Chapter 2:

Reaching the Abuja target for intermittent preventive treatment of malaria in pregnancy in African women: A review of progress and operational challenges
Reaching the Abuja target for intermittent preventive treatment of malaria in pregnancy in African women: a review of progress and operational challenges

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Summary

Objective To review progress with the implementation of intermittent preventive treatment (IPT) for the control of malaria in pregnancy in sub-Saharan Africa (SSA), in order to identify facilitating factors and operational challenges for scaling up IPT delivery.

Methods Information on the status of IPT policy, programme and coverage indicators was extracted from published sources. Information on country experiences from both published and unpublished literature was supplemented with semi-structured interviews with malaria programme managers.

Results Whilst countries in SSA have made important progress with IPT implementation, coverage levels remain low. High antenatal clinic (ANC) attendance alone is not sufficient to ensure high IPT coverage. Staff shortages, poor drug supply, poor ANC access and poor health worker practices are some of the operational challenges in delivering IPT.

Conclusion Country experiences show that IPT can be introduced and scaled up relatively quickly and effectively where there is political will, effective integration between malaria and reproductive health programmes, adequate funding and drug supply, high ANC attendance and community receptiveness. There is however urgent need to better document best practices and lessons as a basis for developing simplified guidelines for dissemination to countries embarking on IPT implementation.

Keywords malaria, intermittent preventive treatment, pregnant women, vulnerable groups, antenatal care, scaling up

Introduction

The World Health Organization (WHO) policy for malaria prevention and control during pregnancy in areas of stable malaria transmission in Africa is a package of intermittent preventive treatment (IPT) and insecticide treated nets together with effective management of clinical malaria and anaemia (WHO 2004). The recommended drug for IPT in pregnancy in areas of Africa where transmission of P. falciparum malaria is stable, and where resistance to the drug is low, is sulfadoxine-pyrimethamine (SP) (WHO 2004). SP has a good safety profile in pregnancy and good programme feasibility, with the opportunity for delivery as a single dose treatment under direct observation. The policy states that 'all pregnant women in stable malaria transmission areas should receive at least two doses of the recommended antimalarial drug at the first and second regularly scheduled antenatal clinic (ANC) visits after ‘quickening’ (first noted movement of the fetus)' WHO presently recommends an optimal schedule of four antenatal visits, with three visits occurring after quickening (WHO 2002a). The delivery of IPT at each scheduled visit after ‘quickening’ would ensure that a high proportion of women received the minimum two doses of IPT.

The Roll Back Malaria (RBM) targets set by African leaders in Abuja in 2000 include a target that by 2005, ‘at least 60% of all pregnant women who are at risk of malaria, especially those in their first pregnancies, have access to chemoprophylaxis or intermittent presumptive treatment’ (WHO 2000). The aim of the present study was to review the status of IPT policy [the only policy now recommended for Africa (WHO 2004)] adoption and implementation in sub-Saharan Africa in the context of the target to achieve 60% coverage of pregnant women. The paper first describes the status of IPT policy and coverage, then reviews the experiences of IPT implementation in countries with widespread programme implementation, highlighting facilitating factors and operational challenges, and the implications of these experiences for countries at earlier stages of policy adoption and implementation.
Methods

While much has been published on the efficacy, and to a lesser extent on the cost effectiveness, of IPT, published information on the status of IPT policy and implementation and data on IPT coverage are extremely scarce. This paper therefore utilises information from a variety of published and unpublished reports, the website, National Malaria Control Programmes (NMCP) and WHO. Data on IPT coverage was extracted from Demographic and Health Surveys (DHS) and other published sources. Country experiences were available from publications, presentations made regional meetings convened by the malaria in pregnancy East and Southern Africa Coalition for Prevention and Control (MIPESA) and WHO, and two unpublished papers. Any information gaps or clarifications were sought through semi-structured interviews with NMCP.

The key DHS coverage indicator for IPT is defined as: ‘Of women who had a live birth in the five (or in some countries, three) years preceding the survey, percentage who received IPT during antenatal visits for the most recent birth’, where IPT refers to receiving two or more doses of SP (DHS Kenya 2003) or SP or chloroquine (DHS Ghana 2003). There are however variations in the indicators used by DHS across countries, including ‘Percentage of women who received SP at least once/twice during the last pregnancy in last 5 years’, i.e. occasion and source not specified (DHS Malawi 2000) and ‘Percentage of women who had a birth in the 5 years preceding the survey who took antimalaria drugs during the most recent pregnancy, and the percentage who received these drugs from various sources (ANC, health facility or other)’, i.e. occasion not specified (DHS Zambia 2001/02). Identifying SP used specifically for IPT in surveys, which do not specify ‘occasion’ is not possible as SP use for both treatment and prevention are combined.

Results

Status of implementation

Of the 45 malaria endemic countries in sub-Saharan Africa, 24 have adopted IPT with SP (IPT-SP) policy (Figure 1)(WHO 2005). Five countries have achieved widespread programme implementation – namely Malawi, Uganda, Tanzania, Kenya and Zambia, and 19 countries are at earlier stages of implementation. A further country (Benin) is piloting IPT. The five countries with widespread programme implementation were the first countries in Africa to experience high levels of chloroquine resistance and, consequently, were the first countries to adopt IPT-SP in place of chloroquine chemoprophylaxis to prevent malaria in pregnancy. Malawi was the first of these countries to adopt IPT-SP policy in 1993, followed by Kenya in 1998, Uganda and Tanzania in 2000, and most recently Zambia in 2002.

IPT coverage in five countries with widespread programme implementation

Data on IPT coverage from national DHS, facility and household surveys in Malawi, Kenya and Zambia are summarised in Table 1. In 2000, 7 years after adopting the policy, Malawi had achieved only 29% coverage with two doses of SP (DHS Malawi 2000). As the DHS Malawi does not specify ‘occasion’ this figure was likely to be an overestimate of IPT coverage as some SP use will have been for treatment. More recent data from a national household survey undertaken in 2004 showed Malawi is now much closer to achieving the Abuja target for IPT coverage, with 78% coverage for one dose of SP and 47% for two doses (WHO & UNICEF 2005). SP use in this survey excluded use of SP for case management and therefore provides a better indication of IPT coverage than the Malawi 2000 DHS. Recently published 2003 DHS data from Kenya reported an average national IPT coverage of 4% with two doses of SP (DHS Kenya 2003), consistent with findings from a study in four Kenyan districts (Guyatt et al. 2004). DHS Data from Zambia in 2001/2002 shows coverage
Review of IPTp progress and operational challenges

Table 1 Proportion of pregnant women receiving SP in three countries with widespread IPT implementation (Malawi, Kenya and Zambia), 2000–2004

<table>
<thead>
<tr>
<th>Country</th>
<th>Date of IPT policy and date of survey</th>
<th>Data source</th>
<th>Scope of survey</th>
<th>One dose SP (%)</th>
<th>Two or more SP doses (%)</th>
<th>Indicator</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Blantyre</td>
<td>98</td>
<td>75</td>
<td>SP, any occasion</td>
<td>WHO &amp; UNICEF (2003)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>National (4 79 975)</td>
<td>78</td>
<td>47</td>
<td>SP, excluding case management</td>
<td>WHO &amp; UNICEF (2005)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Four districts (1814)</td>
<td>14</td>
<td>5</td>
<td>SP during ANC visit (when not sick)</td>
<td>Guyatt et al. (2004)</td>
<td></td>
</tr>
</tbody>
</table>

AMR: Africa Malaria Report; ANC: antenatal visit; DHS: demographic and health surveys; IPT: intermittent preventive treatment; MOH: ministry of health; SP: sulphadoxine-pyrimethamine.
– Data not provided.

Zambia also benefited from the shared experience of the other East African countries implementing IPT-SP, facilitated by the MIPESA, which was established in 2002 (Sipilanyambe 2003). Although Kenya benefited from local efficacy studies in Kilifi (Shulman et al. 1999) and Kisumu (Parise et al. 1998), and a simultaneous change in first line drug policy to SP, a prolonged process of consensus development among stakeholders delayed implementation (Lynam & Munguti 2003).

Good access to antenatal care. Roll Back Malaria advises that IPT-SP should be provided through the routine antenatal care services as ANC attendance is high in most African countries (WHO 2004), and countries implementing IPT-SP have followed this recommendation. In the five countries with widespread IPT implementation, antenatal care utilisation rates for at least two ANC visits provided by national DHS surveys is high (range 86%–95%), though ANC access in Kenya has declined in recent years, from 91% to 86% of pregnant women making two visits and from 61% to only 53% making four visits or more (Table 2). Nevertheless, good access to antenatal care alone may not lead to high IPT-SP coverage due to several factors related to the quality of service delivery and to community perceptions and behaviour, which are discussed in the section on operational challenges.

Review of experiences in five countries with widespread programme implementation

Factors facilitating IPT-SP policy adoption and implementation

Local evidence base on efficacy of IPT-SP and a simultaneous change in first line malaria treatment policy. The time to move from adopting IPT-SP policy to programme implementation varied substantially between the five countries with widespread implementation – from approximately 1 year in Malawi and Zambia, 3 years in Uganda and Tanzania, to over 7 years in Kenya. The policy-to-implementation process in Malawi was facilitated by an earlier decision to introduce SP as first line treatment for all cases of uncomplicated malaria and at the same time to fast track research on safety and use of SP for IPT in pregnancy (Leavens 2002). Zambia did not undertake local efficacy studies but has a comparable level of malaria endemicity to Malawi and, as in Malawi, IPT-SP was introduced at the same time as a new first line antimalarial drug for uncomplicated malaria (Coartem®). Arabidopsis thaliana also benefited from the shared experience of the other East African countries implementing IPT-SP, facilitated by the MIPESA, which was established in 2002 (Sipilanyambe 2003). Although Kenya benefited from local efficacy studies in Kilifi (Shulman et al. 1999) and Kisumu (Parise et al. 1998), and a simultaneous change in first line drug policy to SP, a prolonged process of consensus development among stakeholders delayed implementation (Lynam & Munguti 2003).

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Integration of malaria control and reproductive health programmes. Countries with widespread IPT implementation have promoted integration with reproductive health (RH) services, and this has been particularly effective in Uganda and Zambia. In Uganda, IPT implementation is coordinated by the National Malaria Control Programme and the RH services unit who

among women who took SP received from ANC during pregnancy of 0.4% (occasion not specified) (DHS Zambia 2001/2002). However, 4 years on, this figure is now likely to be much higher. In Uganda, an IPT coverage indicator has been integrated into HMIS data collection and coverage with at least two doses of SP in 2003 was estimated at 30% (http://www.cdc.gov/malaria/control_prevention/uganda.htm accessed 17 October 2005). No reliable data were available for Tanzania, though IPT coverage data is known to be collected in sentinel sites as well as through HMIS.

Review of experiences in five countries with widespread programme implementation

Factors facilitating IPT-SP policy adoption and implementation

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have joint responsibility for material development, training and supervision. They are supported by a broader ‘pregnancy working group’ of academics, Ministry of Health staff and other partners. ANC attendance has increased in some parts of the country since the introduction of IPT, creating major support for the policy among health workers. Malaria in pregnancy training has now been linked to other initiatives such as home-based management of fever, prevention-of-mother-to-child-HIV transmission (PMTCT) and orientation on anaemia policy (Mufubenga 2003).

Zambia has benefited from integration of national Malaria and RH programmes and concerted action and consensus building among implementing agencies via a working group coordinated by the Central Board of Health. Zambia has included IPT in the curriculum for midwives and has proposed this for other health professionals (N. Ngoma, personal communication).

Political commitment and community receptiveness. Strong political will and community receptiveness have been important contributors to successful IPT implementation.

Table 2 Pattern of ANC utilisation† in countries with IPT policy and programme implementation: number of visits and timing of first visit

<table>
<thead>
<tr>
<th>Country</th>
<th>Data source</th>
<th>One ANC visit</th>
<th>Two ANC visits</th>
<th>Four or more ANC visits</th>
<th>Median number of ANC visits</th>
<th>Median months pregnant at first visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countries with widespread IPT implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>DHS 1998</td>
<td>95</td>
<td>91</td>
<td>61</td>
<td>3.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Kenya</td>
<td>DHS 2003</td>
<td>90</td>
<td>86</td>
<td>52</td>
<td>–</td>
<td>5.9</td>
</tr>
<tr>
<td>Malawi</td>
<td>DHS 2000</td>
<td>95</td>
<td>92</td>
<td>56</td>
<td>3.4</td>
<td>5.9</td>
</tr>
<tr>
<td>Tanzania</td>
<td>DHS 1999</td>
<td>98</td>
<td>95</td>
<td>70</td>
<td>4.1</td>
<td>5.5</td>
</tr>
<tr>
<td>Uganda</td>
<td>DHS 00/01</td>
<td>94</td>
<td>86</td>
<td>42</td>
<td>–</td>
<td>5.9</td>
</tr>
<tr>
<td>Zambia</td>
<td>DHS 01/02</td>
<td>96</td>
<td>94</td>
<td>72</td>
<td>–</td>
<td>5.3</td>
</tr>
<tr>
<td>Countries with IPT implementation in progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>DHS 98/99</td>
<td>61</td>
<td>56</td>
<td>23</td>
<td>2.7</td>
<td>4.9</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>DHS 2003</td>
<td>74</td>
<td>64</td>
<td>18</td>
<td>–</td>
<td>4.7</td>
</tr>
<tr>
<td>Cameroon</td>
<td>DHS 1998</td>
<td>80</td>
<td>78</td>
<td>52</td>
<td>4.8</td>
<td>4.4</td>
</tr>
<tr>
<td>Cote d’Ivoire</td>
<td>DHS 98/99</td>
<td>86</td>
<td>75</td>
<td>36</td>
<td>2.7</td>
<td>5.0</td>
</tr>
<tr>
<td>DRC</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galon</td>
<td>DHS 2000</td>
<td>96</td>
<td>94</td>
<td>63</td>
<td>3.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Ghana</td>
<td>DHS 1998</td>
<td>90</td>
<td>80</td>
<td>62</td>
<td>4.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Ghana</td>
<td>DHS 2003</td>
<td>94</td>
<td>90</td>
<td>69</td>
<td>–</td>
<td>4.0</td>
</tr>
<tr>
<td>Guinea</td>
<td>DHS 1999</td>
<td>75</td>
<td>72</td>
<td>46</td>
<td>3.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Guinea Bissau</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madagascar</td>
<td>DHS 1997</td>
<td>84</td>
<td>79</td>
<td>40</td>
<td>2.9</td>
<td>5.5</td>
</tr>
<tr>
<td>Mali</td>
<td>DHS 2001</td>
<td>58</td>
<td>52</td>
<td>30</td>
<td>–</td>
<td>4.6</td>
</tr>
<tr>
<td>Mozambique</td>
<td>DHS 1997</td>
<td>73</td>
<td>69</td>
<td>37</td>
<td>3.4</td>
<td>5.0</td>
</tr>
<tr>
<td>Namibia</td>
<td>DHS 2000</td>
<td>94</td>
<td>92</td>
<td>69</td>
<td>–</td>
<td>4.8</td>
</tr>
<tr>
<td>Nigeria</td>
<td>DHS 2003</td>
<td>63</td>
<td>61</td>
<td>47</td>
<td>–</td>
<td>5.0</td>
</tr>
<tr>
<td>Rwanda</td>
<td>DHS 2000</td>
<td>93</td>
<td>80</td>
<td>10</td>
<td>2.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Sao Tome P</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senegal</td>
<td>DHS 1999</td>
<td>87</td>
<td>82</td>
<td>64**</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Togo</td>
<td>DHS 1998*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zambia</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>DHS 1999</td>
<td>95</td>
<td>93</td>
<td>64</td>
<td>4.7</td>
<td>4.9</td>
</tr>
</tbody>
</table>

ANC: antenatal visit; IPT: intermittent preventive treatment; DHS: demographic and health surveys.
N/A, no DHS survey.
– Data not provided.
* Report not available.
** Three or more visits.
† Percentage of births in the last 5 or 3 years (depending upon the country) before the survey for which a woman made at least one ANC visit/received at least one antenatal care consultation from a medically trained person.
In Zambia, this strong political commitment and shared experience with other MIPESA countries, good community acceptance, active involvement of implementing partners, good integration within decentralised health systems, and availability of funding were all cited as critical factors for the smooth implementation of policy (Sipilanyambe 2003).

Uganda also reported good community receptiveness as a facilitating factor in IPT implementation (Mufubenga 2003). Uganda organised vigorous communication campaigns on malaria in pregnancy using education talks, radio and television exposure. In contrast, Kenya and Tanzania have placed initial emphasis on training and drug delivery, with efforts to improve communications made only subsequently (Meme et al. 2003; Molteni 2003).

**Operational challenges in countries implementing IPT-SP**

**Inequitable access to ANC services.** There is inequitable access to ANC within countries, even in countries where overall access is high, particularly between urban and rural populations. In 2000, the number of pregnant women making four or more ANC visits in Malawi was 68% in urban areas compared to 54% in rural areas (DHS Malawi 2000). This inequitable access was reflected in an uneven coverage for use of SP, which was 81% for one dose of SP in urban areas compared to 65% in rural areas, and 32% for two doses of SP in urban areas compared to 29% in rural areas (DHS Malawi 2000).

In Kenya, about 40% of health care services are provided by mission, private and non-governmental organisations (Ministry of Health Kenya 1992). In some of these non-government providers there has been slow to introduce the IPT-SP policy, leading to inefficient and inconsistent delivery of services (Leavens 2002).

**Payment policies for IPT.** Government antenatal services are provided free in all five review countries. Conversely, NGO, mission and private clinics often adopt independent payment policies for health services, leading to differential payment policies amongst clinics providing the same service. In Malawi, for example, health facilities run by the Christian Hospitals Association of Malawi (CHAM) charge a fee for the second dose of SP, and this differential payment policy was thought to have accounted for the lower uptake of the second dose of SP in CHAM facilities (17% compared to 40% in government health facilities) (Ashwood-Smith et al. 2002). Similarly in Tanzania, mission health facilities charged a fee for IPT-SP (A. Mwita, personal communication). In Zambia, in contrast, IPT is free in both government and mission facilities (N. Ngoma, personal communication). The impact of variable pricing policies on IPT uptake in Malawi demonstrates that coordination of payment policies across IPT delivery channels and networks is an important consideration in the delivery of IPT, as with other ANC services.

Payment discrepancies can also arise if public health facilities do not adhere to government policy on payment/fees. There are examples of this in Kenya, where staff in government facilities in Busia and Kilifi districts were charging for SP, resulting in low adherence for the second dose of SP (Lynam & Munguti 2003).

**Health worker skills and beliefs.** Many problems of delivering IPT-SP are linked to broader weaknesses within the overall health system, such as inadequate resources, inadequate and/or poorly trained staff and inappropriate incentives for health workers. However, some problems are specific to the delivery of IPT.

In Malawi, confusion among health workers about the timing and spacing of the two SP doses was thought to be the major reason for low coverage with the second dose (Verhoeve et al. 1998). Correct identification of trimesters, inaccurate counting and poor recording in ANC cards were other key problems identified among health staff (Ashwood-Smith et al. 2002). Health worker confusion over appropriate gestational age for IPT was also reported in a Kenyan study (van Eijk et al. 2004). An intervention in Blantyre District, Malawi, of simplified messages and low cost job aids for health workers (posters, gestational dosing wheels), and the introduction of feedback sessions to health staff during supervisory visits, addressed some of the weaknesses in health worker practices and dramatically increased coverage with the second dose of SP from 45% to 79% (Holz et al. 2004; MIPESA 2004). Supervisory feedback was a key component of the Blantyre programme but its success when taken to scale nationwide will need to be demonstrated.

Training of health staff in two pilot districts in Kenya revealed poor knowledge among health workers, with only 24% of health staff familiar with the IPT guidelines (Ferguson et al. 2002). With further training this percentage improved but many health workers remained concerned about the safety or effectiveness of IPT-SP. These concerns may have been communicated to pregnant women, as in Busia District, where after receiving SP from the district hospital, pregnant women sought advice on the safety of the drug from a private clinic (Division of RH and JHPIEGO 2001). A recent study in four districts in Kenya showed that despite 96% of IPT providers being aware of IPT-SP policy, only 5% of women interviewed had received at least two doses of IPT-SP (Guyatt et al. 2004). Reasons given by providers in health facilities for not prescribing IPT-SP included resistance among pregnant
women to take the drug, lack of awareness of the policy and lack of drugs.

**Staff shortages at antenatal clinics.** Very high client to staff ratios and inadequate supervision have been significant barriers to effective delivery of IPT in Uganda. Non-formal health care providers, such as nurse aids, have been trained to deliver IPT-SP in order to overcome the shortage of health staff (Mufubenga 2003). Similarly in Malawi, providers in some clinics may attend up to 75 pregnant women daily, resulting in poor quality of care, minimal (if any) counselling and long waiting times (WHO 2002b). Chronic human resource shortages have also been cited as constraints to IPT delivery in Kenya and Zambia (MIPESA 2003), though not in Tanzania.

**Drug shortages.** Of the five countries reviewed, Tanzania was the only country to cite high SP availability in 91% of health facilities surveyed. Tanzania has a variety of different sources of SP, including the district medical office (43%), essential drug programme kits (44%), private market (4%) and others (9%) (Molteni 2003). This is in contrast to the four other countries, where SP supply has been reported to be a major constraint to the delivery of IPT.

Malawi and Uganda use the ‘pull system’ for drug supply, where districts forecast need based on ANC attendance. Kenya uses the ‘push system’, where supply is not related to demand, and this has lead to underestimation of need (Shulman 2003). Drug availability was reported to be the largest constraint to implementing IPT-SP in Kenya (Leavens 2002). The main supply barriers appeared to be the distribution chains at district hospitals, which were responsible for delivering drugs to health facilities, as well as insufficient funds for procurement.

Health workers have been seen to prioritise and use limited SP stocks for treating sick patients at the expense of providing SP for IPT. Kenya is currently examining ways to ensure a more regular SP supply, including the provision of an ‘antenatal care pack’ which would include SP for IPT along with other essential drugs. Uganda and Zambia have experienced frequent drug stock-outs due to underestimation of requirements, lack of resources, delays in release of funds to districts and monopoly of drug supply by government stores. Drug availability has been less of a problem in Malawi, although inadequate funds for procurement and transport issues were a concern in the past and, as in Kenya, priority was given to treatment of symptomatic patients (WHO 2002b). Health staff in Malawi are limited in the quantity of SP they are entitled to order due to maximums imposed on order forms, which are frequently insufficient to cover needs (Ashwood-Smith et al. 2002).

**Directly observed therapy.** In Blantyre, Malawi, only 56% of women were observed taking SP at one clinic, i.e. as directly observed therapy (DOT) (Ashwood-Smith et al. 2002). The main constraints to practicing DOT were lack of clean water and cups at ANC clinics, together with the belief among both staff and patients that SP should not be taken on an empty stomach. Potable water was a lesser problem in some districts in Kenya than availability of cups, which were available in only 70% of clinics (Division of RH and JHPIEGO 2001). Lack of clean water has also been reported as a constraint in Tanzania (MIPESA 2003), and lack of cups in both Tanzania and Uganda. Some clinics in Uganda devised innovative alternatives for cups such as empty plastic medicine bottles (Mufubenga 2003).

**Lack of demand for antenatal services.** Demand for ANC services is determined by many socio-economic and cultural factors, including perceived burden of disease, quality of care/service including waiting times, prior experience with health providers, drugs prescribed, ANC access and travel time and costs. For example, complaints raised by pregnant women in Kenya included the poor organisation in health care facilities generally, long waiting times, delays in clinics opening, poor attitudes and poor communication skills of health workers (Leavens 2002; Mubyazi et al. 2005). Other quality issues affecting use of health services include inaccurate diagnosis, inappropriate prescription and advice, drug stock outs and continued use of ineffective drugs. In Uganda, the perceived absence of drugs and charging user fees were key reasons for non-use of the formal health delivery system for malaria treatment (Ndumugyenyi et al. 1998).

Women’s perceptions of problems in health care services assessed by DHS surveys revealed disparities between urban and rural settings, across different socio-economic strata and across levels of education and literacy. These perceptions are generic problems that need to be addressed by ANC programmes more generally, as well as through malaria control interventions.

**Late antenatal clinic attendance.** The timing of ANC visits is critical for the effective delivery of IPT. Approximately 25% of women attend ANCs for the first time in the third trimester (WHO & UNICEF 2003). Late ANC attendance is a barrier to delivering the second dose of SP and will not provide adequate protection for the mother or her fetus. Late attendance to ANC, towards the end of the second trimester, is an issue for all five East African countries with an average of 5.7 median months pregnant at first visit (Table 2). For example, late ANC attendance in Uganda (around 28 weeks) was a major impediment to delivering
Review of IPTp progress and operational challenges

the second dose of SP (Mufubenga 2003). Similarly in Zambia, late antenatal attendance was the main reason for low compliance with the three-dose IPT regimen (N. Ngoma, personal communication). By improving female education on the benefits of IPT-SP and by simplifying recommendations for IPT-SP, earlier attendance may be achieved (WHO & UNICEF 2003).

Perceptions of drug safety. Women are generally reluctant to take medicines during pregnancy unless absolutely necessary because of concerns for potential effects on the unborn child. The use of SP has raised concerns among pregnant women over risk of severe skin reactions known as Steven Johnson’s Syndrome (Tanzania) (Mubyazi et al. 2005) and the belief that SP should be taken with food (Malawi) (Ashwood-Smith et al. 2002). In Uganda it has been shown that local terminology and pre-tested messages could be successfully used to address these issues (Mufubenga 2003). The experience in Tanzania suggests that the media play a critical role in shaping the perceptions of communities (A. Mwita, personal communication). Substantial efforts should be made to inform the media of the facts about IPT-SP as an integral part of any communications campaign.

Issues for countries commencing IPT-SP implementation

Access to antenatal clinics. Whilst antenatal coverage in sub-Saharan Africa is generally high, there are some countries with very low coverage, for example Mali, where only 52% of pregnant women make at least two ANC visits (Table 2). There are significant urban/rural disparities in ANC access, most notably in Mali, where 84% of pregnant women in urban areas made two or more antenatal visits compared to 42% in rural areas (DHS Mali 2001), but also in Nigeria and Burkina Faso (Table 3). Rural women also attend later in pregnancy than their urban counterparts, and there are socio-economic disparities in ANC access. A recent analysis by UNICEF in seven African countries found that wealthier women were at least twice as likely to attend ANCs than poorer women (WHO & UNICEF 2003).

Frequency and timing of ANC visits. In addition to urban/rural disparities, several of the countries beginning to implement IPT-SP also face less frequent ANC visits by pregnant women, with four countries showing a median number of ANC visits less than three (Table 2). Many of these women do however attend ANC earlier than women in the East African countries, with an average of 4.7 median months pregnant at first visit compared to an average of 5.7 for the East African countries (Table 2). Rwanda has the latest ANC attendance figure of 6.7 median months pregnant at first visit and also the lowest median number of ANC visits (only 2).

Supplementary channels for IPT delivery. If countries with low ANC coverage, such as Mali, are to rapidly reach

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Pattern of ANC utilisation † in selected countries with IPT policy and programme implementation: number of urban and rural women making at least two ANC visits and median months pregnant at first visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
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<tr>
<td>Kenya</td>
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<tr>
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</tr>
<tr>
<td>Mali</td>
<td>84</td>
<td>42</td>
</tr>
<tr>
<td>Nigeria</td>
<td>82</td>
<td>52</td>
</tr>
</tbody>
</table>


†Percentage of births in the last 5 or 3 years (depending upon the country) before the survey for which a woman made at least one ANC visit/received at least one antenatal care consultation from a medically trained person.
nationwide IPT coverage then additional, alternative channels for delivering IPT will be needed to supplement delivery through the routine health services. Supplementary channels may include community-based programmes using traditional birth attendants or village health workers (VHW), existing health programmes and outreach services, though experience of delivering IPT through these channels is extremely limited. A recent study undertaken in Chikwawa District, southern Malawi, showed that VHWs were effective providers of IPT-SP, achieving 95% coverage with two doses of IPT-SP 2 years after introduction (B. Brabin, personal communication). VHWs in the intervention villages were trained to measure fundal height to enable more accurate assessment of gestational age and timing of SP delivery. There was a high correlation between the VHW’s measurement and fundal height assessment by experienced staff. This study demonstrated that non-professional community health workers can, with adequate training, play a important role in IPT delivery, especially in countries with poor ANC coverage. Potential diversion of pregnant women away from ANC, and therefore other essential ANC services, will however need to be monitored.

Other programmes which present opportunities for integrating IPT delivery include PMTCT and immunisation programmes. There is no experience to date with the latter but it is conceivable that mothers could be targeted for IPT counselling, or receive IPT if pregnant, when they bring their children for immunisation. Malawi, Kenya and Zambia have integrated IPT with their PMTCT programmes: Malawi has linked IPT to PMTCT activities in 15 districts; Kenya is integrating PMTCT into a focused antenatal care/malaria in pregnancy orientation package in 19 districts; and operational research by the Tropical Disease Research Centre in Ndola has provided the rational for incorporating malaria in pregnancy interventions into the PMTCT programme in Zambia. A further, as yet untested, channel for IPT delivery is through voluntary counselling and testing programmes which target adolescents – an important risk group for malaria as well as for HIV (Brabin & Brabin 2003).

Conclusions

This review summarises the extent of IPT-SP implementation in Africa and highlights some of the experiences and lessons learned from five countries with widespread programme implementation. Malawi and Zambia have shown that IPT-SP can be introduced relatively quickly and effectively where there is political will, effective integration between malaria control and RH programmes, adequate funding and drug supply, high ANC attendance and community receptiveness. The sub-regional malaria in pregnancy network in East Africa (MIPESA) is proving to be an effective forum for sharing lessons between member countries and with other countries, and for coordinating the development of coping strategies to address common operational challenges. Efforts should now be made to ensure that relevant experiences from East Africa are communicated to countries in Central and West Africa, which are beginning to implement IPT-SP policy. The sub-regional malaria in pregnancy network in West Africa (ROAPAG), established in 2003, provides an ideal vehicle to facilitate dissemination within the West African region.

One important lesson highlighted in this review is that high ANC attendance alone is not sufficient to ensure high IPT-SP coverage. Many of the operational challenges for the delivery of IPT-SP were associated with a need to strengthen overall health systems by reducing staff shortages, improving drug supply, increasing ANC access and improving health worker performance. In Kenya, for example, a substantial proportion of missed dosing was due to facility-dependent factors and poor health worker performance in particular (Van Eijk et al. 2004). This illustrates the importance of good health worker practices, which can be encouraged by effective training and subsequent follow-on support and supervision. The introduction of IPT-SP should be seen as an opportunity to tackle existing weaknesses in the health system. The use of low-cost health worker interventions, such as that developed in Malawi, are promising and need to be tested at scale.

Another key lesson highlighted in this review is the need for well-designed, timely communication campaigns to promote awareness and confidence among pregnant women to take IPT-SP. In four of the five review countries, poor design and/or late delivery of communications campaigns were major weaknesses. Research is required to understand the socio-cultural and economic determinants of ANC utilisation, upon which IPT delivery hinges, and how to expand coverage to vulnerable groups such as adolescents and the very poor.

Of the 24 countries which have so far adopted IPT-SP policy, only one country (Malawi) is close to achieving the Abuja target of 60% coverage of pregnant women, though Zambia, Uganda and Tanzania also appear to be making good progress. The remaining 20 countries have yet to overcome some of the many operational challenges highlighted in this review. Countries with high ANC coverage and attendance are in a better position than countries where coverage and attendance is low, but health services and health worker practices will require strengthening. Dissemination of best practices from the East African countries should be used to simplify guidelines for dissemination to all countries embarking on programme
implementation, where they can be adapted for local use. Operational research to find alternative strategies for delivering IPT-SP to supplement ANC channels is urgently needed.

In addition to the operational challenges highlighted here, a major technical challenge for implementing IPT policy remains. The rapidly diminishing efficacy of SP (currently the only recommended drug for IPT in pregnant women) is a major global concern and no effective replacement drug for IPT in pregnancy has yet been tested. Drugs in the pipeline require longer treatment times and will not be as simple to deliver as SP (i.e., single dose, 1-day treatments). Furthermore, nearly all drugs currently developed are more expensive than SP. As a matter of urgency therefore, efforts to increase coverage with IPT should be matched by efforts to find alternative drugs to SP, which are safe, practicable and affordable for use as IPT.

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Atteindre l’objectif d’Abuja pour le traitement préventif intermittent de la malaria chez les femmes enceintes en Afrique: Une revue des défis et des progrès opérationnels

OBJECTIF Evaluer la situation du traitement préventif et intermittent (TPI) de la malaria, administré dans les cliniques anténatales en Afrique subsaharienne.

MÉTHODES Nous avons revu les politiques actuelles de TPI dans des pays de la région et les données de couverture TPI, l’expérience des pays dans l’implémentation du TPI, les facteurs facilitateurs et les défis opérationnels pour mesurer la délivrance du TPI.

RÉSULTATS Alors que ces pays ont réalisé d’importants progrès dans l’implémentation du TPI, les niveaux de couverture restent faibles. Le recours aux cliniques anténatales seules est insuffisant pour assurer une couverture étendue. Le manque de personnel, la délivrance faible de médicaments, l’accroissement de l’accès aux cliniques anténatales et l’amélioration de la performance des agents de la santé font partie des défis opérationnels dans la délivrance du TPI.

CONCLUSION Il y a un besoin urgent d’une plus bonne documentation des meilleures pratiques et des leçons apprises, comme base pour développer des directives simplifiées pour la dissémination dans les pays embarqués dans l’implémentation du TPI.

Mots-clés: malaria, traitement préventif intermittent, femmes enceintes, groupes vulnérables, soin anténatal, mesures

Alcanzar el objetivo de Abuja para el tratamiento preventivo intermitente de malaria durante el embarazo en mujeres Africanas: un repaso del progreso y de los retos operacionales

OBJETIVO Evaluar el estado del tratamiento preventivo intermitente (IPT) de malaria dado a través de clínicas prenatales en África sub-Saharana.

MÉTODOS Revisamos las políticas actuales del IPT en países de la región y los datos de cobertura del IPT, las experiencias de los diferentes países en la implementación del IPT, los factores facilitadores y los retos operacionales para escalar la implementación del IPT.

RESULTADOS Mientras que estos países han tenido progresos importantes en la implementación del IPT, los niveles de cobertura continúan siendo bajos. La atención en clínicas prenatales no es, en sí, suficiente, para asegurar una alta cobertura del IPT. La falta de personal, la provisión de medicamentos, el aumento en el acceso a las clínicas prenatales y la mejora del desempeño de los trabajadores sanitarios son algunos de los retos operacionales a los que hay que enfrentarse en la implementación del IPT.

CONCLUSIONES Hay una necesidad urgente de documentar las mejores prácticas y las lecciones aprendidas, como una base para desarrollar direcciones que se puedan diseminar entre los países que emprendan la implementación del IPT.

Palabras clave: malaria, tratamiento preventivo intermitente, mujeres embarazadas, grupos vulnerables, cuidado prenatal, escalamiento