

MACEPA
Technical Brief 1

**Zambia 2006
National Malaria
Indicator Survey**

A Summary Review of Progress

June 2007

MACEPA  **PATH**
Malaria Control and Evaluation Partnership in Africa

Background

Malaria is a major public health problem in Zambia. The National Malaria Strategic Plan 2006–2011 outlines an aggressive approach to reducing malaria and malaria-related burden through the rapid and nationwide scale-up of malaria control interventions. Evaluation of scale-up of key interventions is essential for understanding progress in the fight against malaria.

The Zambia National Malaria Indicator Survey (MIS) used a standardized survey tool developed by the Roll Back Malaria Monitoring and Evaluation Reference Group in collaboration with ORC Macro (which conducts demographic and health surveys), UNICEF (which conducts multiple indicator cluster surveys), and other organizations. This represents the first use of this nationally representative household survey tool assessing coverage of key malaria interventions and malaria-related burden among children under 5 years. The survey was developed and conducted by the Ministry of Health and several key malaria partners, including the Central Statistical Office, the Malaria Control and Evaluation Partnership in Africa (MACEPA, a program at PATH), the World Health Organization, the US Centers for Disease Control and Prevention, and the University of Zambia.

Objectives

The objective of the Zambia MIS was to obtain a nationally representative estimate of malaria control intervention coverage and to assess progress toward achieving the goals and targets set by the National Malaria Strategic Plan 2006–2011.

Malaria control efforts in Zambia are focused around selected interventions, which include use of insecticide-treated mosquito nets (ITNs); indoor residual spraying (IRS); prevention during pregnancy; and prompt, effective case management (PECM). The MIS aimed to assess coverage of these key interventions, as well as determine malaria parasitemia and anemia in children under 5 years. In addition, comparison of MIS results to those of the most recent national Demographic and Health Survey (DHS) conducted in 2001–2002 enabled progress assessment.

Methods

The MIS was based on a nationally representative two-stage cluster sample of 3,000 households. These households were surveyed from 120 enumeration areas in 58 districts, randomly selected from 72 districts from all nine provinces, to provide representative national, urban, and rural estimates, as well as estimates for the ten RBM sentinel districts. Field work was conducted during May and June 2006 by 11 field teams (with a total of 59 team members) using standardized questionnaires. Questionnaires were pre-programmed onto hand-held computers in order to facilitate data entry, extraction, and analysis. Malaria parasite testing was done using Paracheck Pf[®] rapid diagnostic tests, as well as thick and thin blood smears. Anemia testing was done using HemoCue[®] Hb 201 analyzers and microcuvettes.

Results

Sampling included approximately 3,000 households with a population of 14,681 within those homes (18% of whom were under age 5 years, 46% of whom were under age 15 years). Thirty-eight percent of households were urban and 62% were rural. “Insecticide-treated net” was defined as a factory-treated net that did not require any treatment, a pretreated net obtained within the last 12 months, or a net that had been soaked with insecticide within the past 12 months.

Mosquito net and ITN coverage and use

National ITN coverage rates have approximately doubled since 2002, with a three-fold increase in the proportion of children under the age of 5 sleeping under an ITN (Figure 1). There remains much variation in coverage by province (ranging from 32% to 73% of households owning an ITN; data not shown) because of recent targeting of specific rural provinces, and there are still increases in coverage and use to be achieved,

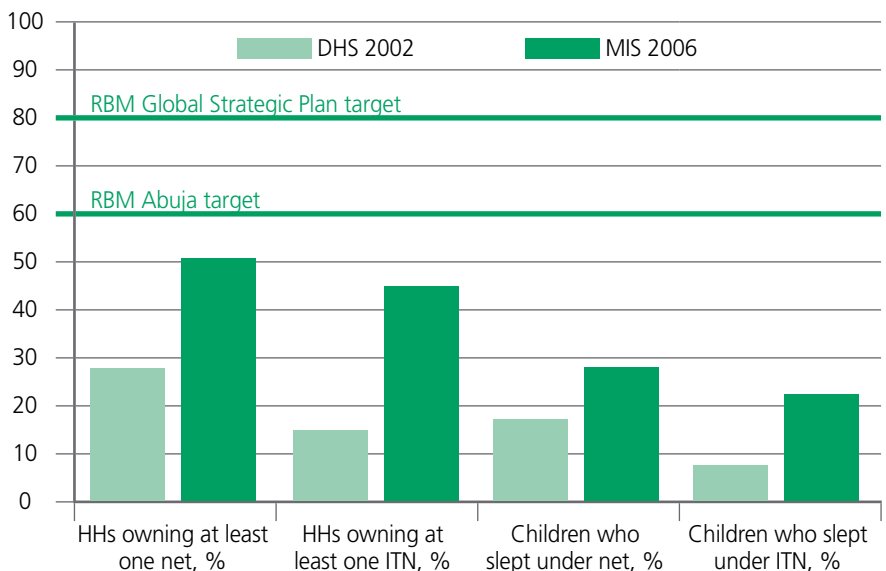


FIGURE 1. Mosquito net and insecticide-treated net (ITN) coverage and use. DHS, Demographic and Health Survey; HHs, households; MIS, Malaria Indicator Survey; RBM, Roll Back Malaria.

given the Abuja target of 60% coverage and the Zambia-specific coverage target of 80% of households with an average of three nets per household (indicated by the green lines on Figure 1).

Indoor residual spraying

IRS is carried out in 15 districts and is mainly targeted to urban areas, where the overall coverage rate is 34%; in rural areas the rate is 0.9% (data not shown). Table 1 shows that IRS coverage rates vary by province from 11.6% in Lusaka to 77.1% in Central Province.

These data are based on all households in the targeted districts; additional analysis is required to assess the coverage rate per IRS-eligible household. There are no data from past national surveys for comparison.

TABLE 1. Percentage of households (HHs) sprayed in targeted districts in the last 12 months

Region	HHs in targeted districts sprayed in last 12 months, %
Central Province	77.1
Copperbelt Province	40.1
Lusaka Province	11.6
Southern Province	25.9

Prevention in pregnancy

Intermittent preventive treatment in pregnancy (IPTp) and sleeping under an ITN are core prevention strategies for pregnant women. “Intermittent preventive treatment in pregnancy” is defined as having taken at least two treatment doses of an effective antimalarial drug during routine antenatal care visits.

Figure 2 shows that the percentages of pregnant women who slept under an ITN and who took any antimalarial drug have doubled since 2002. Zambia has exceeded the interim Abuja targets of 60% IPTp coverage with two or more doses (no data available for the DHS 2002 study). ITN coverage and use rates reflect those found in the general population (see data for children above).

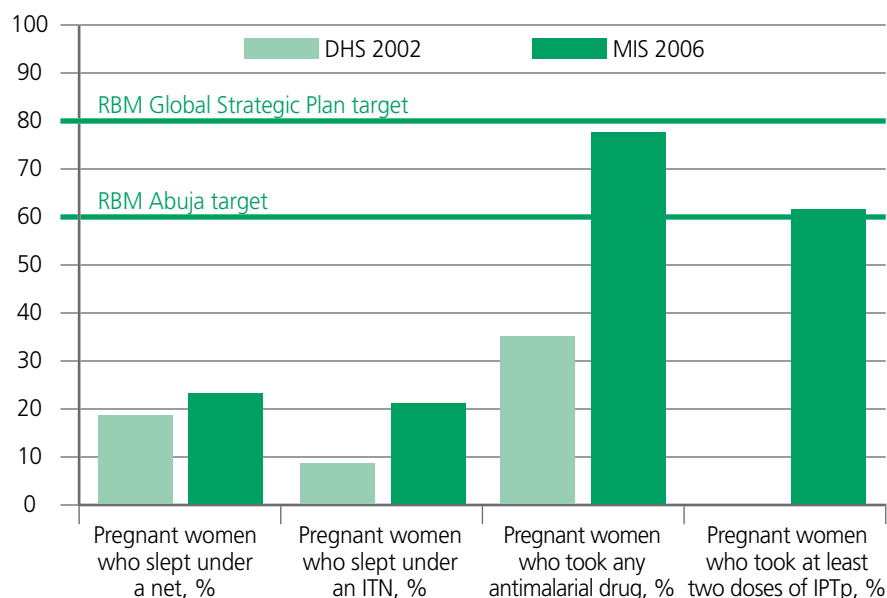


FIGURE 2. Prevention in pregnancy: insecticide-treated net (ITN) and intermittent preventive treatment in pregnancy (IPTp) coverage. DHS, Demographic and Health Survey; MIS, Malaria Indicator Survey; RBM, Roll Back Malaria.

Variability in IPTp coverage rates by province remains large (ranging from 47% to 83%; data not shown).

Prompt, effective case management for fever/malaria among children under 5 years

Figure 3 shows that national PECM coverage with artemisinin-based combination therapy (ACT, such as Coartem®) is currently low (12.6%). There has been little if any change in the pattern of prompt treatment of fever in young children. Most drugs are obtained from government-run public health facilities or from health workers (85%; data not shown). Despite the national policy to use ACT as the first-line drug, sulfadoxine-pyrimethamine was used three times more often than Coartem® (data not shown).

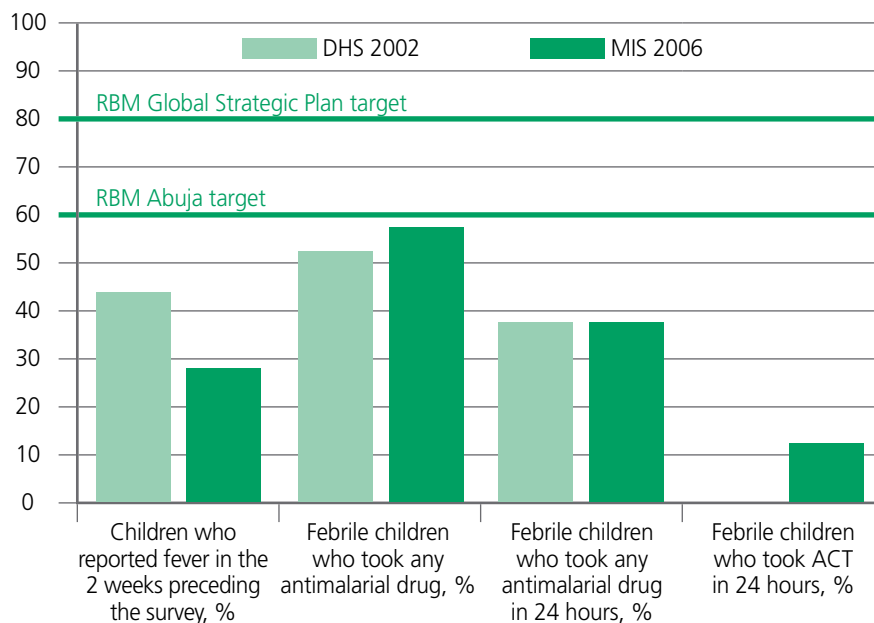


FIGURE 3. Prompt, effective case management in children under 5 years. DHS, Demographic and Health Survey; MIS, Malaria Indicator Survey; RBM, Roll Back Malaria.

Malaria parasitemia and anemia in children under age 5 years

Table 2 shows that the national prevalence of mostly asymptomatic parasitemia in May 2006 was 22% (the rainy season ended in early to mid-April) but was almost entirely among poor rural children. Similarly, severe anemia was all too common, particularly among children in poor rural households. The peak age for parasitemia (26 months) and for anemia (18 months) differed among these children; this is consistent with findings elsewhere in which malaria-associated anemia has been shown to be a particular problem among very young children. It is notable that the wealth index is calculated according to World Bank methods and is not quintiles—81% of surveyed children under age 5 years are in the lowest two tiers.

TABLE 2. Parasite prevalence and anemia rates among children under age 5 years

	Parasite prevalence, %	Children with severe anemia (Hb <8 gm/dl), %
Overall prevalence	22	13
Residence (urban/rural)	5/29	8/15
By wealth index		
Lowest	29	16
Second	14	10
Middle	6	6
Fourth	2	6
Highest	2	0

Note. Hb, hemoglobin.

Summary Comments

Zambia has made substantial progress in increasing coverage rates of key prevention interventions in the past several years. ITN coverage rates have doubled, and ITN use rates have more than doubled. IRS coverage rates in certain districts in the Copperbelt Province and the Central Province have reached very high levels (up to 77%), demonstrating that these coverage rates are achievable. Initial Abuja targets of exceeding 60% coverage have been achieved for prevention in pregnancy with two or more doses of IPTp (but not yet with ITNs).

Zambia has many remaining challenges. Despite increases in ITN coverage rates, there is much to be done to reach 80% coverage with an average of three ITNs per household and to achieve the high-use patterns that are required. For IRS, extension to the 15 target districts to achieve high coverage of eligible households will require the same attention that has been brought to Kabwe District in Central Province, which achieved 77.1% coverage. Coverage rates of PECM remain low, with little change in the past 3 years. Malaria and anemia remain problems for poor rural households; these include a large proportion of the population and particularly the population of children under 5 years of age.

The data from the MIS are currently being used to target the next round of scale-up efforts. For example, Luapula and Northern provinces (both largely rural and poor) had the highest parasitemia rates in young children (37.5% and 35.7%, respectively) and some of the lowest ITN coverage rates (44% and 33% of households with an ITN, respectively). These provinces are being targeted for 2007 ITN mass distribution campaigns.

Finally, ongoing tracking of the intervention coverage, malaria incidence, and anemia rates will be conducted through a DHS in 2007 and another MIS, conducted by the Zambia Ministry of Health and its RBM partners, in 2008.

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