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Malaria is a major public health problem in Malawi. It is the leading cause of morbidity and mortality, especially among children under the age of five years and pregnant women. The Ministry of Health (MOH) estimates that over the past five years there have been more than 8 million episodes of malaria per year throughout the country (MOHP, 2003a). Malaria accounts for 40 percent of all outpatient visits to health facilities in the country. Anaemia, most of which is considered to be attributable to malaria, is estimated to be responsible for about 40 percent of all hospitalisations and 40 percent of all hospital deaths in children under age five.

Over 85 percent of malaria infections in Malawi are due to *Plasmodium falciparum*. This type of malaria can lead to death; however, the most severe cases are typically limited to those who are not immune or have low immunity. Those most at risk are children age three months to five years, when they no longer have the immunity transferred from their mother, to the age when they have developed their own immunity. Also at risk are pregnant women because their natural immunity is reduced. Pregnant women are four times more likely to suffer from complications of malaria than non-pregnant women. Malaria is a cause of pregnancy loss, low birth weight, and neonatal mortality (Jamison et al., 1993).

In economic terms, malaria has both direct and indirect costs. Direct costs borne by individuals, households and government include the cost of treatment. The indirect costs of malaria include not only the negative economic impact of morbidity and mortality in work days lost in agriculture and industry, but also absenteeism in the education system, which further contributed to loss in productivity (MOHP, 2002b). Malaria therefore aggravates poverty.

The call for the Roll Back Malaria (RBM) initiative was made in 1998 by WHO as an international effort to control malaria. Malawi endorsed this initiative by committing herself to the Abuja Declaration. The RBM initiative is the framework within which the country implements malaria control activities. The initiative's goal is to halve the 2000 levels of malaria morbidity and mortality by 2010, and to reduce this malaria burden by a further 50 percent by 2015. The objectives of the initiative are to ensure that by the year 2005 at least 60 percent of those at risk of malaria, particularly pregnant women and children under five years of age, have access to the most suitable and affordable combination of personal and community protective measures such as insecticide-treated mosquito nets (ITNs) and prompt, effective treatment for malaria within 24 hours of onset of illness. Another objective is to ensure that at least 60 percent of all pregnant women who are at risk of malaria, especially those in their first pregnancies, have access to intermittent preventive treatment (IPT).

To control malaria, the Government of Malawi has put in place several strategies through the National Malaria Control Programme. The main strategic areas that have been identified for scaling-up of malaria control activities, include malaria case management, intermittent preventive treatment (IPT) of pregnant women with sulfadoxine-pyrimethamine (SP), and

malaria prevention with special emphasis on the use of insecticide-treated mosquito nets (ITNs) (MOHP, 2002a; MOH, 2005b).

14.1 MOSQUITO NETS

The use of ITNs is a primary health intervention to reduce malaria transmission. In an effort to make mosquito nets affordable, the Government of Malawi has since November 2002 introduced a subsidy on mosquito nets and developed ITN guidelines to standardise and facilitate the distribution of mosquito nets in the country. The Government and development partners supply mosquito nets and insecticide treatment kits for distribution at subsidised costs to communities. Mosquito nets in Malawi are distributed through three main distribution channels: health facilities, community organisations, and the private sector. Less than 10 percent of the nets are distributed through the commercial distribution channel. The nets distributed through health facilities and communities are green and rectangular. The nets for commercial distribution are blue and conical.

This section presents the 2004 MDHS findings collected at the household level on mosquito net possession and use of mosquito nets by household members, in particular children under five years of age and pregnant women.

14.1.1 Ownership of Mosquito Nets

All households in the 2004 MDHS survey were asked whether they own mosquito nets and, if so, how many they own. The respondents were asked to show the mosquito nets to the interviewer.

Table 14.1 shows the percentage of households with at least one mosquito net, with at least one ever-treated mosquito net, and the average number of nets per household, by background characteristics. The data show that 42 percent of households in Malawi have at least one net. Less than one-fifth of households (18 percent) have more than one net. Data in Table 14.1 also show that 34 percent of the households own at least one ever-treated mosquito net, and 15 percent of these households have more than one ever-treated net. Just over one-fourth (27 percent) of households own an ITN, that is, a net that has been soaked in insecticide within the past 12 months or a factory-treated net that does not require further treatment. Almost one in eight households have more than one ITN. The average number of mosquito nets per household is 0.7, while the average number of ever-treated mosquito nets per household is 0.6, The average number of ITNs per household is 0.4.

Urban households are more likely than rural households to own ITNs (41 percent compared with 25 percent). The Northern Region has the highest coverage of ITNs while the Central Region has the lowest coverage (31 percent compared with 24 percent). Among the oversampled districts, it is interesting to note that Salima and Machinga have the highest coverage of ITNs. The data also show that ownership of mosquito nets is directly related to the wealth status of the household; better off households are more likely than poorer households to own a mosquito net.

Table 14.1 Ownership of mosquito nets

Percentage of households with at least one and with more than one mosquito net (treated or untreated) and average number of mosquito nets per household, by background characteristics, Malawi 2004

Background characteristic	Percentage of households that have at least one net	Percentage of households that have more than one net	Average number of nets per household	Percentage of households with at least one ever-treated net	Percentage of households with more than one ever-treated net	Average number of ever-treated nets per household	Percentage of households that have at least one ITN	Percentage of households that have more than one ITN	Average number of ITNs per household	Number of households
Residence										
Urban	55.8	30.7	1.1	47.5	25.8	0.9	40.5	21.0	0.8	2,262
Rural	39.1	15.8	0.6	31.6	12.4	0.5	24.8	9.7	0.4	11,402
Region										
Northern	46.8	27.3	0.9	37.0	20.5	0.7	31.3	16.9	0.6	1,584
Central	38.5	16.1	0.6	30.8	12.8	0.5	24.0	9.8	0.4	5,589
Southern	43.6	17.9	0.7	36.5	14.9	0.6	29.4	11.8	0.5	6,491
District										
Blantyre	41.4	16.5	0.7	34.6	14.4	0.6	30.0	12.1	0.5	1,111
Kasungu	32.8	13.1	0.5	26.8	10.6	0.4	19.7	7.9	0.3	544
Machinga	63.8	27.9	1.0	53.0	22.7	0.8	43.4	19.7	0.7	539
Mangochi	56.6	28.1	1.0	44.0	22.3	0.8	34.8	16.4	0.6	727
Mzimba	37.7	19.8	0.7	31.4	16.1	0.6	25.4	12.9	0.5	795
Salima	62.2	26.1	1.0	55.4	22.9	0.9	42.7	17.4	0.7	392
Thyolo	31.8	10.7	0.5	25.5	8.2	0.4	20.9	6.7	0.3	734
Zomba	50.3	22.6	0.9	44.2	19.2	0.7	37.3	17.0	0.6	760
Lilongwe	42.9	18.2	0.7	33.0	14.6	0.5	26.4	11.4	0.4	2,127
Mulanje	29.7	10.6	0.5	25.4	8.8	0.4	21.7	7.6	0.3	611
Other districts	39.0	17.3	0.7	31.8	13.3	0.5	24.7	10.1	0.4	5,325
Wealth quintile										
Lowest	20.3	3.9	0.2	14.9	2.6	0.2	10.7	1.7	0.1	3,168
Second	31.6	9.3	0.4	24.4	7.2	0.3	18.5	5.3	0.2	2,748
Middle	39.1	14.2	0.6	31.4	10.9	0.5	24.8	8.9	0.4	2,622
Fourth	52.5	23.0	0.8	43.6	18.2	0.7	35.6	14.5	0.5	2,569
Highest	71.9	44.9	1.5	62.1	37.9	1.3	52.2	30.4	1.0	2,557
Total	41.9	18.2	0.7	34.2	14.7	0.6	27.4	11.6	0.4	13,664

¹An ever-treated net is (1) a pretreated net or a non-pretreated net that has subsequently been soaked with insecticide at any time.

²An Insecticide Treated Net (ITN) is (1) a factory treated net that does not require any further treatment or (2) a pretreated net obtained within the last six months or (3) a net that has been soaked with insecticide within the past six months.

14.1.2 Colour and Shape of Mosquito Nets

In the 2004 Malawi DHS, the respondents to the Household Questionnaire were asked to show their mosquito nets to the interviewers. To allow monitoring of the distribution of mosquito nets made available under social marketing initiatives, the interviewer also noted the colour, shape and condition of the net. Interviewers were instructed to record whether the net has holes that are the size of the tip of a thumb or larger.

Table 14.2 shows that one in four of the nets observed have holes. Green nets are the most popular; 74 percent of the nets observed are green. One in five observed nets is blue, and 5 percent are white. Rectangular nets are more common than conical nets (71 and 29 percent, respectively). The major net distribution effort in Malawi distributes green, rectangular nets

through health facilities and blue, conical nets through private sector channels. As anticipated by the net distribution strategy, these results show that rural residents are more likely to have green and rectangular nets while urban residents are more likely to have blue and conical nets.

Table 14.2 Colour and shape of mosquito nets

Percentage of households with an observed mosquito net, percentage of observed nets with holes, and percent distribution of observed nets by colour and shape, according to background characteristics, Malawi 2004

Background characteristic	Percentage of households with observed net	Number of households	Percentage of observed nets with at least one hole	Percentage of observed nets that are:				Percentage of observed nets that are:		Number of observed nets
				Blue	Green	White	Other	Conical	Rectangle	
Residence										
Urban	18.9	2,262	20.6	42.5	51.2	6.2	0.1	51.7	48.0	722
Rural	20.4	11,402	27.2	16.7	78.6	4.6	0.1	23.7	75.9	3,439
Region										
Northern	19.7	1,584	26.0	24.4	66.2	9.3	0.1	41.0	58.4	533
Central	17.2	5,589	27.6	20.8	74.6	4.5	0.2	26.8	73.0	1,416
Southern	22.8	6,491	25.0	20.6	75.3	4.0	0.0	26.8	72.9	2,212
District										
Blantyre	18.5	1,111	18.5	40.6	53.9	5.6	0.0	46.9	53.1	300
Kasungu	21.5	544	38.0	14.3	83.6	2.1	0.0	18.7	81.3	178
Machinga	36.7	539	26.6	9.4	84.8	5.7	0.0	15.9	83.6	299
Mangochi	24.2	727	41.5	22.3	72.8	4.9	0.0	29.6	70.4	308
Mzimba	19.6	795	26.8	26.3	65.9	7.5	0.2	46.6	52.6	280
Salima	32.4	392	44.2	34.9	57.0	7.6	0.6	47.3	52.7	186
Thyolo	18.4	734	29.5	14.0	84.1	2.0	0.0	15.9	83.4	185
Zomba	26.1	760	16.8	19.6	75.7	4.6	0.0	30.2	69.2	314
Lilongwe	13.0	2,127	15.0	30.2	66.7	3.1	0.0	28.3	71.1	389
Mulanje	17.9	611	21.7	15.6	79.3	5.0	0.0	26.0	73.6	165
Other districts	19.8	5,325	25.3	17.2	77.8	4.8	0.2	24.4	75.2	1,558
Wealth quintile										
Lowest	10.9	3,168	36.3	12.3	84.0	3.6	0.1	18.5	81.3	393
Second	16.6	2,748	31.2	12.6	83.9	3.2	0.2	17.6	82.1	600
Middle	21.7	2,622	28.1	12.9	83.6	3.4	0.0	17.8	81.5	813
Fourth	26.4	2,569	24.2	18.1	77.5	4.2	0.2	25.3	74.6	1,012
Highest	27.6	2,557	20.9	34.8	57.8	7.3	0.0	45.4	54.2	1,342
Total	20.2	13,664	26.0	21.2	73.9	4.8	0.1	28.6	71.1	4,161

Respondents in households which have no mosquito nets were asked their preference for colour and shape of net.

Figure 14.1 shows that there is about equal preference for blue (38 percent) and green (41 percent) nets. However, analysis of colour preference by residence reveals that urban residents tend to prefer blue nets while rural residents tend to prefer green nets. Figure 14.2 shows a similar parity in preference of net shape at the national level: 45 percent of household respondents prefer conical nets while 43 percent prefer rectangular nets. By residence, urban respondents are more likely to prefer conical nets while rural respondents prefer rectangular nets.

Figure 14.1 Preferred Colour of Mosquito Net among Households Without Mosquito Nets, by Residence

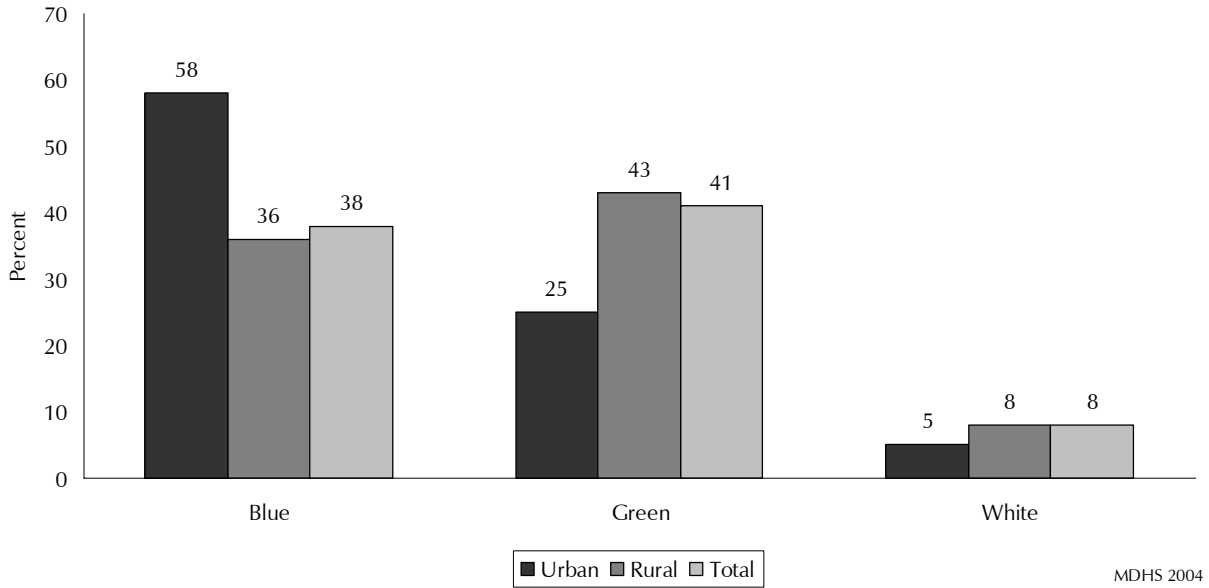
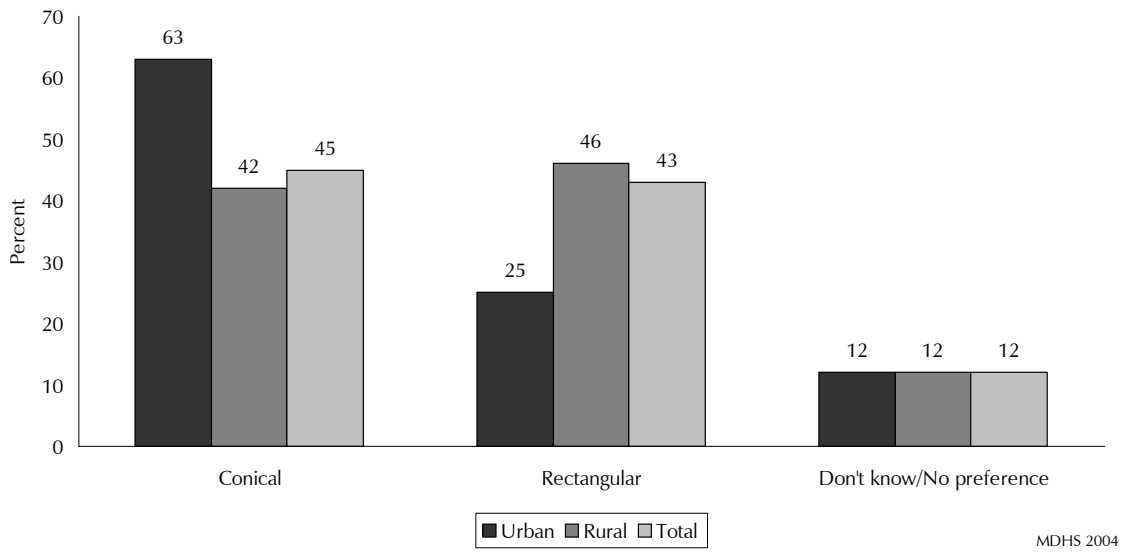


Figure 14.2 Preferred Shape of Mosquito Net among Households Without Mosquito Nets, by Residence



14.1.3 Use of Mosquito Nets by Children

In the 2004 Malawi DHS, respondents were asked if anyone slept under the mosquito nets they showed to the interviewers. This section analyses mosquito net usage among children. Because malaria is especially dangerous to children under five years of age, the malaria prevention strategies in Malawi have targeted children under age five.

Table 14.3 shows the percentage of children under age five years who slept under a mosquito net the night before the survey, by background characteristics. The data show that 20 percent of children under age five slept under a mosquito net, 18 percent slept under an ever-treated net, and 15 percent slept under an ITN. Older children are less likely than younger children to sleep under a bed net. There are no marked differences in mosquito net usage by sex of child. Urban children are much more likely to use a mosquito net than children in the rural areas. ITN usage by children under five in the Northern Region and Southern Region is higher than in the Central Region (17 percent compared with 12 percent). The proportion of children who slept under an ITN among the oversampled districts ranges from 29 percent in Salima to 6 percent in Kasungu. ITNs are more available in wealthier households (34 percent for the highest wealth quintile and 6 percent for the lowest wealth quintile).

While still below the Roll Back Malaria target of 60 percent of children under age five sleeping under an ITN, use of any mosquito net has more than doubled for children under five since the 2000 MDHS (8 percent) (Figure 14.3).

Table 14.3 Use of mosquito nets by children

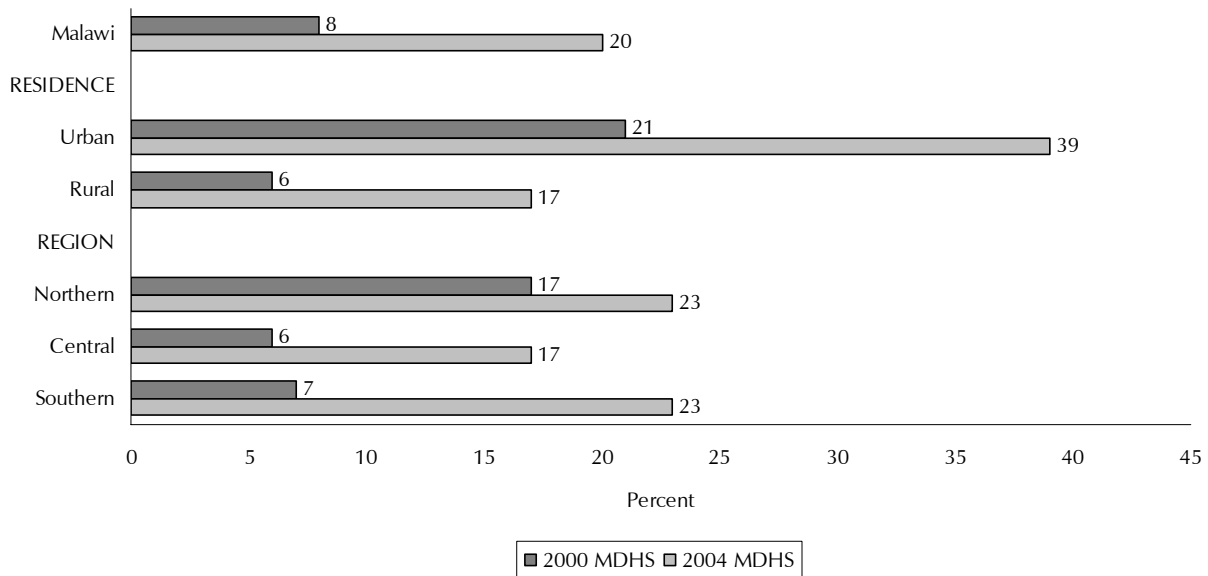
Percentage of de facto children (in households) under age five years who slept under a mosquito net the night before the survey and percentage who slept under an ever-treated net the night before the survey, by background characteristics, Malawi 2004

Background Characteristic	Percentage who slept under a net the preceding night	Percentage who slept under an ever-treated net the preceding night ¹	Percentage who slept under an ITN the preceding night ²	Number of children
Age in months				
< 12	22.0	18.6	15.3	2,378
12-23	21.2	18.6	15.7	2,293
24-35	21.7	18.9	15.8	1,881
36-47	19.2	17.1	14.3	1,941
48-59	16.7	15.4	12.7	2,047
Sex				
Male	19.4	17.1	14.3	5,195
Female	21.0	18.4	15.2	5,344
Residence				
Urban	39.3	35.2	30.2	1,420
Rural	17.3	15.0	12.4	9,119
Region				
Northern	22.7	19.6	17.4	1,350
Central	16.7	14.9	11.9	4,397
Southern	22.8	19.9	16.7	4,791
District				
Blantyre	23.9	20.6	18.8	708
Kasungu	7.9	7.2	5.9	510
Machinga	31.5	26.4	22.4	435
Mangochi	32.9	27.1	21.5	639
Mzimba	20.9	19.1	16.7	694
Salima	37.5	35.0	29.3	301
Thyolo	10.9	9.3	8.0	548
Zomba	32.0	29.6	27.2	550
Lilongwe	21.7	19.8	15.5	1,473
Mulanje	15.9	14.8	12.9	405
Other districts	16.3	13.9	11.3	4,276
Wealth quintile				
Lowest	10.1	8.0	6.4	2,090
Second	13.3	11.5	9.2	2,294
Middle	18.0	15.4	12.1	2,358
Fourth	21.7	19.4	16.7	2,071
Highest	43.1	39.1	33.8	1,726
Total	20.2	17.8	14.8	10,539

¹An ever-treated net is (1) a pretreated net or (2) a non-pretreated net that has subsequently been soaked with insecticide at any time.

²An insecticide treated net (ITN) is (1) a factory-treated net that does not require any further treatment or (2) a pretreated net obtained within the past six months or (3) a net that has been soaked with insecticide within the past six months.

Figure 14.3 Percentage of Children Under Age Five Who Slept Under a Mosquito Net the Night Before the Survey, Malawi 2000-2004



14.1.4 Use of Mosquito Nets by Pregnant Women

The danger of malaria for pregnant women has prompted many advocacy campaigns to educate not only pregnant women but also the general public on the importance of preventing malaria during pregnancy. Table 14.4 shows that 21 percent of women slept under a mosquito net, 18 percent slept under an ever-treated mosquito net and 15 percent slept under an ITN. There are virtually no differences in the use of mosquito nets between pregnant women and non-pregnant women.

Women in urban areas are more than twice as likely to sleep under an ITN as women in rural areas. As with the data for children, use of ITNs by women is higher in the Northern and Southern regions (16 and 17 percent, respectively) than in the Central Region (11 percent). Women in Salima and Mangochi are also the most likely to sleep under an ITN. Those in Thyolo are the least likely to use a net. The use of mosquito nets by women increases as wealth quintile and level of education increases. This is particularly true with ITNs.

Figure 14.4 shows that use of mosquito nets among women age 15-49 has increased substantially since the 2000 MDHS, from 8 to 21 percent.

Table 14.4 Use of mosquito nets by pregnant women

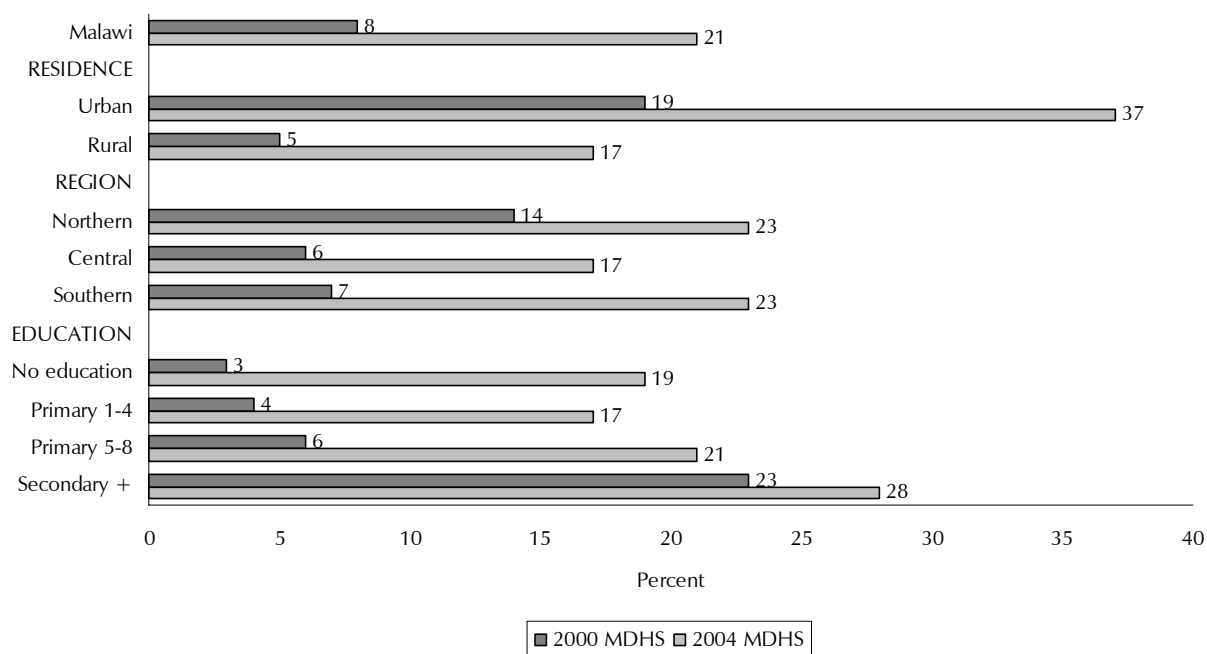
Percentage of all de facto women and pregnant de facto women age 15-49 (in household) who slept under a mosquito net (treated or untreated) and who slept under an Insecticide Treated Net (ITN) the night before the survey, by background characteristics, Malawi 2004

Background characteristic	All women			Number of women	Pregnant women			Number of pregnant women
	Percentage who slept under a net the preceding night	Percentage who slept under an ever-treated net the preceding night ¹	Percentage who slept under an ITN the preceding night ²		Percentage who slept under a net the preceding night	Percentage who slept under an ever-treated net the preceding night ¹	Percentage who slept under an ITN the preceding night ²	
Residence								
Urban	37.0	33.1	27.2	2,184	38.3	35.7	29.8	183
Rural	16.9	14.8	12.2	10,018	16.4	14.9	12.4	1,222
Region								
Northern	22.9	19.6	16.4	1,622	22.2	19.1	15.7	173
Central	17.1	15.2	12.1	4,946	15.3	14.3	11.1	578
Southern	22.9	20.2	16.9	5,634	22.0	20.2	17.6	655
Education								
No education	19.3	16.6	13.5	2,873	18.3	17.4	15.7	382
Primary 1-4	17.0	15.0	12.6	3,200	16.4	14.6	12.3	377
Primary 5-8	21.0	18.4	14.9	4,358	19.7	17.4	14.1	478
Secondary+	27.7	25.3	21.1	1,770	26.7	25.2	19.4	168
District								
Blantyre	22.5	19.6	17.4	954	25.8	24.7	20.9	106
Kasungu	9.1	8.6	7.2	517	7.4	7.4	7.4	62
Machinga	32.5	28.0	24.5	446	31.0	23.8	21.7	46
Mangochi	35.9	30.3	23.9	626	38.5	34.1	29.3	61
Mzimba	22.2	19.9	16.6	811	20.0	17.6	14.6	91
Salima	35.1	32.2	27.3	314	36.5	33.0	27.3	45
Thyolo	11.7	10.8	9.2	645	7.0	6.3	5.5	87
Zomba	30.1	28.0	26.2	666	36.0	36.0	36.0	79
Lilongwe	23.2	20.9	16.0	1,782	18.1	17.1	12.9	175
Mulanje	14.0	12.8	11.7	536	18.2	15.0	15.0	70
Other districts	16.7	14.3	11.2	4,904	15.0	13.7	10.3	583
Wealth quintile								
Lowest	9.0	6.9	5.2	2,147	10.2	7.8	6.0	247
Second	13.1	11.5	9.2	2,368	12.6	11.4	9.6	319
Middle	15.7	13.6	11.0	2,474	14.8	14.2	12.6	342
Fourth	21.6	19.1	16.2	2,438	20.9	19.6	17.0	284
Highest	39.2	35.5	29.5	2,776	44.9	41.1	32.6	213
Total	20.5	18.1	14.9	12,202	19.3	17.6	14.7	1,405

¹An ever-treated net is (1) a pretreated net or a non-pretreated net that has subsequently been soaked with insecticide at any time.

²An insecticide treated net (ITN) is (1) a factory-treated net that does not require any further treatment or (2) a pretreated net obtained within the past six months or (3) a net that has been soaked with insecticide within the past six months.

Figure 14.4 Percentage of Women Age 15-49 Who Slept Under a Mosquito Net on the Night Before the Survey, Malawi 2000-2004



14.2 INTERMITTENT PREVENTIVE TREATMENT DURING PREGNANCY

Pregnant women are at particular risk of malaria infection. Its consequences in the mother are anaemia and fever, while newborns suffer low birth weight. Placental parasitaemia may be high with undetectable peripheral parasitaemia. Intermittent Preventive Treatment (IPT) in pregnancy prevents development of malaria and eliminates malaria parasites from the placenta. IPT with SP has been shown to reduce low birth weight, anaemia and severe disease. As a protective measure, the Malawi National Malaria Policy recommends that pregnant women receive Intermittent Preventive Treatment with SP at least twice during the pregnancy (at least one month apart) to clear malaria parasites from the body. The treatment should be administered once in the second trimester and once in the third trimester.

In the 2004 MDHS, women who gave birth in the past five years were asked whether they took any antimalarial tablets during pregnancy, which drug was taken, and how many times it was taken. The data do not allow assessment of the timing of the doses relative to stage of pregnancy. Table 14.5 shows that 79 percent of pregnant women SP/Fansidar during pregnancy to prevent malaria. However, less than half (47 percent) took were covered by the recommended two doses. Most women who took SP/Fansidar during pregnancy received the drug during their antenatal care visits. Forty-three percent of pregnant women received a complete course of IPT, that is, two doses of SP/Fansidar as part of their routine ANC.

According to the data in Table 14.5 and Figure 14.5, urban women are more likely to take two doses of SP/Fansidar during pregnancy than rural women (54 percent and 45 percent, respectively). Better educated women and those living in households in the highest wealth

quintile are also more likely than other women to receive two doses of SP/Fansidar during pregnancy.

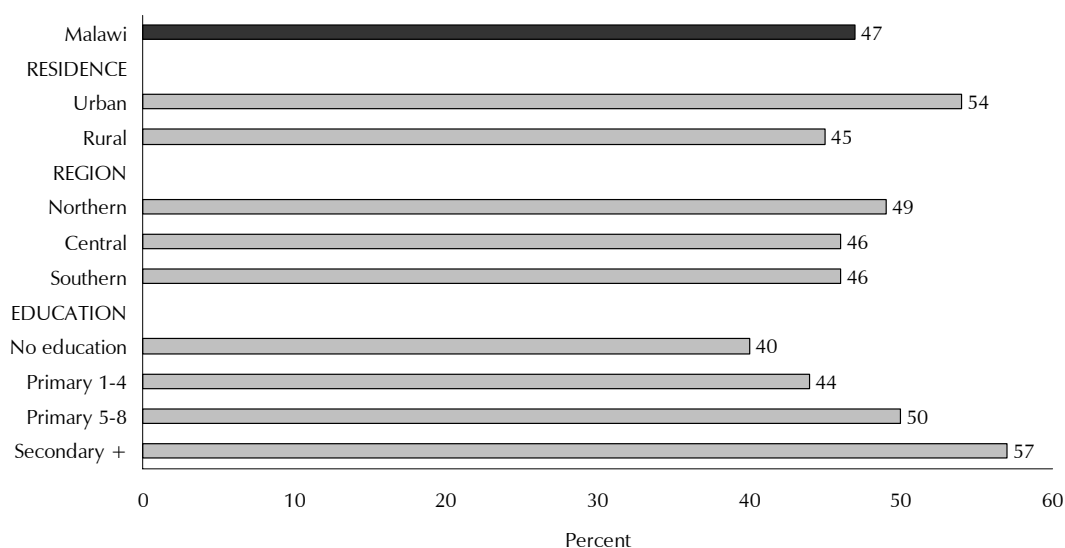
The percentage of women who took at least two doses of SP/Fansidar during pregnancy is slightly higher in the Northern Region (49 percent) than in the Central and Southern regions (46 percent). Among the oversampled districts, the proportion of women who took at least two doses of SP/Fansidar ranges from 36 percent in Thyolo to 60 percent in Blantyre.

Background characteristic	Percentage who took any antimalarial drug	SP/Fansidar		Percentage who received any SP/Fansidar during an ANC visit	Percentage who received 2+ doses, at least one during an ANC visit	Number of women
		Percentage who took any SP/Fansidar	Percentage who took 2+ doses			
Birth order						
1	78.1	75.7	47.8	71.4	45.0	1,026
2-3	81.8	80.2	47.0	74.1	43.3	1,705
4-6	82.7	80.8	46.0	74.8	42.7	1,330
7+	76.0	74.6	43.4	66.6	38.4	542
Timing of birth						
< 1 year ago	80.4	78.5	46.1	72.5	42.6	2,388
1 year ago	80.7	79.0	46.8	73.2	43.3	2,216
Residence						
Urban	86.2	84.6	53.8	80.3	51.1	583
Rural	79.7	77.9	45.4	71.8	41.7	4,021
Region						
Northern	85.8	84.8	49.4	82.9	48.1	559
Central	77.8	75.0	45.7	68.1	41.6	1,931
Southern	81.6	80.5	46.4	74.5	42.8	2,115
District						
Blantyre	87.9	86.8	60.1	79.4	53.8	303
Kasungu	78.3	73.6	41.2	69.4	39.3	226
Machinga	82.1	78.4	46.5	61.8	37.3	191
Mangochi	66.3	64.6	43.9	58.3	38.7	274
Mzimba	89.1	87.9	50.6	86.9	50.4	289
Salima	87.7	86.5	56.6	84.2	55.0	138
Thyolo	81.8	81.2	35.6	76.3	34.8	240
Zomba	90.8	90.3	58.3	88.6	56.8	239
Lilongwe	76.5	74.9	44.9	69.2	41.7	627
Mulanje	80.3	80.3	44.9	75.0	42.4	178
Other districts	79.6	77.5	44.5	71.1	40.5	1,900
Education						
No education	70.8	68.4	39.6	60.8	35.3	1,153
Primary 1-4	77.8	75.6	43.8	68.5	39.2	1,354
Primary 5-8	86.4	85.1	50.3	80.8	47.5	1,561
Secondary+	91.3	90.0	57.0	86.8	55.6	534
Missing	100.0	100.0	0.0	100.0	0.0	1
Wealth quintile						
Lowest	78.5	76.1	42.1	70.3	39.0	919
Second	75.4	73.2	42.6	65.8	37.6	1,111
Middle	79.4	77.6	46.2	73.1	43.7	1,001
Fourth	82.2	80.6	47.8	74.5	44.4	871
Highest	91.1	90.2	57.0	84.9	53.5	701
Total	80.5	78.7	46.5	72.9	42.9	4,604

¹ IPT: Intermittent Preventive Treatment is preventive intermited treatment with SP/Fansidar during an antenatal care (ANC) visit.

It should be noted that data from the 2004 MDHS do not include IPT for women whose pregnancy in the five years preceding the survey did not end in a live birth.

Figure 14.5 Percentage of Pregnant Women Who Took at Least 2 Doses of SP for IPT of Malaria During Pregnancy in the Five Years Preceding the Survey



MDHS 2004

14.3 PREVALENCE AND MANAGEMENT OF MALARIA IN CHILDREN

Fever is the major manifestation of malaria. In the 2004 Malawi DHS, mothers were asked whether their children under age five had fever in the two weeks preceding the survey. Although fever occurs all year round, malaria is more prevalent during the rainy season, and such temporal factors must be taken into account when interpreting the occurrence of fever as an indicator of malaria prevalence. If fever was reported, the mother was asked whether treatment was sought at a health facility and whether the child was given any medication and, if so, how soon the medication was taken after the episode of illness started.

14.3.1 Initial Response to Child's Fever

Table 14.6 shows the percent distribution of children with fever in the past two weeks by specific actions taken as the first response to the fever. The data show that 21 percent of children were given medication that was already present in the home and 39 percent were given medication without prescription. Almost one in three children was taken to a health facility; 24 percent were taken to a government-run facility. Six percent of children with fever were not treated.

Response to fever in a child varies by the child's age, residence, and socioeconomic status. Younger children, children who live in urban areas, in the Northern Region, children of better-educated mothers, and who are in households in the highest wealth quintile are more likely

than other children to be treated by going to a health facility or giving the child medicine that was already available in the home, whereas women with less education are more likely to give the child medicine obtained in a shop or pharmacy or to not treat the child's fever at all.

Table 14.6 Initial response to fever

Percent distribution of children with fever in the past two weeks by specific actions taken as the first response to the fever, according to background characteristics, Malawi 2004

Background characteristic	Gave child medicine		Took child to a health centre:			Con-sulted traditional healer	Con-sulted com-munity health worker	Gave tepid sponging	Gave herbs at home	Other	Did nothing	Don't know	Total	Number of children with fever
	From home	Without prescrip-tion	Govern-ment	Mission	Private									
Age in months														
< 6	14.3	32.4	24.3	4.5	4.5	0.4	0.2	1.5	1.1	0.0	16.8	0.0	100.0	341
6-11	19.4	35.6	28.7	5.1	2.9	0.7	0.4	2.5	1.5	0.6	2.2	0.3	100.0	632
12-23	22.1	36.6	27.3	3.7	2.1	0.4	0.4	3.1	0.4	0.3	3.7	0.0	100.0	1,087
24-35	19.9	40.6	21.5	4.5	3.4	0.9	0.8	2.4	0.2	0.2	5.6	0.0	100.0	689
36-47	21.3	46.1	17.6	1.5	1.2	0.8	0.0	3.6	1.4	0.0	6.3	0.2	100.0	501
48-59	26.4	41.1	19.4	3.7	2.4	0.4	0.5	0.8	0.3	0.0	4.9	0.0	100.0	381
Sex														
Male	20.7	39.2	24.1	3.9	2.7	0.4	0.4	2.4	0.4	0.3	5.4	0.1	100.0	1,793
Female	20.9	38.0	23.9	3.9	2.5	0.8	0.4	2.7	1.0	0.1	5.6	0.1	100.0	1,837
Residence														
Urban	23.6	29.2	31.9	3.3	7.4	0.5	0.0	1.5	0.0	0.8	1.8	0.0	100.0	401
Rural	20.5	39.8	23.0	3.9	2.0	0.6	0.5	2.7	0.8	0.1	6.0	0.1	100.0	3,230
Region														
Northern	35.5	24.9	22.1	3.0	1.7	1.7	0.6	2.3	0.9	0.0	7.0	0.3	100.0	351
Central	17.9	40.2	22.8	4.3	3.7	0.4	0.1	2.5	0.9	0.3	6.8	0.1	100.0	1,624
Southern	20.6	39.9	25.5	3.6	1.7	0.6	0.7	2.7	0.6	0.2	3.9	0.0	100.0	1,655
Education														
No education	19.0	43.0	20.3	3.6	1.4	0.5	0.7	3.4	0.9	0.2	6.6	0.3	100.0	967
Primary 1-4	19.8	40.5	24.9	3.2	1.7	0.8	0.1	1.9	0.9	0.3	6.0	0.0	100.0	1,132
Primary 5-8	22.4	35.5	25.8	4.5	3.0	0.6	0.5	2.4	0.6	0.1	4.6	0.0	100.0	1,189
Secondary+	24.2	30.6	25.5	4.9	7.6	0.1	0.2	2.9	0.0	0.0	4.1	0.0	100.0	340
Wealth quintile														
Lowest	19.0	42.3	22.0	2.8	0.9	0.8	0.5	2.3	1.5	0.3	7.4	0.3	100.0	757
Second	19.8	40.6	24.5	4.3	2.2	0.4	0.5	2.7	0.9	0.2	4.0	0.0	100.0	894
Middle	20.5	39.8	23.3	3.0	2.2	1.1	0.7	2.9	0.8	0.1	5.6	0.0	100.0	830
Fourth	21.8	34.4	28.0	3.6	2.8	0.4	0.1	2.0	0.2	0.5	6.0	0.2	100.0	676
Highest	24.9	32.8	21.7	6.5	6.7	0.2	0.0	2.8	0.0	0.0	4.4	0.0	100.0	474
Total	20.8	38.6	24.0	3.9	2.6	0.6	0.4	2.6	0.7	0.2	5.5	0.1	100.0	3,630

14.3.2 Timing of Antimalarial Response to Child's Fever

Prompt and effective treatment of malaria within 24 hours of onset of symptoms has been highlighted as one of the key objectives in the Malawi Malaria Policy (MOHP, 2002b). Most deaths due to malaria in children could be avoided by prompt recognition and treatment with antimalarial drugs. For each medicine reported by the mother, the 2004 MDHS interviewers asked: "How long after the fever began was [NAME OF MEDICINE] first given to [NAME OF CHILD]?"

Table 14.7 shows the prevalence and treatment of fever by background characteristics. The data show that four in ten children had fever in the two weeks preceding the survey. Children 6-23 months are the most likely to suffer from fever or convulsions. Children in rural areas are more likely (38 percent) to have fever than urban children (30 percent). The incidence of fever is also related the socioeconomic status of the household; children in the lowest wealth quintile are the more likely to have fever or convulsions than children in the higher quintiles.

Table 14.7 Prevalence and prompt treatment of fever by background characteristics					
Percentage of children under five years of age with fever in the two weeks preceding the survey, and among children with fever, percentage who received antimalarial drugs and who received the drugs the same/next day after developing the fever, by background characteristics, Malawi 2004					
Background characteristics	Percentage of children with fever	Number of children	Among children with fever:		Number of children
			Percentage who received antimalarial drugs	Percentage who received antimalarial drugs same/next day	
Age in months					
< 6	30.7	1,109	14.3	12.6	341
6-11	53.2	1,188	29.7	22.0	632
12-23	49.5	2,194	31.4	25.2	1,087
24-35	39.5	1,743	31.1	26.4	689
36-47	28.8	1,741	26.2	20.1	501
48-59	21.1	1,802	28.6	22.9	381
Sex					
Male	37.1	4,839	28.7	23.0	1,793
Female	37.2	4,938	28.2	22.5	1,837
Residence					
Urban	29.9	1,341	42.0	36.5	401
Rural	38.3	8,436	26.7	21.0	3,230
Region					
Northern	28.4	1,239	38.2	30.0	351
Central	39.9	4,071	24.5	20.3	1,624
Southern	37.1	4,468	30.2	23.6	1,655
District					
Blantyre	29.4	670	31.7	27.8	197
Kasungu	40.0	471	21.8	15.0	188
Machinga	35.6	405	30.1	21.3	144
Mangochi	36.8	566	24.7	17.7	208
Mzimba	28.9	630	31.0	22.5	182
Salima	42.1	281	32.0	22.7	118
Thyolo	47.3	514	40.0	27.0	243
Zomba	40.1	498	38.5	26.3	200
Lilongwe	38.3	1,376	27.2	25.0	528
Mulanje	44.3	375	29.0	25.4	166
Other districts	36.5	3,992	25.7	21.6	1,455
Education					
No education	37.3	2,594	21.2	16.3	967
Primary 1-4	40.4	2,805	24.6	18.8	1,132
Primary 5-8	35.9	3,314	34.1	27.8	1,189
Secondary+	32.1	1,062	41.4	36.3	340
Wealth quintile					
Lowest	40.0	1,889	23.2	15.6	757
Second	41.2	2,170	26.3	22.2	894
Middle	37.6	2,206	25.5	19.4	830
Fourth	35.3	1,916	33.0	27.6	676
Highest	29.7	1,597	39.5	34.0	474
Total	37.1	9,777	28.4	22.7	3,630

Among children with fever, 28 percent were given antimalarial drugs and 23 percent were given the drug on the same day or the day following the onset of the fever. Children in urban areas are more likely to be given antimalarial drugs the same day or the following day than children in the rural areas (37 and 21 percent, respectively). Children in households in the highest wealth quintile and children of educated mothers are more likely to be given antimalarial drugs on the same day or the following day compared to children from poorer households or whose mothers have less education.

Table 14.8 provides a breakdown of use and timing of antimalarial drugs by type of drug. Quinine is the most commonly used antimalarial drug, received by 45 percent of children under five with fever during the two weeks preceding the survey. Amodiaquine is the second most common antimalarial drug (39 percent), followed by SP/Fansidar (23 percent). Less than 1 percent of children under five with fever took Chloroquine or Artesunate. SP/Fansidar was the drug most likely to be taken soon after the onset of illness. Nineteen percent of children with fever took SP/Fansidar the same day or the day following the start of the fever. This finding reflects Malawi's policy to use SP/Fansidar as the first-line treatment for malaria.

Analysis of the use of antimalarial drugs by background characteristics shows some interesting trends. Use of SP/Fansidar and quinine increases with educational level and wealth quintile of the mother. On the other hand, Amodiaquine is more common among children whose mothers have less education and are in the wealth quintiles. Children with fever in the Central Region are less likely to receive SP/Fansidar and Amodiaquine than children in the Northern and Southern regions, but they are more likely to receive quinine. In the oversampled districts, use of SP/Fansidar by children under five with fever ranges from 37 percent in Thyolo to 16 percent in Kasungu. Use of SP/Fansidar on the day the fever started or the day after is highest in Blantyre (24 percent) and lowest in Kasungu (11 percent).

Table 14.8 Type and timing of antimalarial drugs received by children with fever

Among children under age five with fever in the two weeks preceding the survey, the percentage who received specific antimalarial drugs and the percentage who received each type of drug the same or next day after developing fever, by background characteristics, Malawi 2004

Background characteristic	Percentage of children who received drug					Percentage of children who received drug the same or next day					Number of children
	SP/ Fansidar	Chloro- quine	Amodia- quine	Quinine	Artesu- nate	SP/ Fansidar	Chloro- quine	Amodia- quine	Quinine	Artesu- nate	
Age in months											
< 6	12.8	0.3	28.1	39.1	0.3	11.3	0.3	3.2	4.0	0.1	341
6-11	24.0	0.4	40.8	50.8	0.0	18.6	0.0	7.1	8.8	0.0	632
12-23	26.0	1.1	40.7	47.2	0.1	20.4	1.0	9.0	7.5	0.0	1,087
24-35	25.2	0.8	36.4	45.4	0.0	21.0	0.8	7.5	10.9	0.0	689
36-47	20.2	0.9	39.6	37.8	0.2	16.1	0.4	6.1	4.7	0.0	501
48-59	24.8	0.6	40.9	40.5	0.0	19.7	0.6	6.3	7.6	0.0	381
Sex											
Male	24.0	0.9	39.7	45.4	0.1	19.6	0.6	7.7	8.2	0.0	1,793
Female	22.7	0.6	37.5	44.0	0.1	17.8	0.6	6.6	7.1	0.0	1,837
Residence											
Urban	34.3	1.5	21.2	60.4	0.2	30.7	0.9	4.5	18.7	0.0	401
Rural	22.0	0.7	40.7	42.8	0.1	17.2	0.6	7.5	6.3	0.0	3,230
Region											
Northern	28.3	0.5	40.3	41.8	0.3	22.4	0.5	6.1	10.4	0.0	351
Central	19.9	1.0	34.7	46.5	0.1	16.4	0.8	6.9	6.7	0.0	1,624
Southern	25.7	0.6	42.1	43.6	0.1	20.1	0.4	7.6	8.0	0.0	1,655
District											
Blantyre	27.4	2.1	19.2	61.0	0.0	24.8	0.8	1.2	12.4	0.0	197
Kasungu	16.4	1.2	39.3	48.4	0.0	11.2	0.9	6.6	4.4	0.0	188
Machinga	24.9	0.6	50.6	34.8	0.3	17.8	0.6	10.7	3.4	0.3	144
Mangochi	21.5	0.6	40.1	49.1	0.0	15.5	0.6	6.8	5.8	0.0	208
Mzimba	23.9	0.4	51.4	37.9	0.0	17.9	0.4	6.3	5.1	0.0	182
Salima	27.4	1.1	29.0	47.1	1.1	19.9	0.9	5.2	6.1	0.0	118
Thyolo	36.6	0.0	43.1	42.7	0.3	23.9	0.0	11.9	6.2	0.0	243
Zomba	32.5	0.3	48.4	41.4	0.0	22.1	0.3	6.0	12.4	0.0	200
Lilongwe	22.5	0.4	28.8	44.2	0.0	20.7	0.4	6.9	9.7	0.0	528
Mulanje	23.4	0.6	41.2	35.1	0.0	21.2	0.6	7.7	5.3	0.0	166
Other districts	20.3	1.0	40.1	45.1	0.1	17.0	0.8	7.4	7.7	0.0	1,455
Education											
No education	17.7	0.9	44.8	38.5	0.2	13.5	0.9	6.7	4.6	0.0	967
Primary 1-4	21.2	0.6	42.6	42.2	0.0	16.2	0.5	7.1	4.6	0.0	1,132
Primary 5-8	27.6	0.8	33.7	49.3	0.0	22.5	0.6	7.2	10.9	0.0	1,189
Secondary+	31.7	1.1	25.1	54.5	0.2	28.1	0.3	8.7	14.7	0.0	340
Wealth quintile											
Lowest	19.4	1.1	42.0	38.3	0.1	12.6	1.1	4.8	4.2	0.0	757
Second	22.3	0.4	44.6	43.1	0.0	18.9	0.4	9.1	5.9	0.0	894
Middle	20.3	0.5	41.1	43.6	0.0	15.8	0.4	7.6	5.7	0.0	830
Fourth	27.6	1.2	35.8	47.1	0.2	23.0	0.8	8.8	9.5	0.0	676
Highest	30.9	1.0	21.3	56.6	0.3	26.8	0.5	4.0	17.2	0.1	474
Total	23.4	0.8	38.6	44.7	0.1	18.7	0.6	7.1	7.6	0.0	3,630