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The effect of health care worker training on the use of intermittent preventive treatment for malaria in pregnancy in rural western Kenya

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Summary

BACKGROUND In 1998, Kenya adopted intermittent preventive treatment (IPTp) with sulphadoxine-pyrimethamine (SP) for malaria prevention during pregnancy. We conducted a survey in 2002 among women who had recently delivered in the rural neighbouring areas Asembo and Gem and reported coverage of 19% of at least one dose and 7% of two or more doses of SP. Health care workers (HCW) in Asembo were retrained on IPTp in 2003.

OBJECTIVES To evaluate if IPTp coverage increased and if the training in Asembo led to better coverage than in Gem, and to identify barriers to the effective implementation of IPTp.

METHODS Community-based cross-sectional survey among a simple random sample of women who had recently delivered in April 2005, interviews with HCW of antenatal clinics (ANC) in Asembo and Gem.

RESULTS Of the 724 women interviewed, 626 (86.5%) attended the ANC once and 516 (71.3%) attended two or more times. Overall IPTp coverage was 41% for at least one dose, and 21% for at least two doses of SP. In Asembo, coverage increased from 19% in 2002 to 61% in 2005 for at least one dose and from 7% to 17% for two doses of SP. In Gem, coverage increased from 17% to 28% and 7% to 11%, respectively. Interviews of HCW in both Asembo and Gem revealed confusion about appropriate timing, and lack of direct observation of IPTp.

CONCLUSION Training of HCW and use of simplified IPTp messages may be a key strategy in achieving Roll Back Malaria targets for malaria prevention in pregnancy in Kenya.

keywords Malaria, pregnancy, sulphadoxine-pyrimethamine, intermittent preventive treatment, training

Introduction

Every year approximately 30 million African women become pregnant in malaria endemic areas of Africa (WHO/UNICEF 2003). Infection with *Plasmodium falciparum* during pregnancy may result in maternal anaemia, foetal loss, intrauterine growth retardation and low birth weight (Brabin 1983; Menendez 1995; Steketee *et al.* 1996). The main strategies to reduce the adverse consequences of malaria in pregnancy in areas of intense or seasonal transmission are insecticide-treated bed nets and intermittent preventive treatment (IPTp) with sulphadoxine-pyrimethamine (SP). IPTp is the administration of full treatment doses of an effective antimalarial drug at predefined intervals during pregnancy regardless of whether women are infected. Currently, at least two or more doses of SP given at an antenatal clinic (ANC) after quickening under the direct supervision of a health care worker (HCW) is recommended (WHO/AFRO 2004). Based on studies performed in Malawi and Kenya that have shown IPTp with SP to be effective in reducing maternal anaemia and low birth weight (Schultz *et al.* 1994; Parise *et al.* 1998; Verhoeff *et al.* 1998; Shulman *et al.* 1999; Rogerson *et al.* 2000), most malaria endemic countries in sub-Saharan Africa have now introduced IPTp with SP as national policy for the control of malaria in pregnancy (WHO/UNICEF 2003). The African summit on Roll Back Malaria (RBM) held in Abuja-Nigeria in 2000, declared that at least 60% of all pregnant women who are at

risk of malaria, especially those in their first pregnancies, should 'have access to intermittent preventive treatment by the year 2005' (WHO/UNICEF 2003). However, concerns have been raised on the extent of IPTp coverage (WHO 2000; WHO/UNICEF 2003; Hill & Kazembe 2006).

In 1998, Kenya adopted IPTp with two doses of SP as national policy. However, implementation has been poor. Guyatt *et al.* (2004) reported that, in 2001, only 5% of women participating in a community-based survey in four rural areas in Kenya received two or more doses of SP for the prevention of malaria. Coverage of 24% with two doses and 67% for one or more doses was reported from an urban hospital in Kisumu, western Kenya in 2000 (Van Eijk *et al.* 2004). A national demographic and health survey in late 2003 reported that only 4% of women who had delivered within the last five years received two doses of SP during ANC visits (Central Bureau of Statistics Kenya Ministry of Health & ORC Macro 2004).

In December 2002, we conducted a community-based survey in Asembo and Gem, two rural neighbouring areas of western Kenya with perennial malaria transmission and a high prevalence of human immunodeficiency virus (HIV) infection, and observed that 19% of the women had received at least one dose of IPTp and only 7% had received the recommended two or more doses (Van Eijk *et al.* 2005). After this survey, the Kenya Ministry of Health (MOH) in collaboration with the Johns Hopkins Program for International Education in Training and Reproductive Health (JHPIEGO) trained HCW on Focused Antenatal Care and Malaria in Pregnancy (FANC/MIP) and disseminated the 'National Guideline for Diagnosis, Treatment, and Prevention of Malaria for Health Workers' (Ministry of Health Kenya 1998). MOH/JHPIEGO undertook training of frontline HCW in Bondo district (of which Asembo is one of the divisions) in 2003. The 3-day training used a competency-based learning approach, emphasizing theory with one full day spent in a clinical setting for practical experience. The training materials included a training/orientation package of two-page laminated service provider job aids on malaria in pregnancy and FANC/MIP and community brochures. The training materials emphasized that the first dose of SP (three tablets) should be given after quickening (16–28 weeks) and the second dose at least four weeks apart after the first (28–34 weeks). Supportive supervision was undertaken following the training in May–June 2003 in at least 25% of the health facilities in which HCW had been trained. The focus of the support supervision was to identify any gaps and to reinforce knowledge on FANC/MIP. In this paper, we assess if coverage with IPTp increased overall in the study area and if the training intervention in Asembo led to better coverage compared with Gem where no training was performed; we attempt to identify barriers to effective implementation of IPTp for the attainment of RBM targets in Kenya.

Materials and methods

The study was conducted in April 2005 in Asembo (Bondo district) and Gem (Siaya district) of western Kenya. These areas are situated in the northern shores of Lake Victoria and residents are mainly of the Luo ethnic group who earn their living through subsistence farming, fishing and small businesses (Phillips-Howard *et al.* 2003). Historically, malaria transmission in this area has been intense and perennial with entomological inoculation rate (EIR) in the range of 60–300 infectious bites per person per year (Beier *et al.* 1994); however, this level of transmission was reduced by almost 90% (Gimnig *et al.* 2003) after a large community-based trial of insecticide-treated nets conducted in 1999–2002 (Phillips-Howard *et al.* 2003; Lindblade *et al.* 2004). In 2002, the Centers for Disease Control and Prevention and the Kenya Medical Research Institute (CDC/KEMRI) implemented a Health and Demographic Surveillance System (HDSS) to prospectively monitor the population in the study area. The HDSS area covers a population of 135000 people spread over 500 km^2. Every four months, community interviewers visit households to collect health and demographic information, providing an unbiased population-based sampling frame of women who had recently delivered (Adazu *et al.* 2005).

All 1154 women who had delivered in the HDSS study area between 30th November 2004 and 28th April 2005 constituted the sampling frame. From this sampling frame, we randomly selected 830 women for interview (Figure 1). We estimated that a sample of 830 women was required to

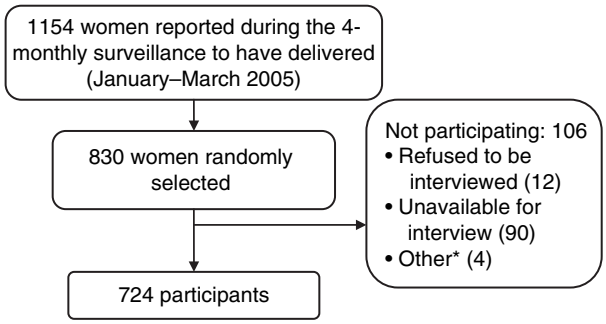

Figure 1 Flow chart of the study population, western Kenya, April 2005. *Other reasons included: lost forms (2) and inappropriate selection (2).

calculate the true proportion of those using IPTp within five percentage points, allowing for 10% failure to recruit and assuming a prevalence of IPTp use of 50%. Trained interviewers visited the selected women at home and administered a standardized questionnaire in the local language. Women were asked about their knowledge of malaria in pregnancy and their attitude towards the use of SP during pregnancy. In addition, they were asked if they had received SP at the ANC to prevent or protect them from malaria during their most recent pregnancy. If an ANC card was available, information from the card was also abstracted.

All 14 ANC in the study area (private or government) with an attendance of at least five women during the previous survey (Van Eijk *et al.* 2005) were identified and approached for interviews. We interviewed the most senior HCW available in these clinics on knowledge and practice of IPTp. We defined IPTp as one or more doses of SP given at the ANC irrespective of signs and symptoms of malaria, as reported by the participant.

Data analysis

Differences in proportions were compared using the chi-square or Fisher's exact tests as appropriate. Education level was dichotomized as < 8 years or ≥ 8 years, the minimum number of years required to complete primary education in Kenya. Age was dichotomized as < 20 or ≥ 20 years and parity was categorized into primiparae and multiparae; young pregnant women and primiparae have been reported to be at higher risk for malaria infection (Brabin 1983). The association between age, marital status, education level, ethnicity, parity, history of child death and area of residence on the receipt of one or more doses of IPTp with SP were examined in bivariate analysis. Logistic regression was used to simultaneously assess the association of these factors with the receipt of IPTp. Age was kept in all models, but other variables were removed if they were not statistically associated with the outcome variable after adjustment for co-variables. A two-sided P value < 0.05 was considered statistically significant. Our objective was to estimate the percentage of women who received IPTp in the study areas. We chose a simple random sample of women who recently gave birth using information from the HDSS, as described in Figure 1. We did not use the ANC as the sampling frame for obtaining a study sample, and for this reason, we did not adjust for clustering by ANC. However, we repeated the analyses using generalized estimating equations to account for the correlation within health facilities but this did not significantly change the results. The statistical program SAS was used for all analyses (SAS for windows version 8; SAS Institute, Cary, NC, USA).

Ethical approval for this study was obtained from the institutional review boards of the KEMRI (Nairobi, Kenya) and the CDC (Atlanta, Georgia, USA).

Results

Characteristics of the study population

Of the 830 women selected for the survey, 106 (13%) were not able to participate (Figure 1). A higher proportion of the non-participants were younger than 20 years compared with the participants (25% *vs.* 15%, respectively, $P = 0.01$); the refusal rate was not different by age group (2% for both), but women younger than 20 years were more likely to be unavailable during the period of interviews (17% *vs.* 9%, $P = 0.003$). The vast majority of the participants (97%) were of Luo ethnicity, the dominant ethnic group in this area (Table 1). The median age was 26 years (range 12–48). Women in Gem were less likely to have finished 8 years of schooling (Table 1). Of the 726 participants, 87% attended an ANC at least once and 72% attended the ANC two or more times. A minimum of four visits, as currently recommended by the WHO as part of FANC, were made by 31% of all women (WHO 2002). Women in Gem were more likely to start ANC attendance in the first trimester

Table 1 Characteristics of the study population by area, western Kenya, April 2005

Variable	All, % ($n = 724$)	Asembo, % ($n = 272$)	Gem, % ($n = 452$)	P-value*
Age < 20 years	14.8	16.2	13.9	0.41
Education < 8 years†	48.5	39.0	54.3	< 0.01
Married	86.9	85.3	87.8	0.33
Luo ethnicity	97.0	98.5	96.0	0.06
Primiparae	14.5	16.9	13.1	0.15
ANC visited in last pregnancy	86.5	89.3	84.7	0.08
Trimester of first ANC visit among women who visited an ANC	$n = 626$	$n = 243$	$n = 383$	
First trimester	7.4	4.5	9.1	0.03
Second trimester	56.9	63.8	52.5	< 0.01
Third trimester	35.8	31.7	38.4	0.09
Number of clinic visits†				
One visit	17.3	15.8	18.3	0.42
Two to three visits	46.5	43.6	48.3	0.25
Four or more visits	36.2	40.7	33.4	0.07

ANC, antenatal clinic.
*P-value comparing Asembo *vs.* Gem using the chi-square test.
†Education level: missing for three persons; number of ANC visits: missing for two persons.

compared with women in Asembo, but women in Asembo were more likely to make four or more visits (Table 1).

Knowledge of malaria in pregnancy and attitude to sulphadoxine-pyrimethamine

Among 705 participants who knew about malaria, 679 (96%) stated that malaria was more dangerous for pregnant than non-pregnant women. Among the 679 women who thought malaria is a problem during pregnancy, 11% stated it was a problem for the pregnant women only, 23% stated that it was a problem for the foetus/newborn only and 61% of the women stated it was a problem for both of them. The remainder of the women (5%) did not give any specific reason. The most common symptom women associated with malaria in pregnancy was 'weakness', reported by 36% of the women. Only 14% of the women reported anaemia as an effect of malaria during pregnancy. Miscarriage was the most frequently reported problem for the baby (55%); 32% of the women associated malaria in pregnancy with a risk of malarial disease in the newborn. Among the women who thought malaria was a problem in pregnancy, 63.8% reported that a woman should use medicine for malaria prevention, but this was only reported to be received by 32% of the women.

At the time of interview, 75% of all participants reported to have ever used SP in their life. Although 61% of women thought that SP was a helpful drug when used for malaria in pregnancy, only 50% thought it was safe to use during pregnancy. Among women who thought SP was not safe during pregnancy, 57% associated its use with miscarriage. Participants from Asembo were more likely to state that SP is helpful and safe than participants from Gem (70% *vs.* 56%, and 61% *vs.* 44%, respectively, both $P < 0.001$).

SP use and associated factors

Among the 626 ANC attendees, 617 could recall either or not taking SP; 147 women (23%) stated they took SP for treatment, and 223 (36%) took SP for prevention. A total of 295 women (48% among ANC attendees and 41% of all participants) received at least one dose of SP for treatment and/or prevention, and 147 of 288 women for whom the number of doses was known received two or more doses of SP (24% among ANC attendees and 21% of all participants). Thus, overall, compared with the previous survey conducted in the same area, the proportion of women receiving at least one dose of SP increased from 19% in 2002 to 41% in the current survey; for two or more doses the increase was from 7% in 2002 to 21% in the current survey (Van Eijk *et al.* 2005).

The number of SP doses as reported by the women could be compared with the antenatal card among 326 (52%) of the 626 women who visited the ANC. For 63 (19%) women the verbal report differed from the information on the ANC card; 22 women reported they did not receive SP when there was a record on the card, and 11 women reported they received SP when there was no record on the card. For 30 women, the number of doses was different, with over-reporting just as common as under-reporting (15 women each).

The increase in IPTp use was greater in Asembo than in Gem (Figure 2). In multivariate logistic regression analysis, living in Asembo was associated with being significantly more likely to receive ≥ 1 dose (Table 2) and ≥ 2 doses of SP (Asembo area compared with Gem: adjusted odds ratio [AOR] 4.73, 95% confidence interval [CI] 3.16–7.07, adjusted for the same factors as in the multivariate analysis of ≥ 1 dose SP in Table 2). Factors associated with being significantly less likely to receive ≥ 1 dose of SP for IPTp include being single and a history of child death (Table 2). Similarly, the following factors were associated with being significantly less likely to receive ≥ 2 doses of SP: single marital status: AOR 0.37, 95% CI 0.17–0.78; low education level AOR 0.57, 95% CI 0.38–0.85; history of child death AOR 0.64, 95% CI 0.41–0.98. Among ANC attendees, trimester of first ANC visit and number of ANC visits were not associated with receipt of SP (data not shown).

ANC survey/interview of health care workers

HCW were approached for interview at 14 health clinics providing ANC services in the study area, one HCW

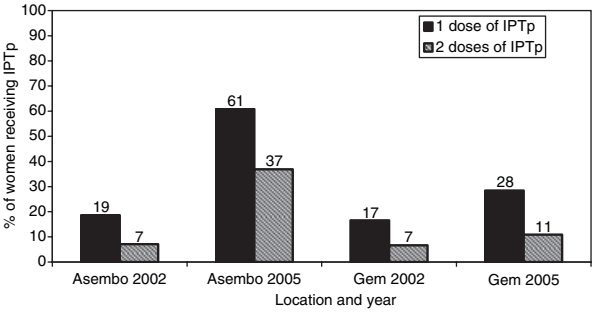

Figure 2 Doses of intermittent preventive treatment (IPTp) with sulphadoxine-pyrimethamine (SP) received from the antenatal clinic (ANC) by area and survey, western Kenya, 2002 and 2005*. *Among participants for whom number of IPTp doses was known. $P < 0.05$ comparing survey 2005 with survey 2002 for ≥ 1 dose in both Asembo and Gem, and for ≥ 2 doses of SP in Asembo. $P = 0.06$ comparing Gem survey 2005 with survey 2002 for ≥ 2 doses of SP.

Table 2 Factors associated with the use of at least one dose of IPTp in rural western Kenya, April 2005

Variable	≥ 1 dose of SP (%)	OR (95% CI)	*P*-value	Adjusted OR (95% CI)†	*P*-value
Age					
< 20 years	49/105 (46.7)	1.29 (0.85–1.96)	0.22	1.22 (0.70–2.14)	0.49
≥ 20 years	246/610 (40.3)				
Marital status					
Single	30/93 (32.3)	0.64 (0.41–1.02)	0.06	**0.34** (0.18–0.62)	< 0.01
Married	264/621 (42.5)				
Education level					
< 8 years	122/346 (35.3)	**0.63** (0.46–0.85)	< 0.01	0.75 (0.54–1.04)	0.08
≥ 8 years	170/366 (46.5)				
Ethnicity					
Luo ethnicity	288/694 (41.5)	1.42 (0.57–3.56)	0.45		
Other ethnicity	7/21 (33.3)				
Parity					
Primiparae	50/103 (48.5)	1.41 (0.93–2.15)	0.10	1.76 (0.93–3.32)	0.08
Multiparae	245/612 (40.0)				
History of child death					
Yes	101/291 (34.7)	**0.63** (0.46–0.86)	< 0.01	**0.70** (0.49–0.98)	0.04
No	194/424 (45.8)				
Area of residence					
Asembo	165/270 (61.1)	**3.81** (2.77–5.24)	< 0.01	**3.87** (2.78–5.37)	< 0.01
Gem	130/445 (29.2)				

Abbreviations: IPTp, intermittent preventive treatment; SP, sulphadoxine-pyrimethamine; OR, odds ratio; CI, confidence interval; ANC, antenatal clinic. Significant odds ratios are printed in bold.
†Adjustment for other reported factors in the column.

refused to be interviewed. Eight clinics were in Asembo, and five were in Gem. ANC cards were used in all ANC and 11 of the clinics had cards with pre-designed columns to record up to two doses of IPTp. Staff from six clinics reported that they had copies of the National Malaria Treatment Guidelines and staff from five clinics could show them. Knowledge of the number of SP doses was high; of the 13 HCW interviewed, 11 reported pregnant women should receive two doses, and one HCW reported three doses. Timing of the doses was clearly confusing for most HCW; two gave accurate answers (second and third trimesters). Three stated that it should start in the first trimester, while five other HCW reported that it should only be given in the second trimester with three reporting that it should not be given after 32 weeks of gestation. Seven HCW directly supervised the intake of SP; six HCW reported giving SP, but did not supervise intake for various reasons, including lack of drinking water cups, not seeing the need to dispense it differently than other drugs, heavy work load and competing activities. No HCW reported that SP was out of stock in the previous 6 months, but one health facility did not have SP available at the time of the interview. Four ANC had SP in the consultation room at the time of the interview.

Discussion

This study was conducted to evaluate IPTp coverage in a rural area of western Kenya 2 years after training of the ANC staff on FANC/MIP. The proportion of pregnant women who receive IPTp in accordance with the national policy is an important process indicator that can be used to monitor and improve malaria control programmes in Africa (Bryce *et al.* 1994; Remme *et al.* 2001). This survey was conducted in 2005, the year set by Abuja declaration for the attainment of 60% benchmark evaluation of IPTp coverage for pregnant women living in malaria endemic areas of Africa. A survey conducted in December 2002 reported that 18% of women in this area received at least one dose of IPTp and only 7% received two or more doses (Van Eijk *et al.* 2005). The present study shows improvement in IPTp use, with 41% of pregnant women receiving at least one dose of IPTp and 21% receiving the recommended ≥ 2 doses. The improvement was greatest in Asembo, the area where training in FANC was conducted, with 61% receiving at least one and 37% receiving at least ≥ 2 doses of IPTp with SP. Although this is still below the Abuja targets, this improvement is encouraging. The knowledge among pregnant women towards SP use in pregnancy was also better in Asembo as compared with Gem.

Malawi was the first country to adopt two doses of IPTp with SP in 1993 (Filler *et al.* 2006). A survey conducted in a large urban hospital in Blantyre found 30% coverage of two doses of IPTp with SP in 1997–1999; a community-based survey in Blantyre district found coverage of 37% and the demographic and health surveillance conducted in 2000 reported a coverage of 29% (Rogerson *et al.* 2000; National Statistical Office (NSO) [Malawi] & ORC Macro 2005; Holtz *et al.* 2004). Importantly, a great increase in IPTp coverage in Malawi was achieved with the introduction of a simplified message, delivered directly to HCW stating that IPTp with SP should be provided at every ANC visit unless it has been administered during the prior 4 weeks. In a subsequent community-based survey of Blantyre district in 2004 the IPTp coverage was 79% for two doses, and in the demographic health surveillance in 2004 a coverage of 73% and 43% for one and two doses, respectively, was reported (MIPESA (Malaria in Pregnancy East and Southern Africa Coalition for Malaria Prevention and Control) 2004; National Statistical Office Malawi & ORC Macro 2005).

The observed low IPTp coverage in a setting of high ANC attendance and the apparent availability of SP in the clinics demonstrates considerable missed opportunities as women actually visit the ANC and do not receive IPTp. We also identified widespread confusion among HCW on when IPTp with SP should be administered: 11 of 13 HCW reported that IPTp with SP provision should be limited to a single trimester or gestational week, thus tremendously reducing the perceived window of opportunity when IPTp with SP can be safely given. As in Malawi, efforts should focus on delivering simplified messages to HCW to provide IPTp at every ANC visit unless IPTp had been received in the prior 4 weeks or a woman has a report of allergy to sulpha-containing drugs, in accordance with the WHO guidelines (WHO/AFRO 2004). In addition, directly observed provision of IPTp with SP should be encouraged and tools required to deliver IPTp at the health facility, such as clean water and cups, should be supplied. Contrary to the perception commonly stated by HCW that women report too late to ANC and therefore miss the opportunity to receive IPTp, trimester of first ANC visit was not identified as an obstacle to receiving two doses of IPTp.

Additional factors associated with low IPTp use were being single and a lower level of education. The relationship between level of education and IPTp use has been reported from other studies in Africa. In Malawi, IPTp use was significantly more common in secondary school-educated women than in those with lower education (Rogerson *et al.* 2000), and in a nationwide survey in Kenya, IPTp coverage increased from 2% with no education to 6% of those with secondary school or higher (Central Bureau of Statistics Kenya Ministry of Health & ORC Macro 2004).

The proportion of women who had experienced child death in this population was high (41%) and these women were less likely to receive IPTp. It is likely that the experience of a child death was a marker for women who were less likely to attend the ANC. In the previous survey women who had experienced child death were more likely to have a lower education level and a lower socio-economic status, and both factors were associated with not visiting an ANC in multivariate analysis, whereas child death was not (Van Eijk *et al.* 2005).

Kenya has recently revised its national guidelines for treatment of malaria (Ministry of Health Kenya 2006). SP remains the recommended drug for IPTp and is recommended to be administered at each scheduled ANC visit after quickening to ensure women receive at least two doses (as long as there is an interval of 4 weeks between doses). In addition, women known to be HIV-positive or living in areas of high HIV sero-prevalence (> 10% among pregnant women) should receive at least three doses of IPTp. These new guidelines have been adopted and efforts should be made to ensure that they are implemented widely.

Limitations to this survey include the ability of women to distinguish between the provision of SP for treatment or prevention and to distinguish SP from other antimalarials given during pregnancy. In addition, the time span between ANC visits and interview may have introduced recall bias regarding reported SP use. However, for the women who had an ANC card available, verbal information could be confirmed with the ANC card for the vast majority. The longer history of research on malaria in Asembo compared with Gem may have affected the results as well (Spencer *et al.* 1987; Bloland *et al.* 1999; Lindblade *et al.* 2004). Furthermore, interpretation of area-specific differences needs to be considered with caution because other interventions may have occurred in the community or health facilities in the intervening period that could have influenced IPTp uptake, although the district medical officers of health in Asembo and Gem were unaware of any other interventions designed to improve IPTp coverage.

Young women (< 20 years) were less likely to participate than older women in this survey; they were more likely to be unavailable for the interview. This fits with the out-migration patterns described previously for this area (Adazu *et al.* 2005), whereby women are known to have higher out-migration rate (127/1000 per year) than men (108/1000 per year); out-migration rates are known to be even higher among women < 25 years of age.

This is at least the second study to identify HCW confusion surrounding the appropriate timing of IPTp use, despite the long-standing policy in Kenya and Malawi. The

simplified IPTp message recommended by WHO, stating that IPTp be provided at every ANC visit after quickening should be adopted by ministries of health implementing IPTp and should be reinforced as part of expanded FANC/MIP training of HCW to increase IPTp coverage. Additionally, educational campaigns should be initiated to deliver accurate educative messages on the risk of MIP and safety and usefulness of SP to pregnant women; if pregnant women have fears about the drug they are not likely to use it and may even refuse it. Finally, to reinforce adoption of the current IPTp strategy in Kenya, ANC cards should be modified to allow space to mark administration of at least three doses of IPTp, instead of space for only two doses. Because of the high ANC attendance in Kenya, this multipronged approach could result in rapid increase in IPTp coverage to achieve the Abuja targets.

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L'effet de la formation des agents de santé sur l'utilisation du traitement préventif intermittent de la malaria dans la grossesse en zone rurale de l'ouest du Kenya

DONNÉES DE BASE En 1998, le Kenya a adopté le traitement préventif intermittent (TPI) à base de sulfadoxine-pyriméthamine (SP) pour la prévention de la malaria pendant la grossesse. Nous avons conduit une surveillance en 2002 chez les femmes qui avaient récemment accouché dans l'environnement rural voisin de Asembo et Gem et avons rapporté une couverture de 19% pour au moins une dose et de 7% pour deux doses ou plus de SP. Les agents de santé de Asembo ont été en formation de recyclage sur le TPI en 2003.

OBJECTIFS Evaluer si la couverture TPI a augmenté et si la formation à Asembo a mené à une meilleure couverture qu'à Gem et identifier les barrières à l'implémentation efficace du TPI.

MÉTHODES Etude transversale basée sur la communauté sur un échantillon aléatoire simple de femmes qui avaient récemment accouché en avril 2005. Entretien avec les agents de santé des cliniques prénatales à Asembo et à Gem.

RÉSULTATS Sur 724 femmes interviewées, 626 (86,5%) se sont présentées à la clinique prénatale une fois et 516 (71,3%) deux fois ou plus. La couverture totale était de 41% pour au moins une dose et 21% pour au moins deux doses de SP. A Asembo, la couverture a augmenté de 19% en 2002 à 61% en 2005 pour au moins une dose et de 7% à 17% pour deux doses de SP. A Gem, la couverture a augmenté de 17% à 28% et de 7% à 11%, respectivement. Les entretiens avec les agents de santé à Asembo et à Gem ont révélé une confusion au sujet de la synchronisation appropriée et le manque d'observation directe du TPI.

CONCLUSION La formation des agents de santé et l'utilisation de messages simplifiés pour le TPI peuvent constituer une stratégie clé pour atteindre l'objectif du programme ≪reculer la malaria≫ pour la prévention de la malaria dans la grossesse au Kenya.

mots clés Malaria, grossesse, sulfadoxine-pyriméthamine, traitement préventif intermittent, formation

El efecto del entrenamiento del trabajador sanitario en el uso del tratamiento preventivo intermitente para malaria durante el embarazo en un emplazamiento rural de Kenia occidental

ANTECEDENTES En 1998, Kenia adoptó el tratamiento preventivo intermitente (IPTp) con sulfadoxina pirimetamina (SP) para la prevención de la malaria durante el embarazo. En el 2002 se realizó una encuesta entre mujeres con un parto reciente en las áreas rurales vecinas a Asembo y Gem, y con una cobertura reportada del 19% para al menos una dosis y del 7% para dos o más dosis de SP. Los trabajadores sanitarios (TSs) en Asembo fueron entrenados de nuevo en IPTp en el 2003.

OBJETIVOS Evaluar el incremento de la cobertura de IPTp, y si el entrenamiento resultó en una mejor cobertura que en Gem, e identificar las barreras para una implementación efectiva del IPTp.

MÉTODOS Ensayo croseccional basado en la comunidad entre mujeres elegidas al azar con un parto reciente en Abril del 2005 y entrevistas con trabajadores sanitarios en clínicas antenatales de Asembo y Gem.

RESULTADOS De las 724 mujeres entrevistadas, 626 (86.5%) visitaron la clínica antenatal una vez y 516 (71.3%) se visitaron dos o más veces. En total, la cobertura del IPTp fue de 41% para al menos una dosis, y 21% para al menos dos dosis de SP. En Asembo, la cobertura aumentó de 19% en el 2002 a 61% en el 2005 para al menos una dosis y del 7% al 17% para al menos dos dosis de SP. En Gem, la cobertura aumentó del 17% al 28% y del 7% al 11%, respectivamente. Las entrevistas con los TSs, tanto de Asembo como de Gem mostraron que existe confusión sobre los tiempos adecuados, y hay una falta de observación directa del IPTp.

CONCLUSIÓN El entrenamiento de los TSs y el uso de mensajes simplificados sobre el IPTp podría ser una estrategia clave para alcanzar los objetivos de Roll Back Malaria para la prevención de la malaria durante el embarazo en Kenia.

palabras clave Malaria, Embarazo, sulfadoxina-pirimetamina, tratamiento preventivo intermitente, entrenamiento