Jhpiego's technical support led to improved outcomes, including improved quality of care. Application of Jhpiego's MIP technical approach there has resulted in improved outcomes, including increased uptake of IPTp, increased ITN ownership and increased utilization of ANC services.

Burkina Faso: May 2001–November 2004 (A complete case study can be found in Appendix 1, pg. 22.)

In 2001, through the United States Agency for International Development (USAID)-funded Maternal and Neonatal Health (MNH) Program, in collaboration with CDC and the Centre National de Recherche et Formation sur le Paludisme, an institution within the MOH, Jhpiego undertook one of the first pilot studies of MIP prevention and case management in West Africa. Key elements included: a) fostering of partnerships between RH and malaria control, including policy promotion; b) training and supervision; c) quality improvement; d) community mobilization; and e) improved record keeping. The pilot study, conducted in Koupéla District, tested the focused ANC platform as an operational delivery mechanism and examined community involvement as a strategy for improving maternal and newborn health outcomes. Twenty-three health facilities were included in the pilot study and eight sites were selected for the baseline and follow-up assessment. A total of 2,014 women were enrolled in the assessment.

Results of the pilot study revealed significant increases in the proportion of pregnant women attending four or more ANC visits, receiving two doses of IPT and owning an ITN (Sirima et al. 2006). At follow-up, Jhpiego documented substantial health impacts in the form of significantly reduced peripheral parasitemia and low birth weight. The comprehensive effort in Burkina Faso covered a population of 300,000, including an estimated 15,000 pregnant women, and led to improved outcomes in MIP that influenced the adoption of a MIP policy in Burkina Faso and scale-up to new districts.

Figure 2: ANC- and MIP-Related Outcomes in Burkina Faso: Baseline (2001) and Follow-up (2004)



P Values where statistically significant: 1) 4 ANC: P = 0.01; 2) IPTp2: P = 0.02; 3) Peripheral Parasitemia: P = <0.0001; 4) Anemia: RR = 0.78, P = 0.003; 5) Moderate-to-Severe Malaria: RR = 0.32, P=0.004

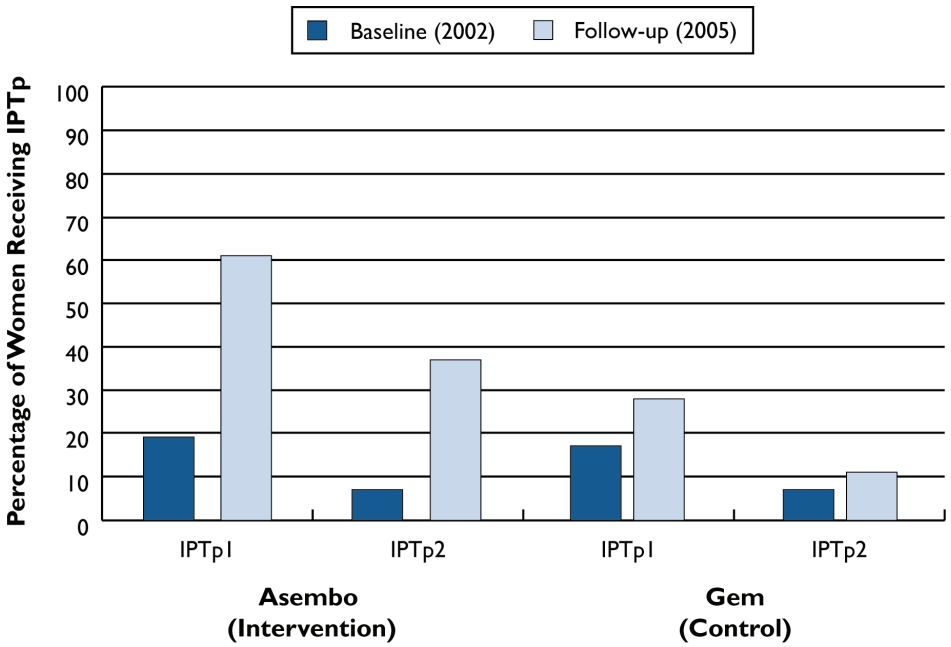
Data source: Sirima et al. 2006.

Kenya: 2001–2005
(A complete case study can be found in Appendix 2, pg. 25.)

In 2001, Jhpiego collaborated with the MOH, the Division of Malaria Control (DOMC) and the Division of Reproductive Health (DRH) to introduce high-quality focused ANC services including MIP. Key elements of the initiative were: a) fostering partnerships between DRH and DMOC; b) training and supervision; and c) community mobilization. The initial clinical phase targeted four districts, followed by scale-up to an additional 12 districts, and then ultimately to 23 endemic districts throughout the country. The community component targeted three districts, including Asembo (see Figure 3 below). These efforts covered an estimated population of 1,130,728 women of reproductive age, including 105,477 pregnant women, and have since been scaled up further with support from multiple partners including UNICEF and

WHO. CDC conducted a pre/post evaluation in one intervention district and one control district and included a cross-sectional household survey of women who recently delivered at baseline (2002) and follow-up (2005).

Figure 3: IPTp Coverage among Recent Mothers Who Attended ANC in Intervention and Control Districts in Kenya: Baseline (2002) and Follow-up (2005)



Data source: Ouma et al. 2007.

Figure 3 illustrates that uptake of IPTp1 and IPTp2 in the intervention district increased significantly ($p<.0.05$), suggesting that training combined with community sensitization contributed to increased uptake of IPTp among pregnant women, although coverage of the second dose of IPTp did not increase as dramatically as coverage with dose 1 (Ouma et al. 2007). The smaller increase in the uptake of IPTp2 could be because the majority of pregnant women attend ANC late in pregnancy. In addition, women from Asembo were more likely than women from Gem to attend four or more ANC visits and significantly more likely to state that SP is helpful and safe during pregnancy (data not shown; $p<0.001$).

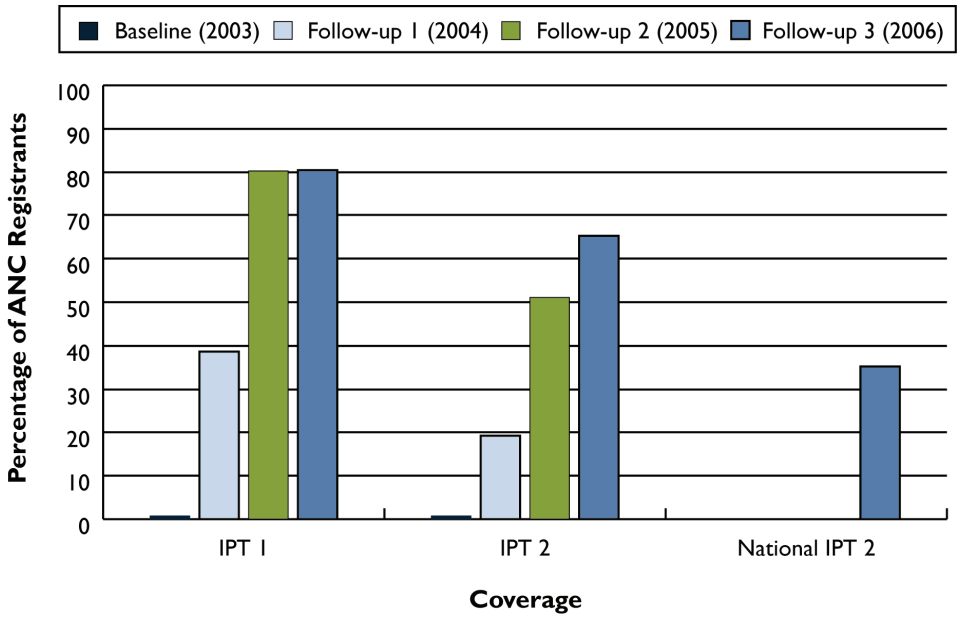
With the clinical approach under way, Jhpiego and the DRH, with support from USAID, targeted communities with messages about comprehensive RH services and MIP. In 2007, Jhpiego supported the DOMC to roll out the national treatment policy to 965 service providers in Coast province.

Madagascar: 2003–2006
(A complete case study can be found in Appendix 3, pg. 28.)

From 2003 to 2006, Jhpiego, in collaboration with CDC and WHO, supported the government in establishing its MIP policy. During this same period, the Madagascar Ministry of Health, Family Planning and Social Protection (MOH/FP) identified five health facilities in a highly endemic province to initiate MIP prevention and control using ANC as the platform for service delivery. Key elements supported included: a) fostering of partnerships; b) training and supervision; and c) quality improvement. This effort led to wide-scale implementation of IPTp throughout Madagascar by other partners, including WHO.

Program results revealed substantially better IPTp uptake at program facilities compared with the national average[3] (Figure 4) (National Malaria Control Program 2006). The five facilities covered a population of 103,609, with an estimated 4,700 pregnant women. With support from other partners including WHO, Madagascar trained providers on a national scale with support from Jhpiego-trained trainers and using materials developed by Jhpiego.

Figure 4: IPT Coverage among ANC Clients at Five Facilities in Madagascar: Baseline (2003) and Follow-up (2004–2006)



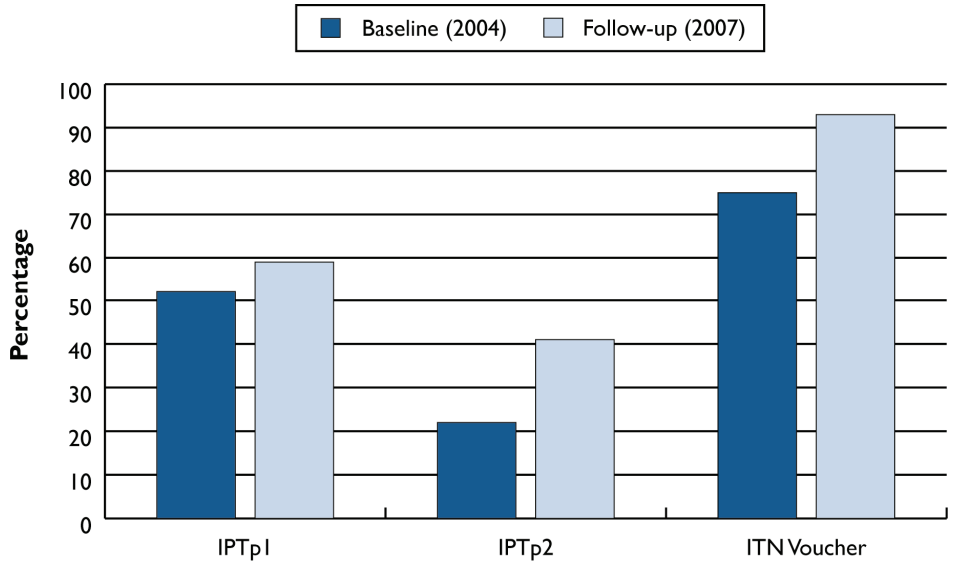
Data sources: Data from five sites provided by National Malaria Control Program (NMCP) in the MOH/FP. These data are derived from health facilities. National data: Madagascar NMCP 2006.

[3] In the baseline year 2003, IPT was not yet offered.

Tanzania: 2004–2007
(A complete case study can be found in Appendix 4, pg. 31.)

Since October 2004, building on efforts begun under the MNH Program, Jhpiego, through the ACCESS Program, has been supporting the Tanzania MOH to strengthen and scale up focused ANC and MIP services nationally. Key elements applied to date include: a) fostering of partnerships between reproductive and child health and malaria control; b) training and supervision; c) pre-service education; d) improvement in monitoring and record keeping; e) advocacy for commodity availability; f) community mobilization; and g) quality improvement. ACCESS incorporated the latest evidence on prevention and treatment of MIP with the curricula of all 51 nursing and midwifery training institutions in Tanzania. By the end of 2007, the program had trained 2,431 ANC providers in focused ANC and a PQI approach at 1,192 (24%) facilities. Nationally, this figure represents about 41% of the total estimated number of ANC service providers. These efforts covered a population of 31,481,125, including an estimated 299,783 pregnant women. Comparisons of IPTp uptake and provision of ITNs at baseline and follow-up are provided in Figure 5 below.

Figure 5: IPT Uptake and Receipt of ITN Vouchers among ANC Clients in Tanzania: Baseline (National Average 2004) and Follow-up (Jhpiego Facilities 2007)



Data sources: Tanzania DHS (baseline) and HMIS (follow-up).

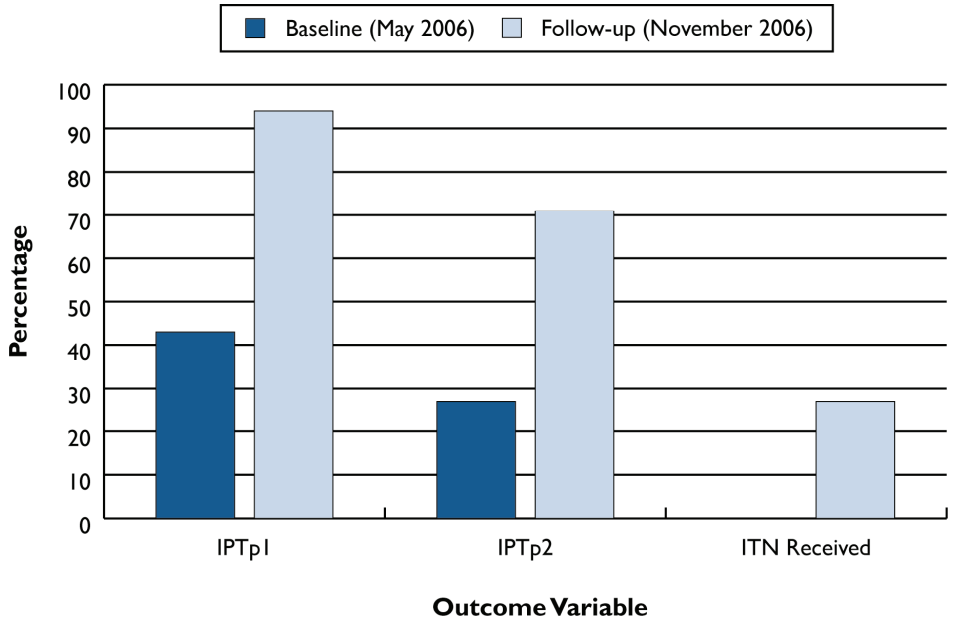
IPTp uptake and receipt of ITN vouchers among ANC clients at 102 ACCESS-supported facilities as of October 2007 were higher than the national average in 2004 when the ACCESS Program began, as documented by the Tanzania Demographic and Health Survey (DHS). Although Jhpiego does not manage the national voucher scheme, its program contributes to it through training of ANC providers in improved counseling on use of ITNs and the importance of providing vouchers for ITNs (ACCESS Program

2007a; National Bureau of Statistics and ORC Macro [DHS] 2005; Tanzania National HMIS Report 2006–2007). Since about a quarter of facilities represented in Figure 5 experienced stock-outs of SP during the reporting period, we stratified IPTp coverage according to presence/absence of SP stock-outs. Among facilities with no reported stock-outs (n=76), IPTp1 and IPTp2 coverage was 78% and 57%, respectively, illustrating the adverse effects of stock-outs on IPT coverage. ACCESS is now working with other stakeholders to improve the availability of SP.

Uganda: May–November, 2006 (A complete case study can be found in Appendix 5, pg. 35.)

In an effort to increase MIP service delivery through the faith-based sector in Uganda, Jhpiego collaborated with the MOH and IMA World Health to test and introduce focused ANC services including MIP in five health facilities in the Kasese District. Key elements supported were: a) fostering of partnerships between FBOs and the MOH; b) training and supervision; and c) community mobilization. The implementation efforts augmented existing public sector efforts, and the MOH led the implementation in coordination with faith-based leaders. The ACCESS Program conducted a pre/post program evaluation, with results displayed in Figure 6 below.

Figure 6: IPTp Uptake and Provision of ITNs at Five Facilities in Uganda: Baseline (May 2006) and Follow-up (November 2006)



Data source: ACCESS Program 2007b.

The evaluation revealed improved outcomes related to prevention of MIP, including increased IPTp uptake and increased receipt of ITNs by ANC clients (ACCESS Program 2007b). Following implementation of this

program, the MOH applied Jhpiego's approach to additional districts throughout Uganda with support from other partners, including WHO.

Conclusions from Country Experiences

In each of the five countries, a combination of key program elements was applied, based on the context and needs in that country. These combinations of elements yielded improvements in MIP intervention coverage, especially IPTp1, and to a lesser extent IPTp2 and ITN promotion. While comparisons across countries cannot be made because program elements applied, data collection methods and time frames varied, some important conclusions can be drawn from the country experiences.

The highest level of IPTp1 coverage (80.5%) was seen in Madagascar, and the highest level of IPTp2 coverage (75.0%) was seen in Burkina Faso; both countries' programs focused on a very small number of facilities. While some country programs made efforts to promote and distribute ITNs or ITN vouchers, ITN linkages through MIP programs using the ANC platform are generally weak and need to be improved. The same is true for case management of pregnant women; although case management training is incorporated with provider ANC/MIP training programs, treatment of pregnant women is often not tracked or documented, and such tracking is essential, especially with the introduction of ACTs.

CHALLENGES AND LESSONS LEARNED

Although tremendous achievements have been made in MIP prevention and case management, for most countries, national household survey data (e.g., DHS, National MOH reports) reveal that the Abuja targets have not been achieved. Implementation efforts across countries have demonstrated a number of challenges and yielded important lessons learned, summarized below, that should be considered as MIP programs move toward wide-scale implementation.

CHALLENGES	LESSONS LEARNED
1. **Lack of and late attendance at ANC.** Although the majority of pregnant women in Africa come for ANC at least once and often twice, they are also coming late in pregnancy (usually in the 6th month). Early attendance at ANC (during the first trimester) is critical in the battle to prevent and treat MIP by providing women with important counseling about their pregnancy, including the use of ITNs and prompt and effective case management. Moreover, a large proportion of pregnant women are not coming for at least four visits, as recommended by WHO.	1. **Involve the communities from the start.** There is increasing recognition of the importance of involving communities in their own health care, from planning all the way through to implementation. It is essential that women and their families be sensitized to MIP prevention and case management, and mobilized to demand services to complement the training of health providers. Collaboration with HIV partners is important too, given that pregnant women should be attending ANC early to be tested for HIV and receive appropriate care.

CHALLENGES	LESSONS LEARNED
2. **The forgotten prongs: ITNs and case management.** Although ITN delivery through ANC is increasing and some pregnant women are receiving ITNs through mass distribution campaigns, ITN distribution to pregnant women is not a routine component of MIP program implementation using ANC as a platform. While case management of simple malaria is integrated as a component of MIP programming, there are few data on case management of pregnant women with severe malaria. Referral of pregnant women to the next level of care is critical because severe malaria cannot be handled at lower level facilities.	2. **MIP is not only IPTp!** MIP programs must address the three prongs comprehensively, including ITNs and case management. Linking ITN distribution and use directly with MIP programs affords pregnant women a huge opportunity to access nets. Improvements in referral systems that correctly track and monitor pregnant women with severe malaria are important, especially with the advent of ACTs, to better understand their impact on pregnant women. The new focus on ITN "keep-up" through routine distribution channels is an opportunity to overcome this challenge.
3. **Lack of MOH policy and program coordination.** Partnerships between MOH RH programs and malaria control programs have been successful to a degree. However, using malaria (or HIV, TB or other) funds to support MNH interventions can create tension among national level partners. These partners do not always understand that using malaria, HIV, TB or other national funds to support MNH programs is beneficial, and that without this support for the entire MNH platform, including focused ANC, malaria outcomes would suffer.	3. **Advocate for stronger MOH partnerships.** Strong partnerships between RH and malaria programs are realized only when malaria control programs (and other technical programs e.g., HIV, TB, diagnostics and lab) understand the importance of strengthening MNH systems for improved outcomes in MIP, HIV, TB, etc. Planning between RH and malaria control must be harmonized to support implementation. Advocacy efforts are a key component of MIP programming and must begin at program inception and continue throughout program implementation. Advocacy begins with the national RH and national malaria control programs to ensure effective integration, leadership and promotion of integrated service delivery. Advocacy efforts should continue with all stakeholders at the national, regional, district and community levels. It is critically important to have an MIP "champion" in the RH department and the national malaria control program.
4. **Human resource shortages.** Frequently, large numbers of ANC providers, specifically at peripheral facilities, are not "skilled providers." They may be medical attendants or health aides who, due to staffing shortages, are the sole providers at peripheral health facilities. As they are not classified as skilled providers, they are not exposed to in-service training or pre-service education although they are providing ANC services.	4. **Collaborate with MOH to address unskilled providers.** MOHs should develop a plan for training and supervising unskilled providers. Development of simple training and supervision materials translated into local languages is an initial step to address this challenge. Additionally, engaging ministries to train these cadres is essential for successful implementation. HIV programs have a role to play here and can support this effort, recognizing that they are targeting the same clients and providers as the MOH.

CHALLENGES	LESSONS LEARNED
5. **Stock outs at the ANC clinic.** Stock-outs are a real issue across many countries and, without a consistent supply, the programs will not meet their objectives or targets. Tanzania documented that in about a quarter of the program sites, stock-outs of SP occurred for a prolonged period of time.	5. **No product! No program!** As countries transition to adoption and implementation of ACTs for treatment, ensuring that SP continues to be delivered to the ANC clinic is of critical importance for pregnant women. Ensuring appropriate drugs for treatment is also necessary. If stock-outs of SP or other essential supplies are a problem, it is necessary to advocate with the MOH and other stakeholders involved in the management of this commodity to improve the supply chain.
6. **Monitoring and record keeping.** Collection of data at the facility and district levels is often poor due to: a) inadequate training; b) lack of understanding about how to use data for decision-making, and thus lack of motivation; c) increasing responsibilities among health providers and managers; and d) outdated register formats and monthly facility reporting forms that do not capture the latest evidence-based practices.	6. **Integrate monitoring and record keeping into programs.** Routine monitoring of key MIP-related indicators helps to explain program trends and inform the direction of the program. Keeping records of supplies is also important to ensure that supplies (e.g. SP, ITNs) are ordered routinely and in adequate quantities. If there are national monitoring and/or record-keeping systems in place, it is best to use and support them to the extent possible, rather than developing all new forms and data flows that inevitably overburden service providers. Collaboration with monitoring and evaluation partners to ensure effective collection, analysis and use of data for programming by facilities, districts and national programs should be a key component of MIP prevention and control programs. Record keeping must be addressed during pre-service and in-service training of providers and supervisors.
7. **Little support for pre-service education.** Most countries are not investing in pre-service education for MIP.	7. **Get MIP into pre-service!** For ultimate sustainability and cost-effectiveness, MIP programs should be incorporated into pre-service education for medical, nursing and midwifery schools. Pre-service provides more "bang for the buck" in health care improvement since it augments in-service training and alleviates the burden of routine training.
8. **Inconsistent involvement of the private sector.** The private sector (made up largely of the faith-based sector) affords up to 40% of health care services in countries across Africa. However, programs often target only the public sector because of limited capacity and/or resources.	8. **Target the public and private sectors together.** In Tanzania, the faith-based sector has been part of all MIP programming efforts from the inception. This has yielded greater program coverage and resulted in a more capable workforce to address MIP prevention and case management. The private commercial sector is also becoming more involved in addressing MIP prevention and control and should be targeted/utilized as programs scale up. However, including FBOs and the private sector as part of an improved health care approach must begin with the MOH in any given country. Nongovernmental organizations and others working in these health care areas often underestimate the importance of this step, and the amount of time, effort and resources needed for this kind of advocacy and groundwork.

In the five countries showcased in this paper where Jhpiego and MOHs have supported efforts to strengthen focused ANC/MIP services and provider training systems and, to a lesser extent, engage communities in behavior change and social mobilization approaches, IPTp uptake increased substantially—in two countries in the context of wide-scale coverage (Tanzania and Kenya) and in three countries in the context of testing new concepts (Burkina Faso, Madagascar and Uganda). Improved ITN promotion/ownership and ANC utilization are evident as well in selected countries that targeted these results. Application of the key program elements, as shown in Figure 1, "Malaria in Pregnancy: Continuum of Care," is helping countries improve outcomes for MIP. This paper demonstrates that Jhpiego's comprehensive approach to preventing and controlling MIP is effective, can be successfully scaled up and is designed to move toward global MIP targets in a sustainable manner.

Comprehensive Service Delivery

MIP programming, as a component of MNH services, must advocate for and work toward improvements in the existing health system to ensure that pregnant women receive appropriate, high-quality services. ANC services that cannot successfully deliver comprehensive preventive care (e.g., for HIV) can have a detrimental impact on mothers living in malaria-endemic areas (WHO 2004a). At the same time, pregnant women who are not accessing services may be less likely to receive the full range of care—IPTp, ITNs and case management. A comprehensive and flexible approach, including community engagement and mobilization, is essential to support MIP programming efforts. As pointed out earlier, the partnership between RH and malaria control, in coordination with HIV, TB and lab diagnosis as programs expand, is the foundation of this effort and should be fostered from the beginning and through implementation.

The Forgotten Prongs

Experience in each of the five countries clearly shows that MIP programs must do a better job of incorporating ITNs and case management into program implementation. To date, IPTp uptake has been a main focus of country programs; however, ITN use and correct case management are also recognized as essential components of a comprehensive MIP program. Engagement with ITN partners can help to increase awareness among pregnant women about the importance of ITN use, and increase awareness among those partners about the role of ANC in routine distribution ("keep-up") of ITNs. Promoting the role of national RH programs in managing ITN distribution through ANC will help streamline program support and

avoid vertical program implementation. Increased support to help monitor treatment of pregnant women with malaria will provide insight about the adverse affects of ACTs, which is still fairly nascent. As MIP programs expand and scale up, full recognition and inclusion of each "'prong" into programming are essential.

Costs

Adequate resources to sustain and scale up MIP prevention and case management will require large-scale investment from donors. Over a five-year period, in the 30 hardest hit malaria-endemic countries, it is estimated that the cost to deliver IPTp to pregnant women will be $200 million, and the total costs of long-lasting ITNs (including for pregnant women) will be $272 million (RBM 2008). Costs of treatment (including for pregnant women) are approximately $4 billion, and indoor residual spraying costs are $1 billion over a five-year period (RBM 2008). MIP efforts could cost less than one-tenth of treatment and indoor residual spraying combined.

Beyond MIP

As seen in Kenya, application of Jhpiego's key elements resulted in improved capacity among 965 service providers to deliver treatment with ACTs in one province. Jhpiego's successful approach can be applied to other areas of malaria control since it aims to strengthen the health system while simultaneously increasing human capacity. This approach is essential as countries aim to comprehensively scale up malaria control.

SUSTAINABLE SCALE-UP: THE WAY FORWARD

As countries rapidly move toward scale-up, now is the time to map out plans for sustaining those efforts, including realistic projections of the cost to fully implement the MIP package. Reviewing and applying the lessons learned presented here will support countries to prevent and control MIP. Strengthening systems, developing human capacity and maintaining constant supplies including medicines, equipment and reagents today will undoubtedly assist countries to maintain program efforts into the future. However, countries are expected to need continued support, both financial and technical, for some time in order to maintain their target goals. Continued support will include, but not be limited to, procurement of supplies, refresher training, community involvement and maintenance of high-quality services.

While each of the five countries presented has made notable achievements in MIP prevention and case management, **none have achieved national targets.** Moving toward scale-up is a process that will lead to increasing the

program's impact while maintaining its quality. Scaling up any program, including MIP, requires a consistent and simultaneous effort that effects policy change and supports policy direction vertically, and influences wide-scale implementation horizontally.

A platform of ANC coupled with community mobilization efforts leads to improvements in MIP intervention coverage; however, it may not be enough to reach all pregnant women and achieve national targets. To achieve national coverage, programs should consider proven approaches like PQI and engagement with the faith-based sector that can augment existing strategies. Jhpiego continues to test new approaches that will support MIP scale-up and help countries achieve their target goals. These include: a) community-based distribution of IPTp, ITNs and promotion of ANC services; b) social mobilization efforts that will increase the communities' role in the delivery of health care services; and c) integration of a monitoring and evaluation module with routine MNH care. These are three new approaches that could enhance countries' existing MIP strategies.

Community-Based Distribution

Given that most women in sub-Saharan Africa are presenting at ANC late in their pregnancies, and efforts to increase early attendance have not been wholly successful, intensified involvement from communities to promote and increase IPTp uptake, ITN use and referral for case management should be considered. For example, community distribution of IPTp and ITNs as a component of comprehensive health services that can be delivered through community health champions should be considered in places where ministries have not been successful in achieving national targets (Mbonye, Bygbjerg and Magnussen 2008). Community distribution of IPTp should enhance utilization of ANC services and outcomes for MIP; implementation should be within the umbrella of MNH services.

A community-based distribution model would provide a comprehensive set of services including birth preparedness and complication readiness education, family planning, nutrition information, iron/folate, IPTp, ITNs, referral for malaria treatment, misoprostol for postpartum hemorrhage, calcium supplementation, newborn care and promotion of ANC services. While community-based distribution of IPTp is fairly nascent, there is a growing body of evidence showing that community-based distribution programs lead to healthier outcomes for women and their babies and also increase use of MNH services. Jhpiego, in collaboration with the MOH, is testing this approach in Nigeria. And in Afghanistan, from June 2005 to August 2007, through the Ministry of Public Health and Jhpiego, community health workers were trained to administer misoprostol to pregnant women to prevent postpartum hemorrhage at home births. This

program resulted in improved outcomes for preventing postpartum hemorrhage, and women in the intervention area were more likely to use a safe birth attendant at childbirth (Jhpiego 2008 [forthcoming]).

Social Mobilization

Communities, families and individuals play a critical role in the delivery of and access to health care services. In the context of MIP, more efforts must be made to engage the community and improve the link that exists between communities and health care facilities. Social mobilization, including advocacy, behavior change and communication, and social marketing can strengthen this link and increase the capacity of community ownership and responsibility for MIP prevention and case management. As a component of a comprehensive MIP strategy, social mobilization can lead to greater coverage among pregnant women.

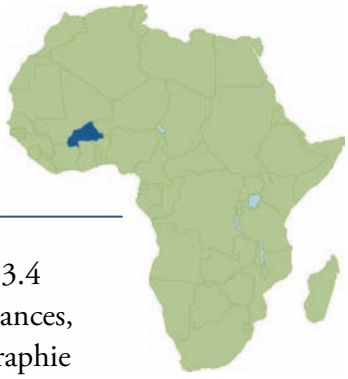
Introduction of community-based distribution and social mobilization should augment efforts to strengthen MNH services to help realize national targets for MIP prevention and case management. Community-based distribution and social mobilization can strengthen the malaria continuum of care, specifically, the link between communities and facilities, which will help countries achieve improved outcomes for MIP. The formal health system plays a key role in the application of community-based distribution and social mobilization approaches through capacity development, supervision, monitoring and supply management. Jhpiego is currently supporting efforts in Tanzania, in collaboration with Population Services International, to improve community-facility collaboration. Finally, as countries consider application of community-based distribution and/or social mobilization models that will augment their existing strategies, it is essential to document the outcomes for MIP prevention and case management to better understand the feasibility and acceptability of these approaches and how they should be applied.

Monitoring and Evaluation

Routine monitoring and periodic evaluations offer important insight into program progress, challenges and results. It is important to use standardized, internationally recommended MIP indicators for monitoring and evaluation to make sure that MIP information is comparable over time and across countries (RBM, MEASURE Evaluation, WHO and UNICEF 2006).

Monitoring as an integral component of MIP programs affords program managers, providers and community members the information they need to identify and address challenges in implementation and develop appropriate plans for future implementation. Monitoring efforts should be augmented, when possible, with evaluations that comprehensively examine the outcomes of programs implemented for the prevention and control of malaria. These evaluations will allow program implementers, donors and beneficiaries to understand what the program has achieved. Data from existing national population-based surveys, such as the DHS, Malaria Indicator Cluster Survey (MICS) and MIS Malaria Indicator Survey (MIS), which include MIP-related information, should also be used, when feasible, to ascertain population coverage of key MIP interventions in program areas compared with non-program areas (RBM, MEASURE Evaluation, WHO and UNICEF 2006).

APPENDIX 1: BURKINA FASO



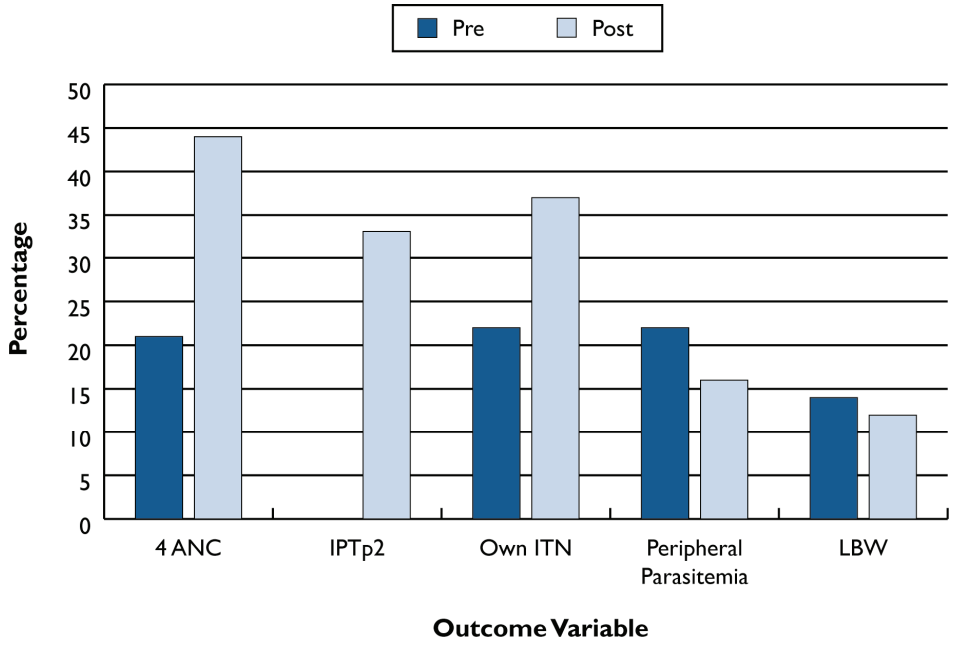
Burkina Faso has a population of approximately 13.4 million people (Ministère de l'économie et des finances, Institut National de la Statistique et de la Démographie 2007). Burkina Faso is subdivided into 351 administrative departments and 55 districts, all of which are malaria-endemic. An estimated 604,000 pregnant women in the country are at risk of malaria infection annually (estimated at 4.5% of the population). MIP is the major contributor to maternal mortality in the country.

In 2001, under the USAID-funded MNH Program, Jhpiego and the CDC undertook one of the first pilot studies of IPTp in West Africa. The project aimed to improve the adverse outcomes of malaria during pregnancy. A three-dose regimen of IPTp and distribution of ITNs were implemented in all 23 health facilities in Koupéla District. The project used focused ANC as the platform for service delivery and coupled efforts in the health facilities with intensive community awareness activities.

RESULTS

The pilot study resulted in notable improvements in IPTp uptake and improvements in MNH indicators (Sirima et al. 2006). Although not shown below, IPTp1 uptake increased dramatically to over 90% during the study intervention. Based on evidence from this study and two similar studies conducted in Mali and Benin, Burkina Faso adopted a new MIP policy in 2004, promoting the WHO three-prong approach.

Koupéla District Outcomes: Pilot Study 2002–2004



With the new policy in place, Jhpiego went on to train 114 service providers from 49 facilities in five districts of one health region in focused ANC and MIP. An estimated population of 3,849,335 was covered by these services.

IMPLEMENTATION

Jhpiego supported a comprehensive approach that strengthened the existing health system including the District Health Management Team (DHMT), ANC clinics in health facilities, health management committees and community health networks. In addition to adapting clinical training materials and training trainers, supervisors and providers in MIP, the program introduced a PQI approach, which brought stakeholders together at all levels of the district health system to identify ideal comprehensive maternal and newborn care interventions, including MIP. The stakeholders then conducted a gap analysis and selected specific activities for the program to implement that would help the district achieve its desired MNH outcomes. The PQI approach was adapted at the community level to foster collaboration between community members and health providers, with the aim of increasing use of focused ANC, delivery and postpartum care services. Facilities and communities achieving top PQI results were recognized by local politicians and project personnel in public ceremonies. Jhpiego scaled up the provider training after the project closed out.

- *Strengthen quality of ANC services.* Since MIP services are ideally delivered on the platform of focused ANC, if the ANC system is functioning poorly, achieving high coverage of these services is very challenging.
- *Promote a participatory quality improvement approach.* Incorporation of the simple problem-solving techniques of the PQI approach resulted in enormous buy-in from all stakeholders at the facility and community levels. This then led to ownership of activities and the excellent results achieved related to MIP. Recognition of the facilities for their achievements was found to be particularly motivating.
- *Implement comprehensive interventions.* The pilot study underscored how effective it is to approach MIP services holistically—addressing simultaneously the needs at the community, the health facility and the district management team levels. Each level has significant influence on IPTp and ITN uptake, and each level needs appropriate interventions.

APPENDIX 2: KENYA

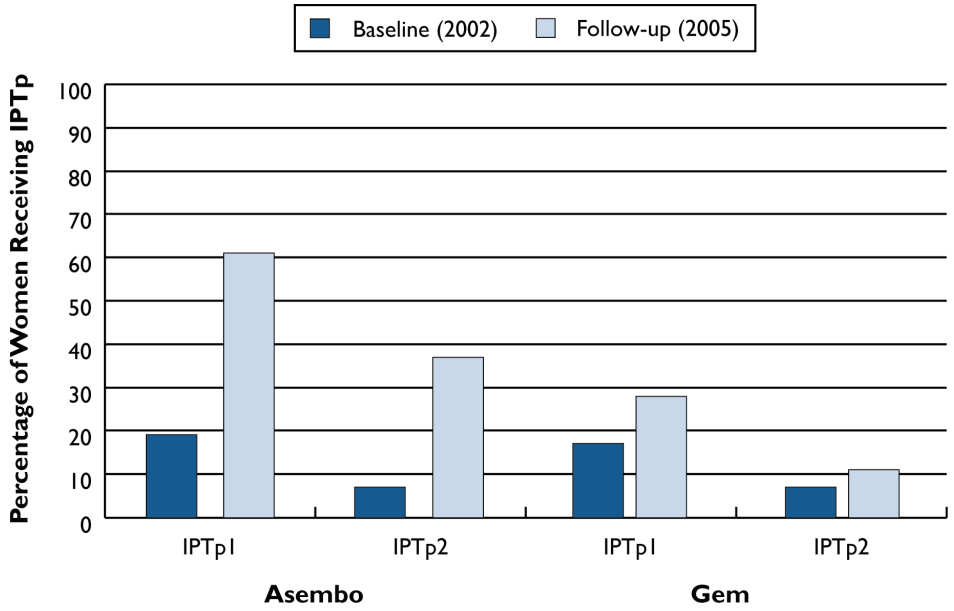
Kenya has a population of approximately 30 million people and is divided into eight provinces and 72 districts (Central Bureau of Statistics, MOH and ORC Macro [DHS] 2004). Approximately 1.5 million women in Kenya become pregnant each year, and most of them live in areas of moderate to intense malaria transmission. Maternal mortality is approximately 414 per 100,000 live births (Central Bureau of Statistics, MOH and ORC Macro [DHS] 2004), and approximately 4,000 babies are born each year with low birth weight as a result of MIP (Kenya MOH 2001). Severe anemia occurs in approximately 6,000 primigravidae annually (Kenya MOH 2001).

Kenya has a complex need for IPTp because endemicity is not uniform; in some of the nine provinces there is little need, while in others the needs are great. In 2001, with support from the U.K. Department for International Development (DFID), Jhpiego collaborated closely with the MOH, the DOMC and the DRH to introduce high-quality focused ANC services including MIP. The initial phase targeted four districts, followed by scale-up to an additional 12 districts and then ultimately to 23 endemic districts.

RESULTS

Results from the initial phase of implementation showed clear improvements in both MIP and MNH. IPTp1 uptake increased to 77%, providers' reporting that they were giving SP increased to 93%, and their reports that they were updating their colleagues on MIP increased to 52.5% from 27.5% (Kenya MOH 2003). Four years later, CDC conducted an evaluation of MIP based on the training of service providers and sensitization of communities by Jhpiego in Asembo, and the results showed increased use of SP in the intervention area (Ouma et al. 2007).

CDC Study of Jhpiego Program to Increase IPTp Uptake



IMPLEMENTATION

When implementation began in Kenya, it was clear that the approach had to reach a large number of providers rapidly in order to achieve results and address MIP prevention and control. With this realization, Jhpiego, in collaboration with the DRH and the DOMC, initiated program implementation with advocacy efforts targeting the national, provincial and district levels. These advocacy efforts aimed to increase knowledge about MIP and gain the necessary buy-in and support for program implementation. Next, Jhpiego supported a cascade training approach that developed a cadre of trainers at the national and district levels. These trainers in turn trained providers, who in turn oriented their colleagues to MIP prevention and control. Key to the success of this approach was the development of a simple, easy-to-use orientation package that is based on the national guidelines. This package includes orientation/training materials, job aids and posters. The orientation package targets front-line providers with key information needed to implement MIP services using focused ANC as a platform for care. A vital component of the program was follow-up supportive supervision, addressing gaps in knowledge and implementation and mentoring providers to improve the care for their clients.

Instead of reaching the approximately 200 providers trained by the MOH and Jhpiego each year, use of the cascade approach allowed the MOH to reach approximately 3,000 providers. The cascade approach, irrespective of technical area, was independently assessed by Family Health International and proven to improve quality of care and access, change provider knowledge and performance, and be cost-effective (*Tanzania National Health*

Management Information System Report 2006–2007). With the clinical approach under way, Jhpiego and the DRH, with support from USAID, targeted communities with messages about comprehensive RH services and MIP and later applied cascade training to support roll-out of the national treatment policy to 965 service providers in Coast province.

LESSONS LEARNED

- *Promote and foster the relationship between RH and malaria control.* The partnership between the national RH body as the implementer and the national malaria control body as the technical advisor is an important component to the success of the program. In Kenya, this partnership was key to the success of the program, and over the years resulted in expansion with the national AIDS body and national TB body, as the orientation package expanded with new technical areas. Expansion with new partners also resulted in additional resources (e.g., for HIV, TB) that supported continued roll-out of MIP. Since funding for MIP programming is generally small, leveraging with other partners and additional resources is important as countries go to scale.
- *Advocacy! Advocacy! Advocacy!* Advocacy efforts targeting national-, regional- and district-level stakeholders resulted not only in buy-in for program support but also in ownership of the program. Leaders and "advocates" emerged at all levels to maintain the momentum of the program and address bottlenecks in implementation throughout the process.
- *Keep it simple.* The use of simple learning materials to disseminate the national MIP guidelines was the first time the national guidelines were disseminated in a way that was understood by service providers. These materials included "entertrainment," which included catchy phrases like "SP! SP! Keeps the Placenta Malaria Free" that providers and clients still repeat to this day. The use of these simple materials was so successful that multiple program divisions in the Kenya MOH (e.g., HIV, TB) now insist on the development of orientation packages for their programs.

APPENDIX 3: MADAGASCAR

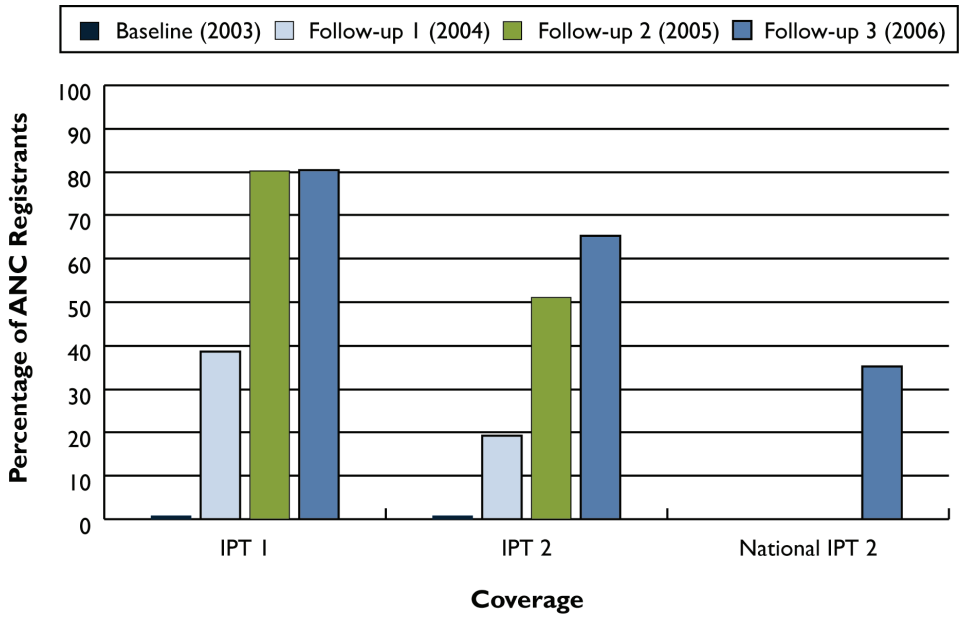
Madagascar has a population of approximately 19.1 million people (World Bank 2008). Three-quarters of the population live in endemic areas (mainly along the east and west coasts) and one-quarter live in epidemic zones (mainly in the Central Highlands and southern zones). IPTp is targeted for an estimated 560,000 pregnant women who live in the 92 malaria-endemic districts in the country (President's Malaria Initiative 2007). It is estimated that 50% of pregnant women in Madagascar are anemic (Institut National de la Statistique [Madagascar] and ORC Macro [DHS] 2005).

In 2005, the MOH/FP adopted a national malaria policy, including providing IPTp with SP after the first trimester. The MOH/FP identified five health sites in a highly endemic province to initiate IPT/SP. Sites covered a population of 103,609, including 4,700 pregnant women. Interventions took place from 2003 to 2006, with the objective to increase IPTp coverage and learn lessons for national scale-up. The learning resources (training materials, job aids and performance standards) and trainers developed through this program provided the capacity for the MOH/FP to scale up IPTp training to health facilities throughout the country.

RESULTS

The training and PQI approach used in the five model health facilities led to notable achievements in IPTp coverage. Facilities improved their average performance score from 20% of standards achieved at baseline to 65% at the six-month follow-up and 76% at the 25-month follow-up. Second dose IPTp coverage increased from 0 to 65% in the five sites, compared to 35% nationally (National Malaria Control Program 2006). High-level engagement of community leaders and the DHMT were important factors in this achievement. By participating in the PQI process, they learned the importance of MIP and the existing resource gaps at the five sites. Community members provided the sites with supplies such as pots for boiling water so that service providers could directly observe the women there taking SP with clean water. Project results led the MOH/FP to develop a PQI tool for all aspects of malaria and to scale up the process nationally. In the chart below, it is notable that results from the five sites surpassed national coverage. This finding is partly explained by the fact that the training of providers was scaled up nationwide, but supportive supervision and the implementation of the PQI process were not implemented at a national scale.

IPT Coverage as a Proportion of ANC Clients[4]



IMPLEMENTATION

Interventions included facilitating the development of the national policy for MIP, facilitating the development and validation of SDGs for MIP and all aspects of malaria, developing learning materials, training health providers and introducing a PQI process at five model sites. A MIP PQI assessment tool was developed, nationally validated and used to conduct two-day baseline assessments at each site. Results were shared with the DHMT, service providers and community members. Gaps in performance that were easy to resolve were addressed first. Four weeks later, the project conducted a workshop to analyze and outline steps to resolve complicated performance gaps. Actions required using local rather than external resources. The DHMT and community members visited sites to motivate providers. Follow-up assessments at six months and 25 months were conducted, and MIP service statistics were collected and analyzed. The PQI process was scaled up to six additional sites in late 2007 and included performance standards for malaria case management. With support from other partners including WHO, the government trained providers on a national scale with the assistance of Jhpiego-trained trainers and using materials developed by Jhpiego.

[4] In the baseline year 2003, IPT was not yet offered.

- *Use a participatory PQI process.* It improves service provider, supervisor and community collaboration and increases awareness and use of MIP services. The process also provides an effective measurement of MIP policy implementation and empowers providers to use simple problem-solving techniques to improve service delivery. This cost-effective approach is applicable at all levels of the health system.
- *Promote supportive supervision*. It is essential for ensuring provider competency and for addressing issues related to drug and ITN stock-out.
- *Reach women early in pregnancy.* To achieve full IPTp coverage, it is essential to reach women early in pregnancy. Although 80% of pregnant women in Madagascar attend ANC one or more times, only 40% attend four times, and the median first visit is at 5.1 months. Nearly 30% of women arrive at six months or later.

APPENDIX 4: TANZANIA

Tanzania has a population of approximately 34.5 million people (Tanzania Population and Housing Census 2002). Mainland Tanzania, with a population of 33.5 million people, is subdivided into 133 administrative districts, all of which are malaria-endemic. An estimated 1.7 million pregnant women in the country are at risk of malaria infection annually (Tanzania MOH 2002a). MIP is the fourth single highest cause of maternal mortality in the country, and when combined with severe anemia, it is the first cause (25%) of maternal mortality (Tanzania MOH 2002b). It is estimated that 70–80% of pregnant women are anemic, and the infant mortality in babies born to anemic mothers is approximately three times higher than those born to non-anemic women (Ifakara Health Research Development Centre 2004).

RESULTS

The Tanzania program led to improved outcomes in MIP, especially when compared with previous national coverage estimates from 2004, used as baseline measures. At program implementation sites, coverage of pregnant women attending ANC clinics and receiving IPTp2 nearly doubled between October 2006 and June 2007. The program has moved toward a model of scale-up quite rapidly; during the first year of implementation, 2004–2005, only 24 facilities were covered, whereas by October 2007, 1,192 facilities were covered (24% of all facilities nationally). The Tanzania approach has worked to balance rapid scale-up with maintaining quality of services, mainly through supporting a core group of trainers and supervisors—in both the public and private (faith-based) sectors—that will sustain MIP interventions beyond the life of the program.

Service Delivery Results (data from 102 facilities with providers trained in focused ANC)

SERVICE	NUMBER OF ANC CLIENTS RECEIVING SERVICE	PERCENTAGE OF ANC CLIENTS RECEIVING SERVICE	NATIONAL AVERAGE (DHS 2004/05)
IPTp 1	23,105	59%	52%
IPTp 2	16,023	41%	22%
ITN Vouchers	36,502	93%	75%

Phase I: 2004–2005

Building on efforts begun under the USAID-funded MNH Program (2000–2004), ACCESS/Jhpiego continued to support strengthening of focused ANC services, including MIP, in Tanzania. During this phase, efforts centered on building the capacity of trainers and supervisors in focused ANC to train and support ANC providers from 24 targeted facilities that were also providing services for the prevention of mother-to-child transmission of HIV (PMTCT). The President's Emergency Plan for AIDS Relief provided financial support along with Child Survival, Malaria and Infectious Disease funding, recognizing the importance of integrating PMTCT with high-quality focused ANC services. The program also supported strengthening pre-service education to ensure that all nursing-midwifery schools incorporated focused ANC, including MIP, with their curricula.

Phase II: 2005–2006

During this phase, program efforts concentrated on standardizing training, including duration, content and follow-up. This was an important step that led to the adoption of national training materials and training protocols. While ACCESS was focused on developing strategies for scaling up focused ANC training, Jhpiego also began to address the creation of demand for MIP prevention and control, using a community-based approach and with funding from CDC. Jhpiego worked in two districts of Tanzania (Morogoro District Council and Mvomero) to train Community Health Workers (CHWs) to effectively deliver MIP and other malaria prevention messages within their communities. Jhpiego was able to develop training packages for both CHWs and their supervisors. At the close of the program in September 2007, 218 CHWs from 109 villages had been trained by 45 trainers, and are now being supervised by 62 supervisors. With continued funding support, Jhpiego hopes to continue to sustain efforts to scale up the program implemented in Morogoro District.

Phase III: 2005–2007

Phase III focused on continued scale-up, refinement of materials and ongoing capacity development of trainers to ensure sustainable results beyond the life of the program. ACCESS has been supporting the Ministry of Health and Social Welfare (MOHSW) to scale up training of service providers in focused ANC/MIP/Syphilis in Pregnancy (SIP) nationwide. Using a cascading approach, trainers in focused ANC/MIP/SIP are being developed in every district and then supported as they roll out training to other service providers in their district. Since 2005–2006, ACCESS and the MOHSW have been working under a "whole region" approach in which providers from all

districts in a region are trained when the program enters that region. ACCESS is also scaling up focused ANC/MIP/SIP in the pre-service arena—training tutors and clinical preceptors from all certificate, diploma and higher level nursing-midwifery schools. Understanding that training alone does not create sustainable change, ACCESS is supporting health care providers in both pre-service and in-service settings to implement a standards-based quality improvement approach for ANC to ensure that learning is transferred to practice. Finally, while improving the quality of ANC services at the facility, ACCESS is also working to create demand for such services within the target population. Messages are being disseminated through mass media communications in collaboration with T-MARC, a local nongovernmental organization specializing in marketing and communications. ACCESS also advocates with government stakeholders and religious leaders, and mobilizes community health workers to effect behavior change among pregnant women that will lead to greater attendance at ANC and higher uptake of IPTp2.

LESSONS LEARNED

- *Promote consistent availability of supplies.* Stock-outs of essential drugs like SP at the ANC clinic have had a clear impact on the uptake of IPTp. As evidence of this effect, when facilities experiencing SP stock-outs were removed from the data set outlined above (102 facilities), IPTp uptake increased to 78% for IPT1 and 57% for IPT2. Working with national delivery mechanism partners (e.g., DELIVER) has been an important step in addressing this critical issue but also requires continued follow-up and engagement at the national and district levels.
- *Strengthen staff capacity to record IPTp correctly and standardize recording systems.* This must be an integrated component of the program from the beginning. If health facility managers and providers do not understand the importance of collecting program data and specifically how it supports the work they do, there is very little incentive for them to record MIP indicators. However, integrating monitoring as a component of training can lead to buy-in and support from facility staff. In addition, creating or upgrading recording systems to support IPTp and other MIP indicators can greatly facilitate the accurate recording and reporting of data. The current data registers in Tanzania were developed before the promotion of IPTp through SP and have not been updated. Therefore, there is no designated area within the register books to collect such information. As a result, facilities and providers have differing interpretations of how to record IPTp uptake. This leads to non-standardized records, creating numerous issues in the aggregation and analysis of such data.

- *Encourage women to make their first ANC visit as soon as they suspect pregnancy, and to return for the recommended three additional visits.* While over 94% of Tanzanian women make at least one ANC visit, many either do not return for subsequent visits or their initial visit is too late in pregnancy to allow for full protection against MIP. It is important for a MIP program to include components on messaging (mass media), advocacy with key people such as religious leaders, and collaboration with community health workers to mobilize women for early and regular focused ANC attendance.

APPENDIX 5: UGANDA

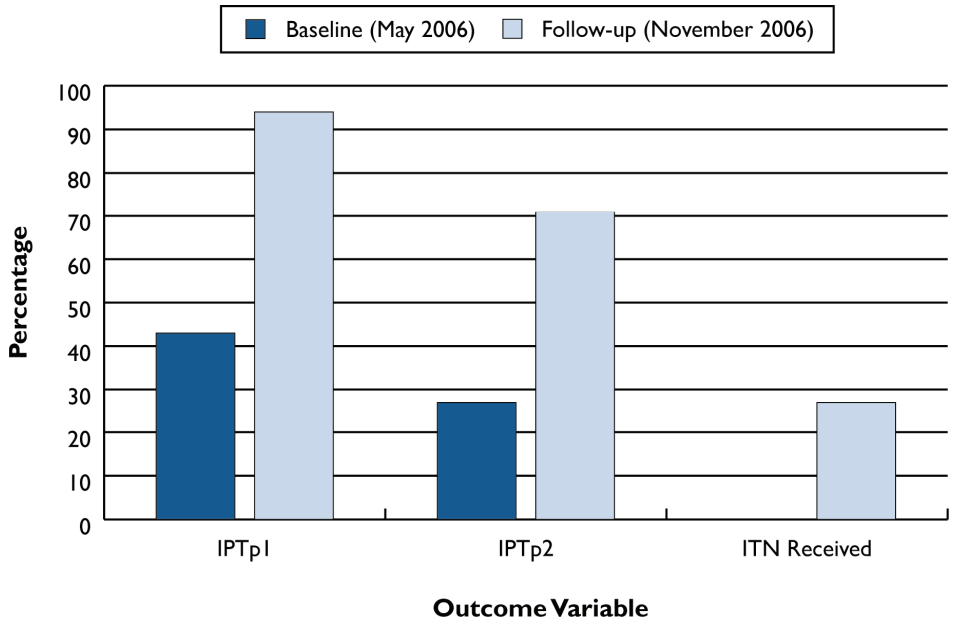
Uganda is subdivided into 56 administrative districts; 95% are malaria-endemic and 5% are epidemic-prone. About 1.35 million women in the country become pregnant each year and are at risk of contracting malaria during pregnancy. The maternal mortality ratio is approximately 506 per 100,000 live births (WHO and ACCESS Program 2006). Additionally, 50% of MNH services are provided through FBOs.

Although Uganda adopted its MIP policy in 2000, IPTp uptake in 2003 was low (IPTp1 was 35% and IPTp2 was 27%) and use of ITNs was 5% (Uganda Bureau of Statistics and Macro International [DHS] 2007). In 2006, in collaboration with IMA World Health, Jhpiego supported the MOH in the implementation of a pilot project that targeted the faith-based sector and drew on best practices and lessons learned from the Kenya program approach.

RESULTS

This program was implemented over nine months in collaboration with the MOH and the faith-based sector. The gains achieved during this short period have laid a strong foundation for future efforts in Uganda. The model has been adapted and used by other partners in Uganda, including WHO in support of the MOH's implementation plans for MIP.

Uganda Pilot Results: 2006



IMPLEMENTATION

This pilot program was developed and implemented by building on existing structures and systems. Despite the short duration of the intervention, significant improvements were made. The program brought together stakeholders from the MOH, the faith-based sector, communities and other national partners including WHO to adapt the training materials to the Ugandan context. These materials included two orientation packages—one for service providers and one for community leaders—covering focused ANC, MIP and PMTCT.

With materials in place, national trainers trained the service providers. Following implementation, support supervision visits were incorporated; these visits offered reinforcement for the trained providers and assisted them in recognizing and correcting service delivery gaps. Orientation of community leaders empowered them to take key messages to the community about the importance of focused ANC and MIP.

LESSONS LEARNED

- *Promote focused ANC.* Because ANC is the entry point for pregnant women into the health care system, it is an important channel for addressing MIP. Providers do not feel over-burdened in the context of focused ANC; rather, it allows them to save time for the delivery of comprehensive services.
- *Build partnerships between communities and facilities.* Communities play an important role in the public health outcomes of their beneficiaries. When communities and facilities work together to define improved health outcomes, including their respective roles in effecting change, services at the facility can improve while at the same time demand for services can increase.
- *Strengthen partnerships among key stakeholders.* As has been seen in other countries, the relationship between the national malaria control body and the national RH body was fostered. In addition, since this project targeted FBOs, the FBO leaders were also brought into this partnership from the beginning. Working as a team, these stakeholders planned, implemented and monitored the results of this project.

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NOTES

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