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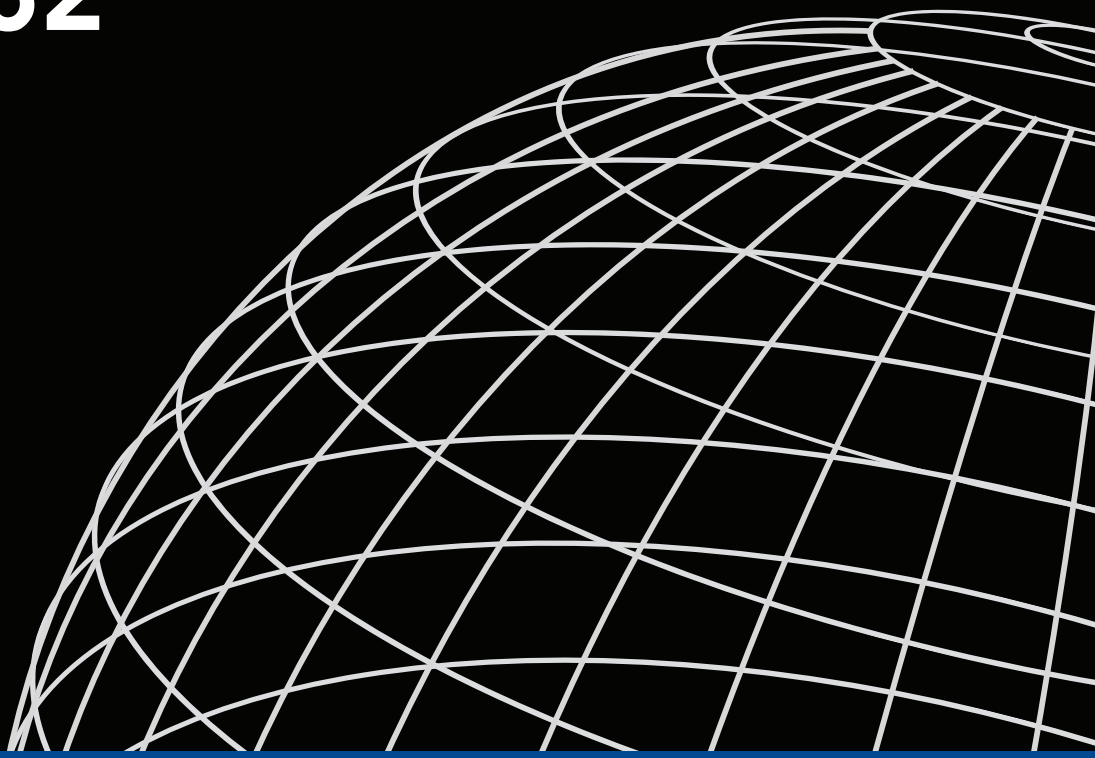
IMPROVING ESTIMATES OF INSECTICIDE-TREATED MOSQUITO NET COVERAGE FROM HOUSEHOLD SURVEYS:

USING GEOGRAPHIC COORDINATES TO ACCOUNT FOR ENDEMICITY AND SEASONALITY

DHS ANALYTICAL STUDIES 32



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- to provide decision makers in survey countries with information useful for informed policy choices;
- to expand the international population and health database;
- to advance survey methodology; and
- to develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

DHS Analytical Studies No. 32

Improving Estimates of Insecticide-Treated Mosquito Net Coverage from Household Surveys:

Using Geographic Coordinates to Account for Endemicity and Seasonality

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Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries.

The *DHS Comparative Reports* series examines these data across countries in a comparative framework. The *DHS Analytical Studies* series focuses on analysis of specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context.

While *Comparative Reports* are primarily descriptive, *Analytical Studies* comprise in-depth, focused studies on a variety of substantive topics. The studies are based on a variable number of data sets, depending on the topic being examined. A range of methodologies is used in these studies, including multivariate statistical techniques.

The topics covered in *Analytical Studies* are selected by MEASURE DHS staff in conjunction with the U.S. Agency for International Development.

It is anticipated that the *DHS Analytical Studies* will enhance the understanding of analysts and policymakers regarding significant issues in the fields of international population and health.

Sunita Kishor
Project Director

Executive Summary

This report examines the possible bias in national estimates of standard Roll Back Malaria (RBM) indicators of insecticide-treated mosquito net (ITN) ownership and use. The analysis uses GPS data for 18 sub-Saharan African countries to correlate these measures with levels of malaria endemicity and seasonality and to recalculate coverage estimates based on the population at risk. The report proposes an approach to identifying populations at risk of malaria that countries could use to produce subnational estimates that account for variations in malaria endemicity or seasonality.

National-level estimates of ITN ownership may be biased downward if there are many areas with a very low risk of malaria, where people would not need to own or use ITNs. Similarly, many surveys are conducted outside of the high malaria transmission season, when people may not be using ITNs, although they may use them during the transmission season. For these reasons, estimates of ITN use can be biased downward in countries with substantial variation in malaria endemicity or when part of the country is surveyed before malaria season and the other part during malaria season.

The analysis uses data from the Demographic and Health Surveys (DHS) and Malaria Indicator Surveys (MIS), as well as an Anemia and Malaria Prevalence Survey (AMP), conducted by MEASURE DHS. Endemicity data from the Malaria Atlas Project (MAP) 2007 and 2010 raster layers, as well as the Mapping Malaria Risk in Africa (MARA) suitability for transmission raster layer, were used to quantify risk of malaria. Seasonality was calculated using the MARA first and last month of malaria season raster layers.

Malaria endemicity varies across survey locations within countries and among the 18 countries studied; however, endemicity is more pronounced in several countries with heterogeneous transmission of malaria (Kenya, Namibia, Rwanda, Tanzania, and Zimbabwe). In these countries, stratification of households by endemicity zones shows that households in the high or intermediate endemicity zones are significantly more likely to own at least one ITN compared with households in the no/low malaria zones or with all households. The difference remains significant in logistic regressions that control for other factors.

The seasonal distribution of malaria varies across survey locations within countries and among the 18 countries in the analysis. Stratification of households by seasonality shows that in some countries people living in areas surveyed during the malaria season or immediately before or after the malaria season (the transition season) are significantly more likely to have slept under an ITN the night before the survey compared with the national average. Seasonality remains significant in logistic regressions that control for other factors.

The analysis demonstrates that malaria endemicity and seasonality are crucial factors to be taken into account when examining ITN ownership and use. When considering ITN ownership, using a national coverage estimate is not optimal in countries in which more than 15% of the population lives in zones with no malaria transmission or low malaria transmission. Countries with this type of heterogeneity could benefit from the approach used in this paper, which uses the GPS locations of the survey clusters to assign endemicity. Seasonality has an influence on ITN use that is little understood and difficult to analyze, especially in cross-sectional population-based surveys. This analysis suggests that accounting for malaria endemicity and seasonality in ITN ownership and use is possible when geographic data on GPS locations are available from population-based surveys.

1 Background

The World Health Organization (WHO) has estimated that there were 655,000 deaths due to malaria worldwide in 2010 (WHO 2012). The estimated cases of malaria worldwide in the same year were 216 million, with the majority of cases in sub-Saharan Africa. Mosquito nets have been an important and successful public health intervention and have contributed to the reduction in the burden of malaria by over 25% since 2000 (WHO 2012).

Accurate measures of mosquito net ownership and use are important for measuring progress toward intervention coverage goals and eventually toward malaria eradication. The Roll Back Malaria (RBM) outcome indicators for population coverage of insecticide-treated nets (ITNs), including ownership and use of ITNs, are summarized in Table 1 (RBM 2009). These standard indicators of malaria prevention interventions as measured in population-based surveys are restricted to the population at risk of getting malaria. However, clear guidance on how to quantify this population at risk and how to apply it in indicator reporting remains a challenge, especially for national household surveys.

These surveys usually estimate national and regional (usually provincial) indicators, which may include areas with low or no malaria transmission. Additionally, malaria prevention interventions are more likely to operate in areas of higher risk (Noor et al. 2010). Population at risk has been interpreted by some to be only young children or pregnant women, without reference to their risk of being infected with malaria based on malaria parasite prevalence in their location. Another factor cited by RBM as influencing the coverage estimates, especially in the case of ITN use, is the season of the year when the survey took place and how the survey dates relate to the malaria transmission season(s) in that location.

Table 1. Roll back malaria outcome indicators for population coverage

	Indicator description	Numerator	Denominator	Note
OWNERSHIP	Proportion of households with at least one ITN	Number of households surveyed with at least one ITN	Total number of households surveyed	Existing indicator
	Proportion of households with at least one ITN for every two people	Number of households with at least one ITN for every two people	Total number of households surveyed	New indicator currently being considered by RBM
USE	Proportion of population who slept under an ITN the previous night	Number of individuals who slept under an ITN the previous night	Total number of individuals who slept in surveyed households the previous night	Existing indicator
	Proportion of children under 5 years old who slept under an ITN the previous night	Number of children under 5 years old who slept under an ITN the previous night	Total number of children under 5 years old who slept in surveyed households the previous night	Existing indicator
	Proportion of pregnant women who slept under an ITN the previous night	Number of pregnant women who slept under an ITN the previous night	Total number of pregnant women who slept in surveyed households the previous night	Existing indicator

1.1 Population at Risk of Malaria

RBM states that coverage indicators for ITN ownership and use should be measured for the target population, defined as individuals at risk for malaria. RBM further states that in most sub-Saharan African countries, where malaria is endemic or epidemic prone throughout, reporting at a national level with urban and rural stratification is sufficient. However, countries with heterogeneous transmission, such as countries with deserts or high altitude areas, should collect information to classify survey locations (enumeration areas) by malarial zones (RBM 2009). The RBM document does not outline the process for this classification nor does it indicate the level of transmission that might qualify a location as at risk of malaria.

One approach taken by WHO in the World Malaria Report 2010 was to measure the incidence of malaria in the subnational administrative boundaries of a country (second or lower level) (WHO 2010). Those administrative areas where incidence was more than one case of malaria per 1,000 population per year were considered to be at high risk of malaria, while areas with less than one case of malaria per 1,000 population per year were considered to be at low risk. This measurement is based on routine reporting of malaria cases and is highly dependent on the quality of the health management and information system (HMIS), which can vary between and within countries.

1.2 Geographic Distribution of Malaria Endemicity and Suitability

In the last 10 years the greater availability of accurate geographic data both for the location of population-based surveys and for prevalence of malaria makes restricting comparisons only to administrative boundaries no longer necessary. This is especially true where there is a heterogeneous distribution of malaria within the administrative units of a country, such as at district or regional levels. One approach to measuring heterogeneous transmission of malaria within a country is to measure the suitability of the environment for malaria transmission or to measure malaria endemicity.

Starting in the late 1990s, malaria research groups have attempted to map the burden of malaria in Africa geographically using new geospatial analysis techniques. These maps made estimates based on environmental factors as well as population data on malaria suitability of transmission and in some cases actual incidence (Adjuik et al. 1998). In 2007, the Malaria Atlas Project (MAP) produced the first map to estimate the prevalence of malaria parasites in most sub-Saharan countries (Hay et al. 2009).

1.3 Seasonality of Transmission

In many places malaria is considered to follow a seasonal transmission cycle, where transmission might be low or nonexistent during the dry season and higher during and just after the rainy season(s). Other areas with endemic malaria are considered to have the same fairly high risk of malaria transmission year round, with little or no variation by season. Most Malaria Indicator Surveys (MIS) are conducted during the peak malaria transmission season (toward the end of the rainy season and in the few weeks after the rainy season), while the Demographic and Health Surveys (DHS) and other population-based surveys are conducted at different times during the year. A recent study examining 64 DHS country surveys for seasonal bias, however, found that the surveys were only slightly more likely to be conducted in drier months than wetter months of the year (Wright et al. 2012).

The timing of malaria seasons can be geographically modeled, but varying seasons year to year as well as more than one season in a year make creating these models complex, especially over large geographic areas. Many different approaches have been tried to estimate the malaria season but usually only at a country level. The Mapping Malaria Risk in Africa (MARA) international research collaboration

produced three data layers in 2001 that estimated the first month, last month, and duration of the malaria transmission season in Africa (MARA 2004).

1.4 Ownership of Insecticide-Treated Nets

Although the links between malaria endemicity and household mosquito net ownership have not been fully explored, the relationship between other factors and mosquito net ownership are much better understood. Ownership of an ITN in a country is highly influenced by the ITN distribution campaign in that that country. Many countries initially focused on women for ITN distribution (free or voucher) during antenatal care visits and/or on young children during routine vaccination campaigns. In some countries, campaigns have focused on rural areas considered more likely to be malaria-prone, while some have provided free or low-cost ITNs to poor households. In recent years it has become more common for countries' ITN distribution campaigns to be part of the universal coverage campaign, including all households. Officially, RBM launched the universal campaign in April 2008 (Smith 2008). The timing, roll-out, and implementation of these distribution campaigns is country specific and might vary widely within a country. However, many countries have also maintained their customary distribution activities targeting pregnant women and young children, while also implementing universal distribution campaigns.

Studies over the past 15 years have found that ownership of ITNs or any mosquito nets can be influenced by several household-level factors, which may be linked to the type of distribution campaign in a country and year the study took place. These include residence (urban-rural), wealth, and presence of a household member who part of the target population of the country's distribution campaign.

- Several studies in sub-Saharan Africa have shown that urban households are more likely to own mosquito nets than rural households (Kazembe et al. 2007; Oresanya et al. 2008).

- Studies of equity of mosquito net ownership have shown that wealthier households are more likely to own mosquito nets than poorer households (Barat et al. 2004; Oresanya et al. 2008; Wiseman et al. 2007). A recent study on the equity of ownership in Nigeria after a universal and free distribution campaign, however, showed little variation by household wealth (Ye et al. 2012).

- Routine distribution campaigns in many countries have focused on children under age 5 and/or pregnant women. Recent studies have shown that households with a member of these target populations are more likely to own a mosquito net than households without a target population member (Oresanya et al. 2008). Other studies have only looked at ITN ownership in households with children under age 5 or pregnant women (Noor et al. 2007; Monasch et al. 2004).

These three household-level factors are interrelated. Wealthier households are more likely to be in urban areas, while poorer households are more likely to contain children under age 5 or pregnant women, because fertility is consistently higher in poorer than in wealthier households.

1.5 Use of Insecticide-Treated Nets

Studies show several individual and household level characteristics that influence mosquito net use. Individual characteristics related to mosquito net use within households include age and gender. Children under age 5 and women of reproductive age are the most likely groups to have slept under a mosquito net the night before (Baume and Marin 2007; Khan et al. 2008; Noor et al. 2009). Household-level factors influencing mosquito net use include number of nets in the household and size of household; as the ratio of nets/household members increases, the use of mosquito nets increases (Khan et al. 2008; Eisele et al. 2009; Macintyre et al. 2006; Korenromp et al. 2003). Education level of a care-giver and knowledge of the benefits of using a mosquito net or knowledge of how malaria is transmitted increase the likelihood of

use of mosquito nets for children, although not always after controlling for other factors (Eisele et al. 2009; Macintyre et al. 2006; Oresanya et al. 2008; Baume et al. 2009; Noor et al. 2006; Toé et al. 2009; Macintyre et al. 2002; De La Cruz et al. 2006).

In household surveys that consider all individual household members use of mosquito nets, educational level and community level behavior change campaigns (BCC) are difficult to quantify. Thus, most of the studies looking at these issues have either focused on children under age 5 or at small areas where known BCC activities have taken place. Studies have also shown that, as with ownership of mosquito nets, use of mosquito nets, increases with wealth and urban residence (Khan et al. 2008; Monasch et al. 2004; Oresanya et al. 2008; Noor et al. 2006; Noor et al. 2007; Steketee and Eisele 2009; Macintyre et al. 2002). Also, as with ownership, the type of ITN distribution campaigns in a country may make ITN use more equitable over time (Ye et al. 2012). Finally, in some countries sleeping arrangements and the difficulty in hanging mosquito nets in households have been cited as reasons for non-use (Frey et al. 2006; Pulford et al. 2011).

While other factors related to mosquito net use have been studied in much more depth, the relationship between seasonality and individual mosquito net use remains unclear. A few studies have tried to examine seasonal variations in mosquito net use, citing temperature and malaria vector annoyance as factors influencing their use (Baume et al. 2009; Frey et al. 2006; Macintyre et al. 2002; Alaii et al. 2003). Qualitative studies have found that people are uncomfortable sleeping under nets in the hotter, dryer months (Korenromp et al. 2003). A review study published in 2011 looking at 22 studies on mosquito net use cites discomfort related to heat and low perceived mosquito presence as the two most common reasons for non-use (Pulford et al. 2011).

1.6 Measuring Bias in Indicators of Ownership and Use of Insecticide-Treated Nets

National-level estimates of ITN ownership may be biased downward if there are many areas with a very low risk of malaria, where people would not need to own ITNs. Similarly, many surveys are conducted outside of the high malaria transmission season, when people may not be using ITNs, although they may use them during the transmission season. For these reasons, estimates of ITN use can be biased downward in countries with substantial variation in malaria endemicity or when a survey is conducted during different seasons within the same country (e.g. part of the country is surveyed before malaria season and the other part during malaria season).

This report attempts to quantify the effect of these biases by focusing primarily on two standard RBM indicators. Three other indicators were analyzed as well but are not discussed in-depth in this document. Detailed tables of all indicators are included in the appendix.

The analysis uses GPS data for survey clusters to correlate these measures with levels of malaria endemicity and seasonality. We then recalculate coverage estimates based on the population at risk, taking into account the endemicity in the area and timing of the survey.

This report also presents a possible approach to identifying populations at risk of malaria, an approach that could be used by countries to produce non-national estimates accounting for endemicity or seasonality variations.

2 Methodology

2.1 Data Sources

2.1.1 Household and Individual Data

This analysis used data from the Demographic and Health Surveys (DHS) and Malaria Indicator Surveys (MIS), nationally representative population-based surveys collected through the USAID-funded MEASURE DHS project. The study also used data from an Anemia and Malaria Prevalence Survey (AMP) conducted by MEASURE DHS in Mali in 2010. In all, the surveys covered 18 countries in sub-Saharan Africa. Criteria for inclusion in the analysis were that: the survey fieldwork was completed between 2006 and 2011, the survey dataset was made publicly available by July 2012, geographic locations of survey clusters were available, and the survey included mosquito net roster questions. Details on the 18 surveys studied are listed in Table 2. All surveys were approved by ICF International's (formerly Macro International) Institutional Review Board (IRB).

Table 2. Information on surveys included in analysis

Country	Type*	Year	Field work dates	Months of field work	Total clusters	% of households with missing GPS	Total households with GPS	Total household de facto members with GPS information
Angola	MIS	2011	1/2011-5/2011	4	238	3.4	7,753	35,431
DRC	DHS	2007	2/2007-6/2007	4	300	2.3	8,679	42,337
Ghana	DHS	2008	9/2008-11/2008	3	411	1.7	11,574	40,883
Kenya	DHS	2008	11/2008-2/2009	4	398	0.3	9,033	35,772
Liberia	MIS	2011	9/2011-1/2012	5	150	0.0	4,162	17,255
Madagascar	DHS	2008	11/2008-8/2009	10	594	1.6	17,578	76,131
Malawi	DHS	2010	6/2010-11/2010	6	849	2.5	24,210	105,251
Mali	AMP	2010	8/2010-10/2010	3	109	2.4	1,578	8,749
Namibia	DHS	2006	11/2006-3/2007	5	500	1.8	9,036	37,957
Nigeria	MIS	2010	10/2010-12/2010	4	239	0.0	5,895	28,284
Rwanda	DHS	2011	9/2010-3/2011	7	492	0.0	12,540	52,877
Senegal	DHS	2011	10/2010-4/2011	7	391	1.5	7,780	67,087
Sierra Leone	DHS	2008	4/2008-6/2008	3	353	0.8	7,224	38,348
Swaziland	DHS	2006	7/2006-2/2007	8	275	1.8	4,756	20,520
Tanzania	DHS	2010	12/2009-5/2010	6	475	3.5	9,282	42,557
Uganda	MIS	2009	11/2010-12/2010	2	170	0.0	4,421	19,160
Zambia	DHS	2007	4/2007-10/2007	7	319	0.0	7,164	31,332
Zimbabwe	DHS	2010	9/2010-3/2011	7	406	3.2	9,442	37,475

* MIS=Malaria Indicator Survey, DHS=Demographic and Health Survey, AMP=Anemia and Malaria Prevalence Survey

Key variables from DHS/MIS/AMP datasets:

- Insecticide-treated nets (ITNs) are defined as either a long-lasting insecticide-treated nets (LLIN) or conventional mosquito nets that were treated with insecticide in the last 12 months or were purchased pre-treated within the last 12 months.

- De facto persons are all individuals who stayed in the household the night preceding the survey, including usual residents and visitors.

- Urban and rural residence is defined in the survey design based on definitions established by each country and used in the sample design.

- Wealth quintiles were created using information on household assets ownership (Rutstein and Johnson 2004).

2.1.2 Geographic Location of Clusters

The geographic locations of the survey clusters (enumeration areas) are collected in most surveys through Global Positioning System (GPS) receivers. The GPS locations are for the estimated centroid of the survey cluster and not taken for individual households. Cluster size can vary greatly from that of a single apartment building in an urban area to larger than 5 kilometers in diameter in a rural area. The GPS locations are then checked, using country-provided and publicly available administrative shapefiles, to verify that the GPS location is in the correct administrative boundaries. In some countries, including Angola 2011 and Mali 2010, GPS locations were not collected in the survey or were of poor quality, so the majority of the cluster locations were estimated using gazetteers. When the data could not be validated or when data were not collected for a location, the GPS location is excluded from the analysis (listed as missing; see the percentage of households in clusters with missing GPS locations in Table 2). To maintain the confidentiality of the respondents, in accordance with IRB requirements, the GPS location for each cluster is randomly displaced. Urban clusters are displaced between 0 and 2 kilometers, while rural clusters are displaced between 0 and 5 kilometers, with 1% of the rural clusters displaced between 0 and 10 kilometers (DHS 2012).

2.1.3 Malaria Endemicity and Suitability

The analysis used three data sources independently to estimate malaria endemicity or malaria vector suitability at the survey locations: MAP 2007, MAP 2010, and MARA (Table 3). Malaria Atlas Project (MAP) data layers from both 2007 and 2010 measure the estimated Plasmodium falciparum parasite rate, age-standardized to 2-10 years ($PfPR_{2\text{-}10}$) in a given location. The two layers have similar methods of production, with the 2010 layer containing more data, although not necessarily more recent data (Hay et al. 2009; Gething et al. 2011). Smooth raster layers of estimated $PfPR_{2\text{-}10}$ were created for the whole world using a Bayesian statistical framework giving preference to more recent data and including some environmental covariates. The raster values can range in value from 0 to 1. The final raster layer has raster sizes of 1 x 1 kilometer. Approximately 15% of the underlying data used in the MAP data layers come from MEASURE DHS surveys, including many included in this analysis. This should not cause any collinearity issues in this analysis because we are not using data on cluster-level parasitemia estimates.

A suitability of transmission raster layer that can be used to estimate the suitability of the environment in a given location to malaria transmission was created by the Mapping Malaria Risk in Africa (MARA) project in 2004 (Adjuik et al. 1998; MARA 2004). This data layer uses only environmental and geographic (i.e., altitude) factors to estimate a theoretical model of the suitability of a location for the malaria vectors. The final raster is 5x5 kilometer squares with values ranging from 0 to 1.

Table 3. Malaria endemicity and suitability data summary

Data Name	Source	Data covering (time period)	Raster cell size	Data
MAP 2007	Malaria Atlas Project	Through 2007	1 x 1 km	$PfPR_{2-10}$
MAP 2010	Malaria Atlas Project	Through 2010	1 x 1 km	$PfPR_{2-10}$
MARA	Mapping Malaria Risk in Africa	Through 2004	5 x 5 km	Environmental suitability to malaria vector

* $PfPR_{2-10}$ = *Plasmodium falciparum* parasite rate, age-standardized to 2-10 years

2.1.4 Seasonality of Transmission

The MARA project also created raster layers that estimate the first and last month of malaria transmission in a given location, and whether there is year-round transmission or no transmission at all (Adjuik et al. 1998; MARA 2004). One limitation of this layer is that it can only account for one transmission season, whereas some countries have two malaria transmission seasons associated with two rainy seasons. Data are based on a theoretical model of the seasonality of malaria and the suitability of transmission at a given location. One raster layer shows the first month of the transmission season and another layer shows the last month of the transmission season; together they allow the calculation of the months of transmission.

2.2 Approaches

2.2.1 Creation of Endemicity and Seasonality Variables

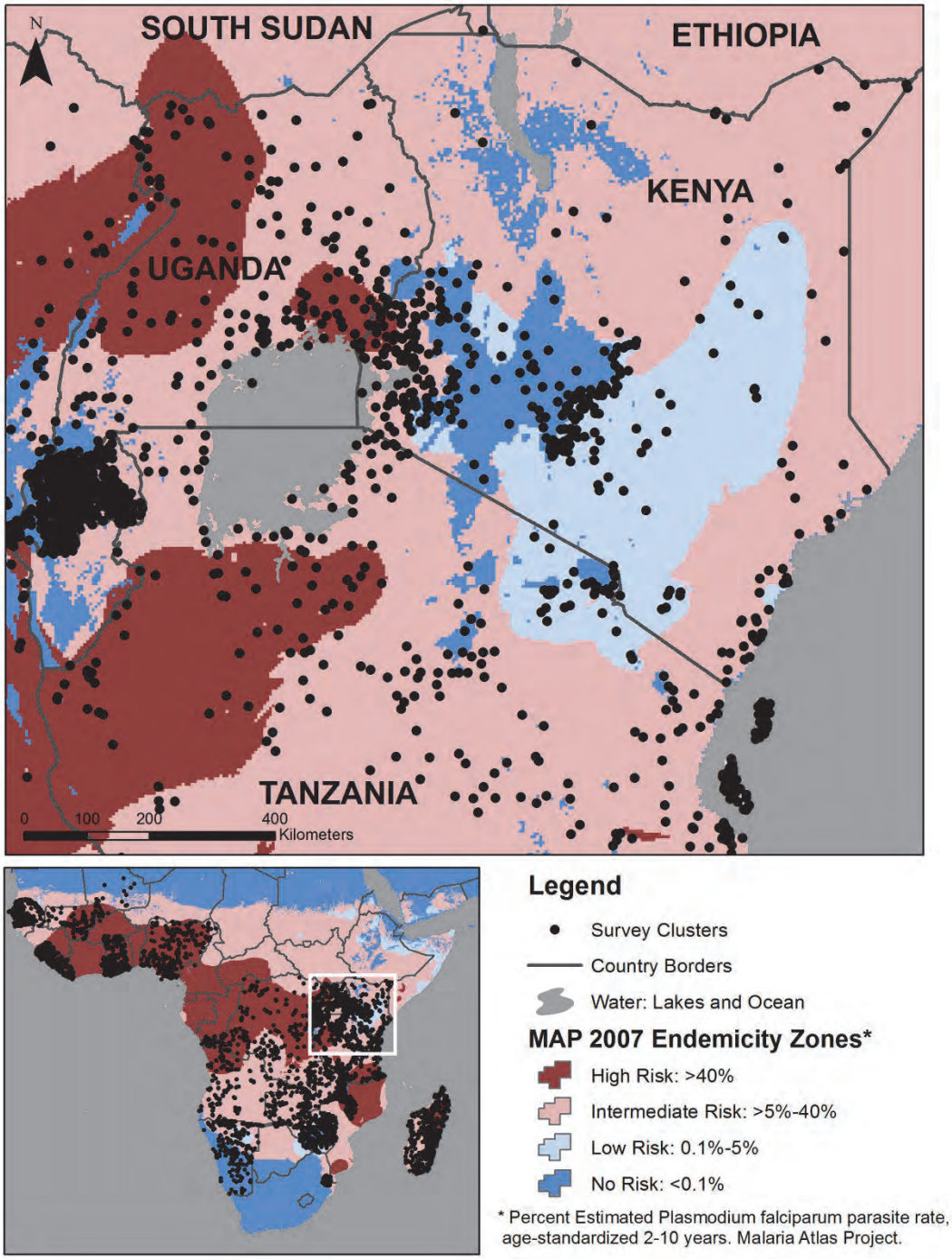
Raster data from the MAP and MARA data layers were extracted to each survey GPS location using the "Extract Multi Values to Points" function in ArcMAP version 10.0 with Spatial Analyst toolbox (ESRI, Redlands, CA). Since the MAP rasters do not always extend to the country's coastal boundary, some locations were listed after extraction as having no value when in reality they are next to a location with values. In these cases, a reclassification was done by hand, giving those locations the class category that they would have had if there been data for that location. An additional limitation to this extraction approach is that the GPS data are displaced (as described earlier). Given that the raster sizes are 1 km2 and 5 km2, this probably does not add a significant amount of error, as adjacent raster squares are likely to have similar values and to be classified in the same groups. Figure 1 displays survey cluster locations over classified MAP 2007 data. The data from MAP and MARA were merged into the household and individual datasets using the cluster number and the merge command in STATA.

2.2.2 Endemicity and Suitability Classification

After extraction, the raster values were classified according to the MAP or MARA classification schemes.

- MAP 4 categories: $PfPR_{2-10}$ = (1) No Risk <0.1%, (2) Low Risk 0.1-5%, (3) Intermediate Risk ≥5%-40%, and (4) High Risk >40%
- MAP 2 categories: $PfPR_{2-10}$ = (1) No and Low Risk <5% and (2) Intermediate/High Risk ≥5%
- MARA: (1) None 0%, (2) Low >0%-75%<, and (3) High ≥75%

Figure 1. Survey clusters and MAP 2007 endemicity zones



2.2.3 Seasonality Classification

To determine if a cluster was within a malaria season at the time of the household survey, a variable was created using the MARA first and last month data, along with the date of the household survey in the household recode file. This information was combined to make four categories of when the survey took place: (1) no malaria season in that location, (2) survey not conducted during the malaria season, (3) within the transition season for malaria (considered to be 1 month before and 2 months after the malaria season listed), and (4) During the malaria season (survey fell within the MARA first and last month listed). For simplicity, in some of the analysis the data were also combined into 2 groups (1) no malaria/out of season, and (2) transition/in season. This approach may mask the real difference between a zone with no malaria versus one that is out of malaria season. Data for both approaches are shown in the appendix.

2.2.4 Outcome Variables

Table 1 describes the key Roll Back Malaria (RBM) indicators for measuring ITN ownership and use. The population-based estimates are derived from the de facto population. These estimates are created at the household level or individual level depending on the indicator definition. The analysis will focus mainly on two of these indicators: the percentage of households with at least one ITN, and the percentage of the population that slept under an ITN the previous night. The three other indicators described in Table 1 are presented in the appendix to this report.

2.2.5 Statistical Analysis

Statistical analysis was done using STATA version 12 SE (STATA Corporation, College Station, TX). The svy command was used to account for the sampling design, and household weights were used for all bivariate and logistic regression models. Ninety-five percent confidence intervals (95% CI) were calculated for each indicator at the national level, as well as between urban and rural areas, and among endemicity zones and seasonality zones. This approach was used because the national estimate is most commonly reported. Thus, comparing the other groups with the national estimate shows the potential bias in only reporting at the national level. If the confidence intervals do not overlap, the estimates are considered to be statistically significantly different. This is a conservative method to detect statistically significant differences since it is possible for the differences to be statistically significant even if the confidence intervals overlap slightly.

Logistic regressions were performed using several different models combining the relevant covariates, as described earlier. P-values of less than 0.05 were considered significant.

ITN ownership logistic regression model covariates:

- Model 0: Endemicity
- Model 1: Endemicity, Target population in household[1]
- Model 2: Endemicity, Urban-Rural
- Model 3: Endemicity, Target population in household, Urban-Rural
- Model 4: Endemicity, Target population in household, Urban-Rural, Wealth

[1] Target population in household indicates that the household had at least one child under 5 years or one pregnant woman within the household (de facto).

ITN use logistic regression model covariates:

- Model 0: Seasonality
- Model 1: Endemicity
- Model 2: Seasonality, Endemicity
- Model 3: Seasonality, Endemicity, Total ITNs in household, Total household members (de facto)
- Model 4: Seasonality, Endemicity, Total ITNs in household, Total household members (de facto), Pregnant woman, Child under 5 years
- Model 5: Seasonality, Endemicity, Total ITNs in household, Total household members (de facto), Pregnant woman, Child under 5 years, Urban-Rural, Wealth

3 Results

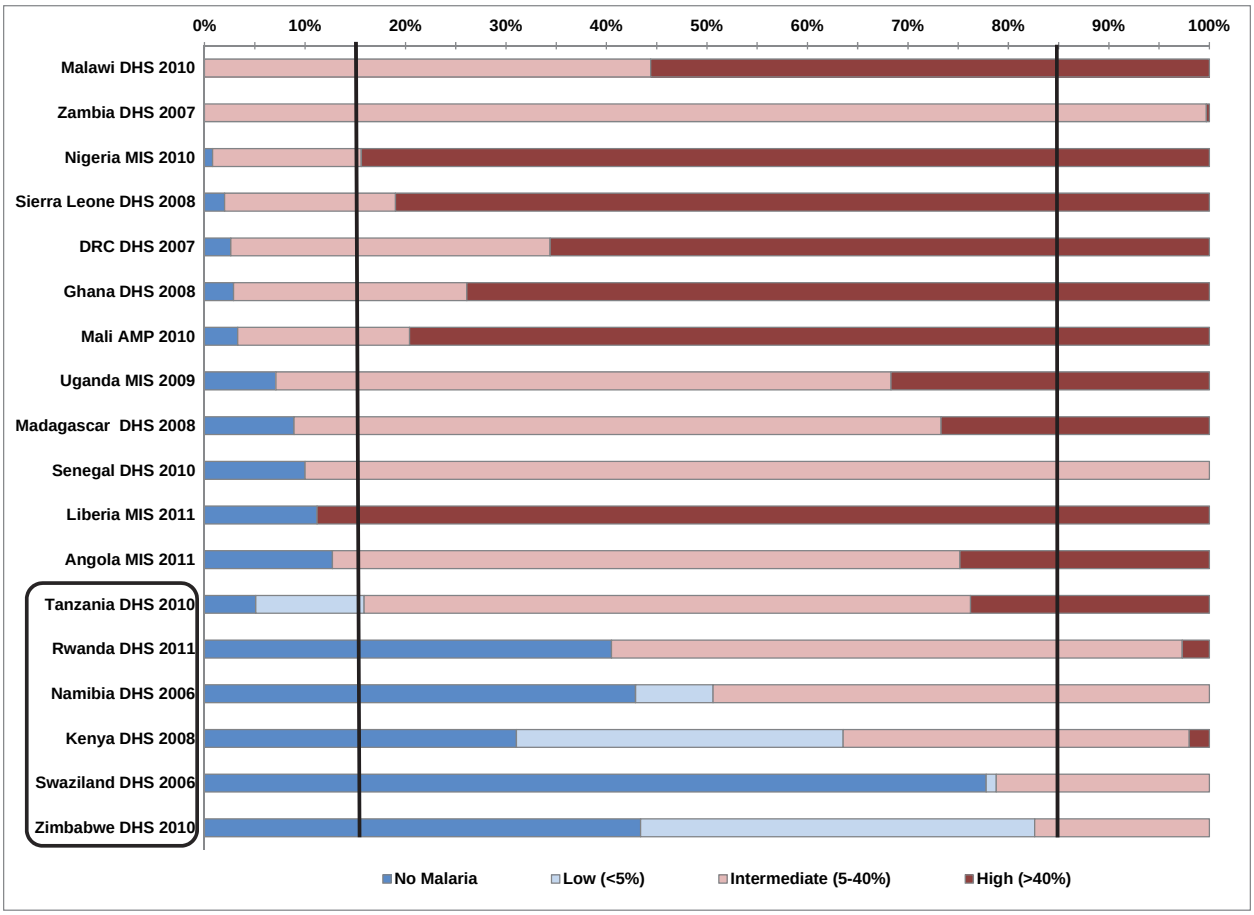
3.1 Malaria Endemicity and Ownership of ITNs

Household ownership of ITNs can be expected to vary across endemicity zones in a country; households in higher endemicity zones would be more likely to own ITNs than households in low endemicity areas. Thus, national estimates that do not take into account the populations at risk of malaria would underestimate ITN ownership for areas with high endemicity and overestimate ITN ownership for areas with little or no malaria.

3.1.1 Distribution of Malaria Endemicity

Malaria endemicity varies across survey locations within countries and among the 18 countries studied; however, endemicity is more pronounced in some countries than in others. This is the case regardless of which data layer is being used (MAP 2007, MAP 2010 or MARA). Figure 2 illustrates the distribution of survey households by endemicity using the MAP 2007 data layer. In the majority of the countries analyzed, there is a fairly homogenous distribution of the population at risk of malaria across survey locations within the country. In Kenya, Namibia, Rwanda, Tanzania, and Zimbabwe, however, at least 15% of the population is in a different category than the rest of the country, when comparing the no/low and intermediate/high categories.

Figure 2. Surveyed household distribution by MAP 2007 endemicity zones



For the purpose of this analysis, a 15% cut-off was used to define a country with "heterogeneous" transmission of malaria, that is to say where a large enough proportion of the population lives in the no/low zone for there to be a possible effect on the outcome of the analysis. The rest of this ownership analysis, therefore, focuses on the five countries with heterogeneous distribution of malaria endemicity. Additionally, the rest of the ownership analysis will focus on results that use the MAP 2007 data layer.

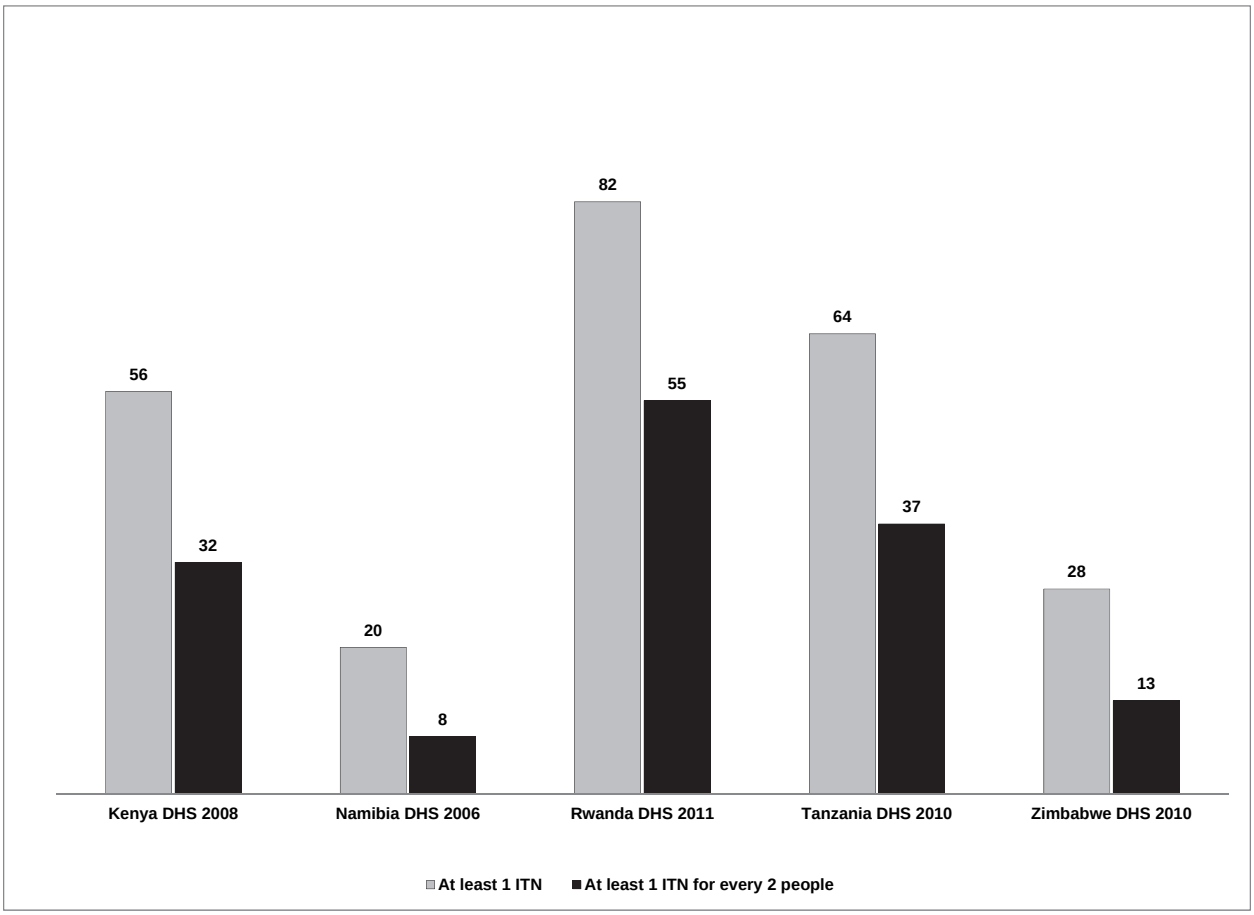
The complete data for all 18 surveys for all three data layers can be found in the appendix of this paper. Although Swaziland falls into the heterogeneous country categorization, the ownership of ITNs in 2006 was very low and the sample sizes for estimates were not robust below the national level, and thus have been dropped from all subnational analysis tables.

3.1.2 Ownership of ITNs

In countries with heterogeneous transmission of malaria, household ownership of ITNs can be expected to vary across endemicity zones. The endemicity zones are shown in the following analysis in two categories (no/low and intermediate/high) to illustrate the difference between these groups and to maintain large enough cell sizes for analysis. Analysis using four categories of endemicity can be found in the appendix.

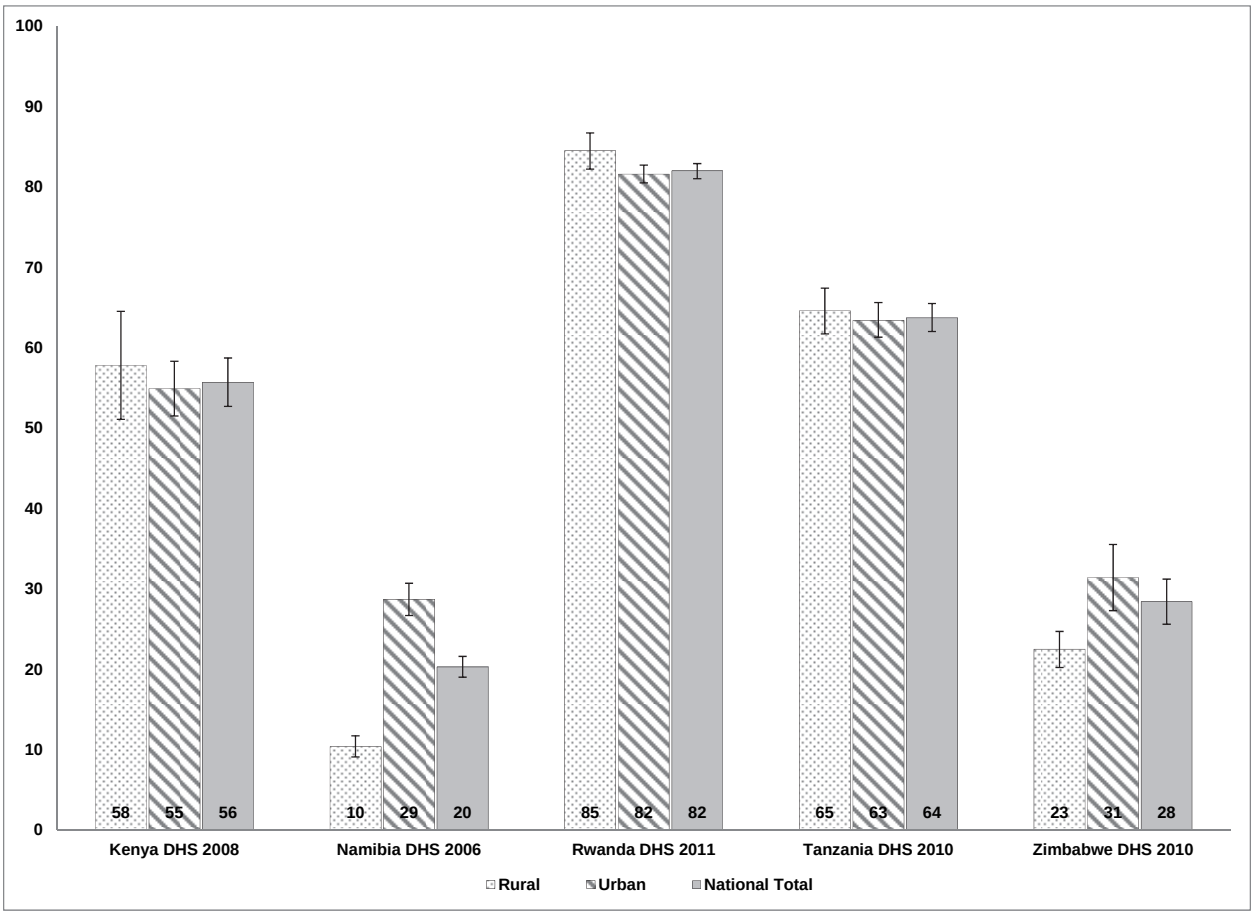
National coverage indicators for ITN ownership vary widely among the countries with heterogeneous malaria zones. The percentage of households owning at least one ITN ranged from 20% in Namibia to 82% in Rwanda. Households with at least one ITN for every two persons who stayed in the household the night before the survey ranged from 8% in Namibia to 55% in Rwanda. Figure 3 shows the percent ownership of ITNs for these two indicators.

Figure 3. Percent of households owning at least one ITN and households owning at least one ITN for every two persons for heterogeneous countries



Stratifying household ownership of at least one ITN by urban-rural areas, the RBM standard stratification, shows some differences compared with the national total and between urban and rural areas for the heterogeneous countries (Figure 4). In Namibia, 28% (95% CI 26.7-30.7) of urban households own at least one ITN compared with the national total of 20% (95% CI 19.0-21.6) and the rural total of 10% (95% CI 9.1-11.7). In Zimbabwe, the urban total of 31% (95% CI 27.3-35.5) is not significantly different than the national total of 28%, but is significantly different than the rural total of 22% (95% CI 20.2-24.7). For the other three heterogeneous countries, the differences are not significant.

Figure 4. Percent of households owning at least one ITN by rural and urban areas for heterogeneous countries with 95% confidence intervals

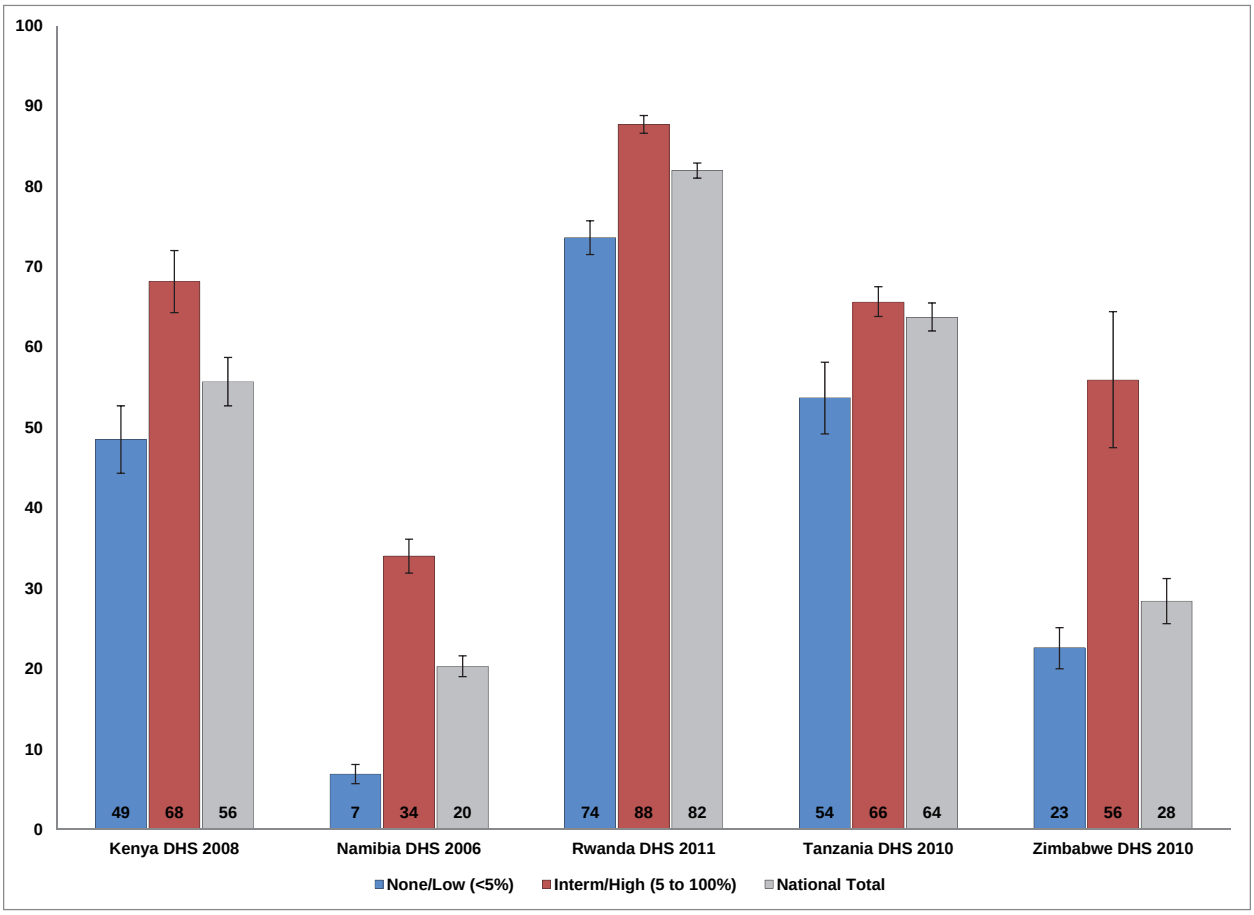


Stratification of households by endemicity zones (MAP 2007) shows that in heterogeneous countries households in the high or intermediate endemicity zones are significantly more likely to own at least one ITN household at the national level than households in the no/low malaria zones (Figure 5). For Kenya, where the national percentage is 56% (95% CI 52.7-58.1), the percentage in the high endemicity zone was 74 % (95% CI 70.0-80.0%), and 68% (95% CI 63.8-71.9%) in the intermediate zone (Table A4). This pattern remains the case in Kenya, Namibia, Rwanda, and Zimbabwe, even if the high and intermediate zones are collapsed together. Tanzania is a slight exception, where the national total is 64% (95% CI 62.0-65.5) and the percentage in the high endemicity zone is significantly higher, at 69% (CI 95% 66.1-72.1), while the intermediate zone is closer to the national total, at 64% (95% CI 61.8-66.7), while ownership in the no or low malaria zones is significantly lower, with zonal estimates of less than 55%. When Zanzibar is looked at separately from mainland Tanzania, the mainland Tanzania results stay fairly consistent, at 63% (95% CI 61.6-65.2) as the mainland total, while in the high endemicity zone the percentage is significantly higher, at 69% (CI 95% 66.1-72.1). Whereas In Zanzibar, which has a primarily low endemicity, has a total ownership rate of 77% (CI 95% 74.4-80.4)

When combining household residence and endemicity zone, these differences remain in Kenya and Namibia, with similar proportions of ownership by endemicity zone regardless of urban or rural location. However, Rwanda, Tanzania, and Zimbabwe, estimates adjusted for endemicity zone and urban location

remain significantly higher compared with national urban totals, but not when comparing rural areas (Table A5).

Figure 5. Percent of households owning at least one ITN by MAP 2007 endemicity zones for heterogeneous countries with 95% confidence intervals



When looking at the data stratified by urban-rural areas, endemicity zones, and urban-rural endemicity zones for households that own at least one ITN for every two persons that slept in the household the previous night, the comparisons vary (Table A10). The comparison between the national total and endemicity zone estimates remain significantly different in Namibia, Rwanda, and Zimbabwe, but not in Kenya and Tanzania.

Logistic regressions include endemicity zone in model 0 and other covariates in models 1-4: residence, member of target population in household (child <5 or pregnant woman), and wealth. In all heterogeneous countries, after controlling for all other factors (model 4), households in intermediate/high endemicity zones had significantly higher odds of owning at least one ITN than households in no/low endemicity zones. Table 4 shows the results from model 0 and model 4 for the heterogeneous countries; all other models and countries can be found in Table A14. In each country, the odds ratios (OR) for the high/intermediate endemicity zone remained fairly constant across the models. In Kenya, for example, model 0 with no covariates had an OR of 2.26, while model 4 had an OR of 2.42. The OR for the high/intermediate zone alone (model 0) in Namibia was high at 9.54, while for Tanzania it was a low 1.68.

Table 4. Logistic regression of household ownership of at least one ITN in heterogeneous countries

	Model 0	Model 4
Countries/Factors	**OR (95% CI)**	**OR (95% CI)**
Kenya DHS 2008		
Intermediate/High endemicity	2.26* (1.76,2.89)	2.42*(1.82,3.22)
Target population in household		2.15* (1.79,2.58)
Rural household		1.16 (0.83,1.63)
Poorer		1.71* (1.41,2.06)
Middle		2.15* (1.63,2.84)
Richer		1.85* (1.35,2.52)
Richest		2.02* (1.40,2.91)
Namibia DHS 2006		
Intermediate/High endemicity	9.35* (7.19,12.15)	8.53* (6.59,11.04)
Target population in household		1.71* (1.48,1.97)
Rural household		0.70* (0.56,0.89)
Poorer		1.34* (1.11,1.62)
Middle		1.49* (1.20,1.86)
Richer		1.69* (1.28,2.22)
Richest		1.44* (1.03,2.01)
Rwanda DHS 2011		
Intermediate/High endemicity	2.56* (2.19,3.00)	2.35* (1.99,2.78)
Target population in household		4.35* (3.62,5.23)
Rural household		0.88 (0.71,1.10)
Poorer		1.37* (1.20,1.58)
Middle		1.94* (1.62,2.32)
Richer		2.48* (2.08,2.96)
Richest		2.31* (1.89,2.81)
Tanzania DHS 2010		
Intermediate/High endemicity	1.68* (1.36,2.06)	1.81* (1.41,2.33)
Target population in household		4.83* (3.96,5.88)
Rural household		0.74* (0.59,0.92)
Poorer		1.34* (1.13,1.59)
Middle		1.47* (1.23,1.77)
Richer		2.16* (1.72,2.71)
Richest		3.08* (2.32,4.10)
Zimbabwe DHS 2010		
Intermediate/High endemicity	4.34* (3.36,5.61)	5.35* (3.97,7.20)
Target population in household		1.19* (1.04,1.38)
Rural household		1.10 (0.83,1.46)
Poorer		0.92 (0.75,1.12)
Middle		1.03 (0.83,1.29)
Richer		1.18 (0.91,1.53)
Richest		1.68* (1.21,2.33)

OR = Odds ratio, CI = Confidence interval, * $p<0.05$

Reference categories:

Intermediate/High endemicity (Ref: No\Low endemicity)

Target population in household (Ref: No member of target population in household)

Rural household (Ref: Urban household)

Wealth (Poorer, Middle, Richer, Richest) (Ref: Poorest)

As in the bivariate analysis, urban-rural residence was not a consistently significant predictor of household ITN ownership across the three models that included residence (the reference category was urban households). Even where significant differences were found, in some models rural residence was a positive predictor of owning at least one ITN, while in others it was a negative predictor.

Examination of the other covariates in the logistic regressions shows that, regardless of endemicity, having a member of the target population in the household was a significant predictor of owning at least one ITN. The wealth index categories (the reference category was the poorest quintile) were generally significant predictors of ITN ownership, with the lowest ownership in the poorest wealth quintile. In Zimbabwe, this was only the case for the richest quintile, while in the other four countries this was true for all the wealth quintiles. Similar results were seen for all the predictors when examining households owning at least one ITN for every two de facto persons in the household (data not shown).

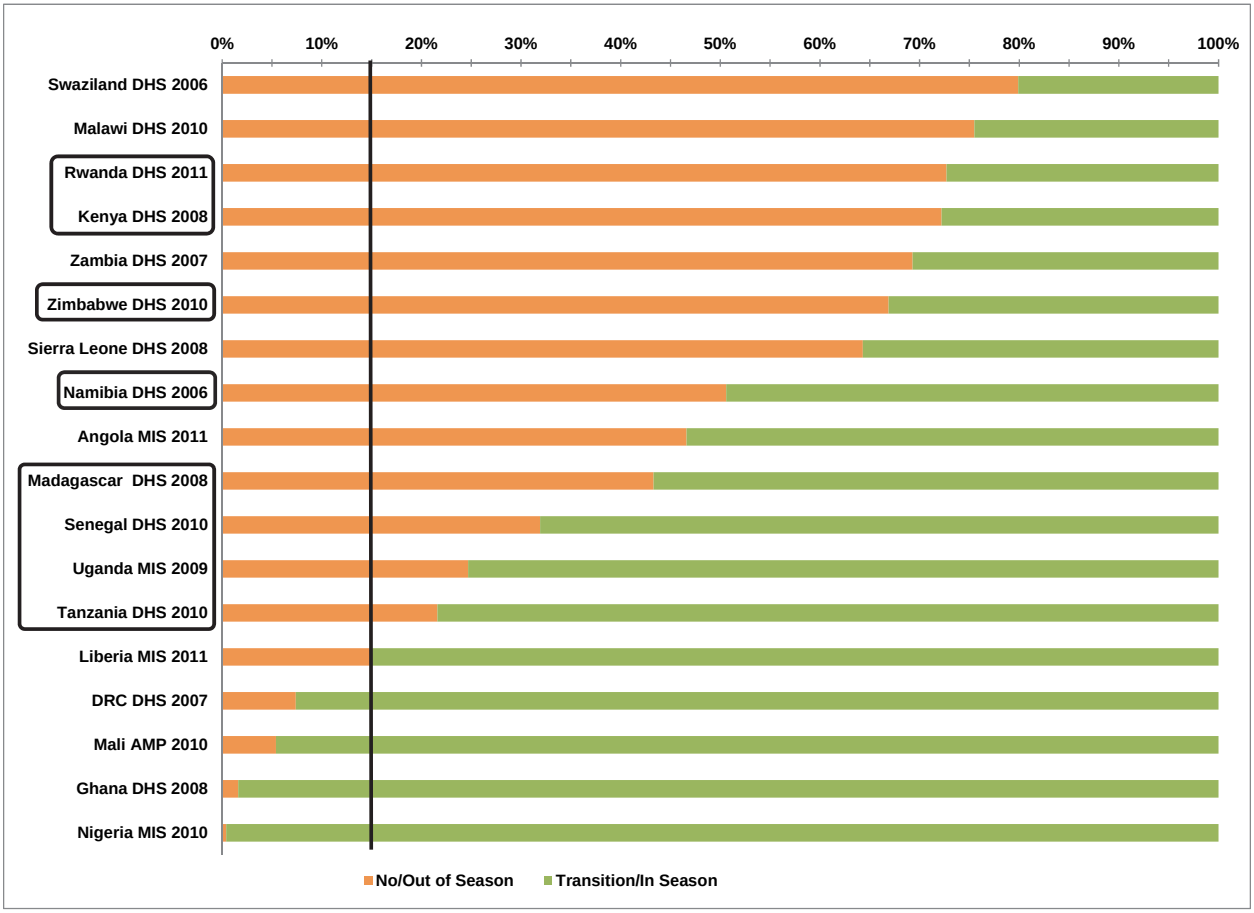
3.2 Malaria Seasonality and Use of ITNs

Areas surveyed during the malaria season could be expected to show higher levels of ITN use compared with areas surveyed outside of the malaria season. Thus, national estimates using data from surveys conducted in the no or low transmission season may underestimate the use of ITNs compared with estimates using survey data obtained during the high transmission season. Similar to the ownership estimate without consideration of endemicity zone, estimates of ITN use collected outside the malaria transmission season could distort the measurement of use among the population at risk. Additionally, there are likely to be links between malaria endemicity and ITN use that are related to ownership of ITNs.

3.2.1 Population Distribution by Seasonality

The malaria season distribution varies across survey locations within countries and among the 18 countries in this analysis. Figure 6 shows the population distribution by whether or not the household interview was conducted during the malaria season in that area, and therefore whether it was appropriate to expect respondents to have slept under an ITN the night before the interview, depending on the actual risk of malaria at the time of the survey. In the Democratic Republic of the Congo, Ghana, Liberia, Nigeria, and Mali, over 85% of the survey population was surveyed during the malaria season. In the other 13 countries, however, more than 15% of the population was surveyed out of season, or in areas considered to have no malaria season. The eight countries with disparate survey seasons, which will be the focus of this analysis are Kenya, Namibia, Madagascar, Rwanda, Senegal, Tanzania, Uganda, and Zimbabwe. These eight countries were selected in two groups (1) countries that also have heterogeneous transmission of malaria as defined in the ownership section (Kenya, Namibia, Rwanda, Tanzania, and Zimbabwe) and (2) three additional countries that illustrate the range of ITN use (Madagascar, Senegal, and Uganda). Results for all countries can be found in the appendix. Swaziland has been dropped from all subnational appendix tables due to extremely low levels of ITN use.

Figure 6. Surveyed population distribution by MARA seasonality zones

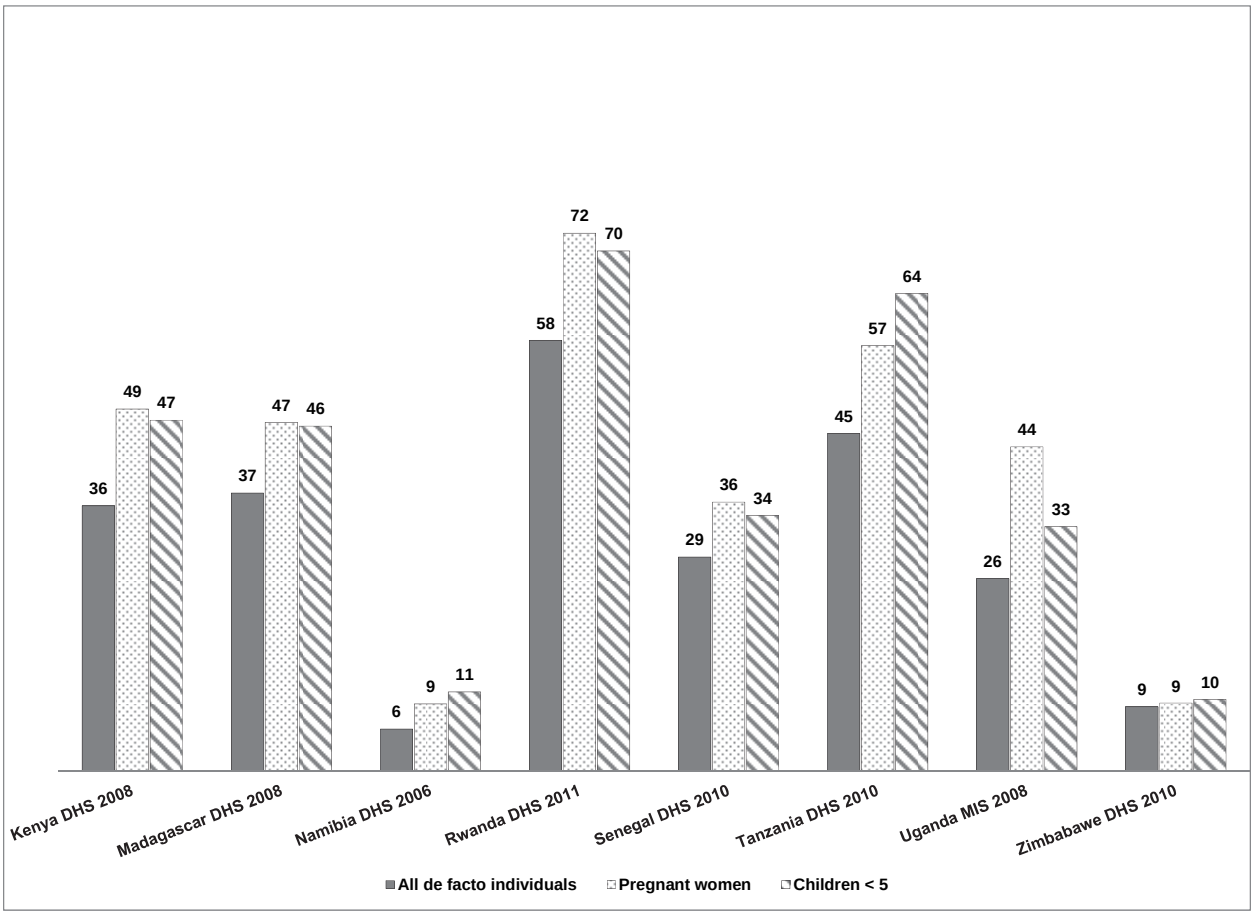


3.2.2 Use of ITNs

The indicators in Table 1 on ITN use consider the whole population (all de facto individuals) as well as just children under age 5 and just pregnant women in all households in a country regardless of household ITN ownership. Figure 7 shows the percentage of individuals in these three groups who slept under an ITN the night before the survey, for the disparate survey season countries selected. Rwanda had the highest overall population use of ITNs, at 58%. In the other countries ITN use ranged from 6% to 45%. Among children under age 5 and among pregnant women, ITN use was higher in all selected countries, with the highest use in Rwanda for both households with children, at 70%, and households with pregnant women, at 72%. Tanzania had the largest relative difference in ITN use between all de facto individuals, at 45%, and children under age 5, at 64%. Uganda showed the largest relative difference for pregnant women using ITNs, at 44%, compared with an estimate of 26% for the total surveyed population.

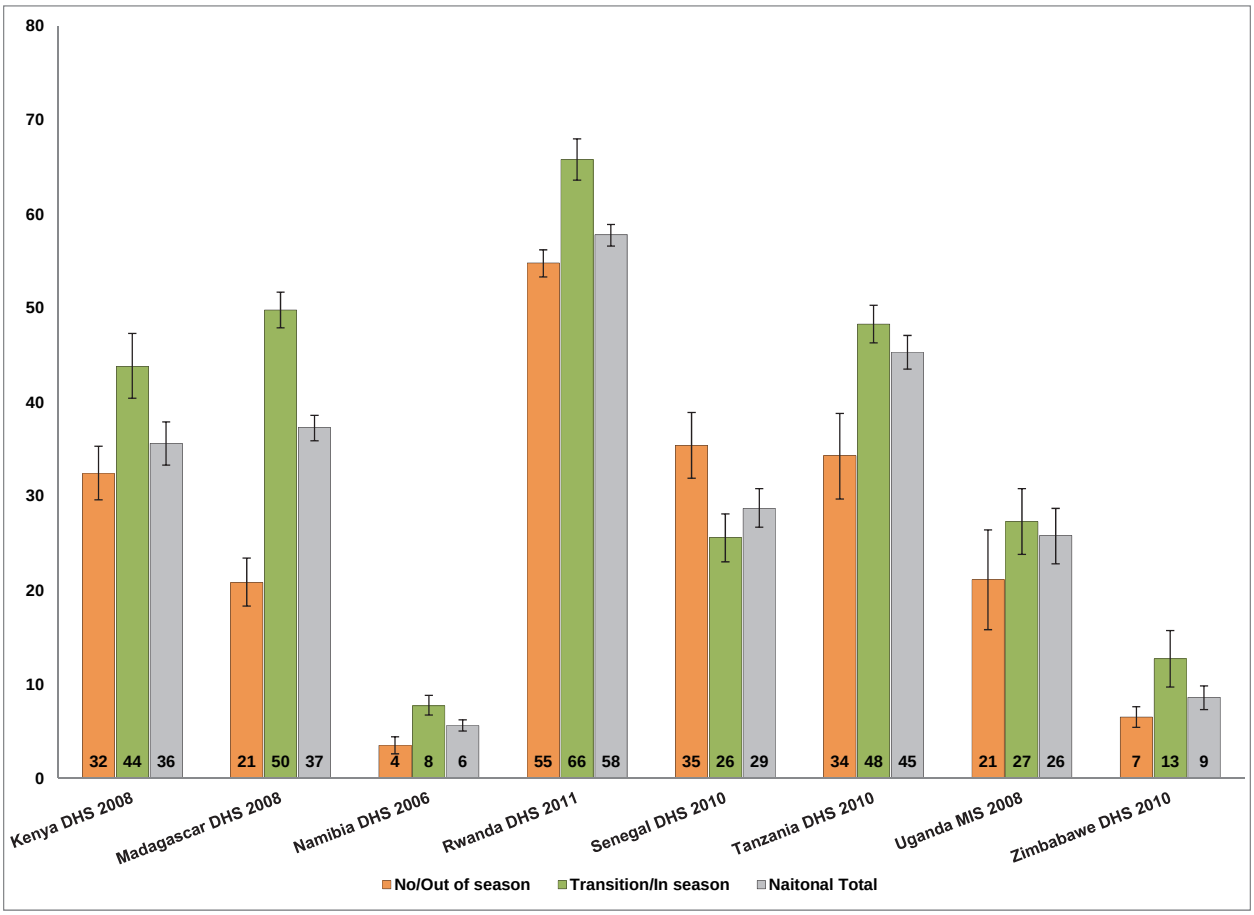
In most countries studied, differences in ITN use are fairly low between urban and rural areas compared with the national totals (Table B10). In Madagascar and Rwanda, people in rural areas were significantly more likely to use ITNs than their urban counterparts or the total population, in all areas of the country. Similar results are seen for the analysis considering just children under age 5 or pregnant women (Table B11, B12).

Figure 7. Percentage of individuals, pregnant women, and children under 5 years who slept under an ITN the previous night for selected disparate survey season countries



Stratification of households by seasonality shows that, in some cases, in areas surveyed during the malaria season or immediately before/after (the transition season) people are significantly more likely to have slept under an ITN the previous night compared with the national population. For Kenya, Madagascar, Rwanda, and Tanzania, this is the case when looking only at seasonality (Figure 8). In Kenya, 36% (95% CI 33.3-37.9%) of all people surveyed slept under an ITN the previous night compared with 44% (95% CI 40.4-47.3%) of people surveyed during the malaria season. Furthermore, looking at urban residence and seasonality, Kenya, Madagascar, and Rwanda showed significant differences in ITN use comparing national estimates with estimates for areas surveyed in season; while Kenya, Rwanda and Zimbabwe had significant differences in rural areas. Similar results are seen for children under age 5 and for pregnant women across the countries (Table B11, B12). Senegal is an exception: people surveyed out of season were more likely to have slept under an ITN the previous night compared with the national total and with people surveyed during malaria season. This is also true when looking only at rural households in Senegal, although overall ITN use remains low (Table B10).

Figure 8. Percent of individual use of ITN previous night by MARA seasonality zones for selected disparate survey season countries with 95% confidence intervals



Stratifying ITN use by endemicity shows less difference than stratifying by seasonality, although Kenya, Namibia, Rwanda, and Zimbabwe (which are part of the heterogeneous country group described in the ownership section) had significant differences between national estimates of ITN use and estimates for areas of intermediate or high endemicity (Table B16, B22, B28). Again, results are similar for children under age 5 and pregnant women (Table B17, B18, B23, B24, B29, B30).

When restricting the bivariate analysis of ITN use to those households with at least one ITN, the differences from the national estimates for groups by residence, seasonality, and endemicity become mostly non-significant, for all individuals, children under age 5, and pregnant women. However, there are significant differences between the groups surveyed in season and those surveyed out of season in Madagascar, Rwanda, and Tanzania, and between the high/intermediate and no/low endemicity areas in Rwanda and Tanzania. (Table B13-15, B19-21, B25-27, B31-33).

The logistic regression in Table 5 shows ITN use the previous night as the outcome indicator. The main explanatory variables are seasonality and endemicity, the number of ITNs in households, the number of de facto persons sleeping in the house, being a child under age 5, being a pregnant woman, rural residence, and household wealth. The analysis was done for all individuals, as well as individuals with at least one ITN in the household. Results here focus on presence of one ITN rather than all individuals. This focus allows for disassociating the barriers to ITN ownership from those for use. The timing of the

survey during the malaria season was significant across all models in Madagascar, Namibia, and Tanzania, with the OR staying fairly constant across models in each country. Endemicity was significant even when accounting for seasonality in almost all models for Namibia, Rwanda, Senegal, Tanzania, and Uganda. The total number of ITNs in the household, being a child under age 5, and being a pregnant woman were positively associated with ITN use in all country models; the number of ITNs in the households was the strongest predictor for most countries. The number of de facto persons in the household was a negative predictor of ITN use for all countries (based on a continuous variable). As for rural residence and wealth, the strength and direction of the association varied widely across countries (Table B34, B35).

Table 5. Logistic regression of individual ITN use the previous night in households that own at least one ITN for selected disparate survey season countries

	Model 0	Model 1	Model 5
Countries/Factors	**OR (95% CI)**	**OR (95% CI)**	**OR (95% CI)**
Kenya DHS 2008			
In season	1.10 (0.93,1.30)		1.09 (0.92,1.28)
Intermediate/High endemicity		0.98 (0.81,1.18)	1.05 (0.88,1.25)
Total ITN in household			2.27* (2.09,2.47)
Total household members			0.76* (0.74,0.78)
Pregnant			2.65* (1.94,3.62)
Child < 5			2.14* (1.91,2.39)
Rural			1.56* (1.26,1.93)
Poorer			0.82* (0.68,0.97)
Middle			0.99 (0.82,1.19)
Richer			0.86 (0.70,1.05)
Richest			0.96 (0.74,1.24)
Madagascar DHS 2008			
In season	1.45* (1.23,1.70)		1.50* (1.27,1.78)
Intermediate/High endemicity		0.80 (0.62,1.04)	0.93 (0.73,1.19)
Total ITN in household			2.73* (2.54,2.93)
Total household members			0.72* (0.71,0.74)
Pregnant			1.96* (1.59,2.42)
Child < 5			1.91* (1.77,2.07)
Rural			1.40* (1.16,1.69)
Poorer			1.16* (1.03,1.31)
Middle			1.10 (0.96,1.24)
Richer			0.99 (0.84,1.15)
Richest			0.86 (0.68,1.07)
Namibia DHS 2006			
In season	0.67* (0.49,0.90)		0.65* (0.47,0.90)
Intermediate/High endemicity		1.08 (0.78,1.49)	1.59* (1.01,2.48)
Total ITN in household			1.94* (1.73,2.18)
Total household members			0.82* (0.79,0.85)
Pregnant			1.61* (1.04,2.48)
Child < 5			2.35* (2.05,2.69)
Rural			2.39* (1.77,3.22)
Poorer			0.65* (0.49,0.87)
Middle			0.61* (0.44,0.84)
Richer			0.68* (0.46,0.99)
Richest			0.26* (0.17,0.41)

(Continued...)

Table 5. – *Continued*

Countries/Factors	Model 0 OR (95% CI)	Model 1 OR (95% CI)	Model 5 OR (95% CI)
Rwanda DHS 2011			
In season	1.27* (1.14,1.42)		1.00 (0.88,1.13)
Intermediate/High endemicity		1.42* (1.29,1.57)	1.11* (1.00,1.24)
Total ITN in household			1.93* (1.83,2.04)
Total household members			0.78* (0.77,0.80)
Pregnant			2.04* (1.69,2.46)
Child < 5			1.70* (1.60,1.80)
Rural			1.00 (0.87,1.16)
Poorer			1.10 (0.99,1.24)
Middle			1.17* (1.04,1.31)
Richer			1.19* (1.06,1.35)
Richest			1.17* (1.02,1.36)
Senegal DHS 2010			
In season	0.91 (0.76,1.08)		1.49* (1.28,1.73)
Intermediate/High endemicity		2.63* (1.58,4.36)	1.74* (1.24,2.44)
Total ITN in household			1.59* (1.53,1.65)
Total household members			0.89* (0.88,0.90)
Pregnant			1.44* (1.21,1.72)
Child < 5			1.43* (1.35,1.52)
Rural			1.54* (1.31,1.82)
Poorer			1.07 (0.91,1.25)
Middle			1.06 (0.88,1.28)
Richer			0.87 (0.71,1.06)
Richest			0.68* (0.54,0.85)
Tanzania DHS 2010			
In season	1.59* (1.22,2.07)		1.62* (1.30,2.00)
Intermediate/High endemicity		1.37* (1.12,1.69)	1.47* (1.23,1.76)
Total ITN in household			2.54* (2.33,2.76)
Total household members			0.79* (0.78,0.81)
Pregnant			2.08* (1.66,2.61)
Child < 5			2.54* (2.31,2.79)
Rural			1.47* (1.20,1.80)
Poorer			0.94 (0.82,1.07)
Middle			0.88 (0.76,1.03)
Richer			0.99 (0.85,1.17)
Richest			0.95 (0.75,1.19)
Uganda MIS 2008			
In season	1.20 (0.83,1.73)		1.03 (0.80,1.33)
Intermediate/High endemicity		2.02* (1.14,3.58)	1.85 (0.80,4.29)
Total ITN in household			2.11* (1.85,2.42)
Total household members			0.77* (0.75,0.80)
Pregnant			3.67* (2.33,5.78)
Child < 5			1.75* (1.52,2.01)
Rural			1.00 (0.68,1.48)
Poorer			0.82 (0.64,1.05)
Middle			0.84 (0.63,1.10)
Richer			0.73* (0.58,0.92)
Richest			0.86 (0.65,1.12)

(Continued...)

Table 5. – *Continued*

	Model 0	Model 1	Model 5
Countries/Factors	**OR (95% CI)**	**OR (95% CI)**	**OR (95% CI)**
Zimbabwe DHS 2010			
In season	1.21 (0.93,1.57)		1.36* (1.03,1.80)
Intermediate/High endemicity		1.18 (0.87,1.59)	1.05 (0.76,1.46)
Total ITN in household			1.65* (1.52,1.80)
Total household members			0.84* (0.81,0.88)
Pregnant			1.08 (0.78,1.51)
Child < 5			1.21* (1.07,1.37)
Rural			1.35 (1.00,1.84)
Poorer			1.05 (0.79,1.39)
Middle			1.16 (0.86,1.57)
Richer			1.38 (0.97,1.95)
Richest			1.11 (0.74,1.66)

OR = Odds ratio, CI = Confidence interval, * p<0.05
Reference categories:
In season (includes transition season) (Ref: Out/No malaria season)
Intermediate/High endemicity (Ref: No\Low endemicity)
Pregnant (Ref: Individual not pregnant on day of survey)
Child < 5 (Ref: Individual not under the age of 5 on day of survey)
Rural household (Ref: Urban household)
Wealth (Poorer, Middle, Richer, Richest) (Ref: Poorest)

4 Discussion

The purpose of this report is to examine the possible bias introduced in national estimates of the ownership and use of insecticide-treated mosquito nets (ITNs) when the population at risk of malaria is not adjusted both for endemicity and seasonality. Additionally, the analysis describes a basic approach for reducing bias in national reporting of ITN ownership and use as defined by Roll Back Malaria (RBM). This analysis examines the effects of malaria endemicity and seasonality in DHS, MIS and AMP surveys, controlling for the most common factors that are known to influence ITN ownership and use.

4.1 Malarial Endemicity and Ownership of ITNs

As might be expected, households in areas with higher malaria endemicity are more likely to own ITNs than households in areas with little or no malaria. However, comparing the estimates in these endemicity zones with the national estimate, only some of the 18 sub-Saharan countries studied have significantly different estimates between national totals and intermediate/high endemicity zones.

Countries with more than 15% of their surveyed population living in a different endemicity zone than the rest of the country were classified as having heterogeneous malaria transmission (Figure 3). This is a somewhat arbitrary cutoff point, and depending on the robustness of the data the cutoff point could have been as low as 10%. In our analysis, Kenya, Namibia, Rwanda, Tanzania, and Zimbabwe meet the inclusion criteria for heterogeneity. National estimates of ITN ownership for these countries are significantly lower than estimates based only on intermediate/high endemicity zones. This pattern is found in both the bivariate and multivariate analyses of household ownership of one ITN and household ownership of one ITN for every two people. This pattern is unaffected by the particular endemicity dataset chosen for the analysis—MAP 2007, MAP 2010, or the MARA dataset. The key countries vary slightly between the MAP 2007 and MAP 2010 layers, with Zambia and Senegal added to the heterogeneous group when using MAP 2010. These two countries, along with the five identified in the MAP 2007 analysis, also have differential ITN ownership estimates by endemicity, when using the MAP 2010 classification. MARA data measure suitability of transmission instead of actual endemicity, but when examining countries with heterogeneous distributions (with 30% of the country in the low or intermediate endemicity groups), Kenya, Madagascar, Namibia, Rwanda, and Zimbabwe fall into this category and also have different estimates for ITN ownership by these categories. This difference can likely be partially explained by early ITN distribution campaigns focusing on areas of high endemicity.

Zanzibar is an example of an area with low endemicity (MAP 2007 classification) and high coverage of malaria interventions. The difference between Zanzibar and Tanzania is partly related to the offshore location of the two Zanzibar islands, as well as their separate Health Ministry structure. It is likely that Zanzibar will be one of the first sub-Saharan countries to eliminate malaria, but this will not eliminate the need for high ITN coverage and for continued monitoring of coverage.

4.2 Malaria Seasonality and Use of ITNs

Using the MARA layer to account for seasonality in ITN use, we find significantly different levels of use for individuals interviewed in-season or in the transition season than for all individuals interviewed (national level), and also for individuals interviewed in the no/low season in countries where more than 15% of the people surveyed were in the no/low category. However, when restricting the ITN use analysis to households with at least one ITN—which allows for examination of ITN use disassociated from the precluding factor that a household has to own an ITN to be able to use it—most of the effect of seasonality on ITN use disappears. This analysis did not examine how many ITNs in the household were used and other factors that could indicate other reasons for ITN use in households with at least one ITN.

This analysis provides new evidence from large-scale nationally representative surveys that complement findings from previous small-scale studies on the effect of seasonality. Generally, although seasonality can affect ITN use, the effect of seasonality is difficult to quantify without longitudinal data or better cross-sectional data on differences in ITN use in specific locations across different seasons. Thus, household survey data on ITN use should be interpreted with caution when the survey includes areas of low malaria transmission or no endemicity, or when the survey fieldwork is conducted outside of the malaria transmission season. Better seasonality data may also improve the ability to understand differential ITN use across malaria seasons within a country.

4.3 Limitations of the Analysis

This analysis has several limitations. The geographic data, both the GPS data on the survey locations and the MAP and MARA layers used in the analysis, have some inherent uncertainties. We estimated their effect to be relatively small, however, and did not consider them in the analysis.

The selection of which data layer to use for estimating endemicity depends partially on the survey date in relation to the MAP or MARA layer data, as well as the quality of data for a specific country. The MAP data provide estimates of uncertainty for both the 2007 and 2010 data layers, which indirectly describe the accuracy of the MAP data estimate at a given location. Including uncertainty estimates would be more easily applied in a country specific analysis but difficult in a multi-country scenario such as this analysis. For this reason, the analysis did not use the uncertainty values for the MAP estimates for determining the quality of the MAP data at a given location. Additionally, local knowledge about transmission areas should be considered when using this geographic classification method. The MAP 2007 layer was used as the primary data in this analysis, as it was least likely to be influenced by improved malaria intervention coverage since mass distribution campaigns for ITNs and specifically for long-lasting insecticidal nets (LLINs) started only around 2005.

Additionally, the malaria season is difficult to identify and create products for use in the spatial realm. The MARA first and last month map layers used in this analysis were informative but would benefit from some updating and the possibility of accounting for two malaria seasons. In the meantime, other approaches such as rainfall, the Normalized Difference Vegetation Index (NDVI), or more sophisticated models such as those related to water balance might be further explored. This is especially true if changes in rainfall occur due to the El Niño/El Niña phenomenon, or due to climate changes that increase or decrease the extent and quantity of rainfall. The actual scale of these products, specifically raster size, and representativeness will remain an issue when countries have varied malaria seasons within small geographic areas.

5 Conclusion

This analysis demonstrates that malaria endemicity is a crucial factor to take into account when examining ITN ownership in countries with heterogeneous endemicity zones. Taking the population at risk of malaria into account through endemicity estimates is recommended to improve the monitoring of progress toward achieving national goals for preventing malaria and to inform in-country programmatic decision-making. When considering ITN ownership, using a national coverage estimate may not be optimal in countries where more than 15% of the population lives in no or low endemicity transmission zones. Countries with this type of heterogeneity could benefit from the approach presented in this report, where the GPS locations of the survey clusters are used to assign endemicity using the Malaria Atlas Project's malaria endemicity layers. Consideration of which data layer to use remains especially important in terms of timing of the data layer, as endemicity decreases due to interventions such as ITN coverage in areas that previously had high endemicity. As malaria intervention coverage continues to increase, and in theory the parasitemia burden in the population decreases, the actual risk of being infected by the parasite may not decrease at the same pace. This makes understanding the historical burden of malaria in a location important, as well as recognizing that changes in climate and other environmental factors might bring increased risk of malaria to areas that were previously at low risk.

Seasonality remains an influencing factor for ITN use that is little understood and difficult to analyze, especially in cross-sectional population-based surveys. Better geographic data on malaria seasons are needed, along with longitudinal ITN use studies, to help understand this issue. The current RBM recommendation of planning surveys to measure mosquito net use with seasonality in mind probably remains the best approach. This approach requires extensive in-country knowledge and survey planning in countries that have variations in their malaria seasons. Additionally, ITN use indicators should be expanded to include variations limited to households who own an ITN, to help focus on barriers to ITN use separately from the barriers to ITN ownership.

This analysis suggests that a basic approach to account for malaria endemicity and seasonality in ITN ownership and use is possible when geographic data on GPS locations are available from population-based surveys. Incorporating this approach into estimates of ITN coverage will help ensure that the highest-quality data are available to inform programmatic decisions in countries affected by malaria, particularly in sub-Saharan Africa.

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Appendix A: Ownership

Table A1. Percent distribution of households by MAP 2007 and MAP 2010 categories (4)

		Endemicity					
		No Malaria	Low (<5%)	Intermediate (5-<40%)	High (>40%)	Total	N
Angola MIS 2011	MAP 2007	12.7	-	62.4	24.8	100.0	7,753
	MAP 2010	3.9	-	72.5	23.6	100.0	7,753
DRC DHS 2007	MAP 2007	2.6	-	31.8	65.6	100.0	8,679
	MAP 2010	2.0	2.5	40.0	55.6	100.0	8,679
Ghana DHS 2008	MAP 2007	2.9	-	23.2	73.9	100.0	11,574
	MAP 2010	0.6	-	64.2	35.2	100.0	11,574
Kenya DHS 2008	MAP 2007	31.0	32.5	34.4	2.0	100.0	9,033
	MAP 2010	25.2	50.8	17.0	7.0	100.0	9,033
Liberia MIS 2011	MAP 2007	11.2	-	-	88.8	100.0	4,162
	MAP 2010	5.8	-	49.3	44.9	100.0	4,162
Madagascar DHS 2008	MAP 2007	8.9	-	64.4	26.7	100.0	17,578
	MAP 2010	5.8	-	52.8	41.4	100.0	17,578
Malawi DHS 2011	MAP 2007	-	-	44.4	55.6	100.0	24,210
	MAP 2010	-	-	56.7	43.3	100.0	24,210
Mali AMP 2010	MAP 2007	3.3	-	17.1	79.6	100.0	1,578
	MAP 2010	4.0	-	20.4	75.6	100.0	1,578
Namibia DHS 2006	MAP 2007	42.9	7.7	49.4	-	100.0	9,036
	MAP 2010	46.2	2.5	51.3	-	100.0	9,036
Nigeria MIS 2010	MAP 2007	0.8	-	14.8	84.4	100.0	5,895
	MAP 2010	0.9	-	25.8	73.3	100.0	5,895
Rwanda DHS 2011	MAP 2007	40.5	-	56.8	2.7	100.0	12,540
	MAP 2010	34.3	41.8	23.9	-	100.0	12,540
Senegal DHS 2010	MAP 2007	10.0	-	-	90.0	100.0	7,793
	MAP 2010	2.2	52.0	44.6	1.2	100.0	7,793
Sierra Leone DHS 2008	MAP 2007	2.0	-	17.0	81.0	100.0	7,224
	MAP 2010	-	-	44.2	55.8	100.0	7,224
Swaziland DHS 2006	MAP 2007	77.8	1.0	21.2	-	100.0	4,756
	MAP 2010	99.6	-	0.4	-	100.0	4,756
Tanzania DHS 2010	MAP 2007	5.1	10.8	60.4	23.8	100.0	9,282
	MAP 2010	2.2	24.9	62.8	10.0	100.0	9,282
Uganda MIS 2008	MAP 2007	7.1	-	61.2	31.7	100.0	4,421
	MAP 2010	4.5	-	38.6	56.9	100.0	4,421
Zambia DHS 2007	MAP 2007	0.0	-	99.7	0.3	100.0	7,164
	MAP 2010	0.0	16.2	80.6	3.2	100.0	7,164
Zimbabwe DHS 2010	MAP 2007	43.4	39.2	17.4	-	100.0	9,442
	MAP 2010	1.5	57.9	40.5	0.2	100.0	9,442

Table A2. Percent distribution of households by MARA categories

		Suitability				
		None (0%)	Low (<0 to <75%)	High (<=75%)	Total	N
Angola MIS 2011	MARA	0.5	56.1	43.3	100.0	7,753
DRC DHS 2007	MARA	2.3	11.2	86.5	100.0	8,679
Ghana DHS 2008	MARA	-	2.8	97.2	100.0	11,574
Kenya DHS 2008	MARA	23.2	58.8	17.9	100.0	9,033
Liberia MIS 2011	MARA	-	-	100.0	100.0	4,162
Madagascar DHS 2008	MARA	4.5	34.1	61.4	100.0	17,578
Malawi DHS 2010	MARA	0.5	25.2	74.3	100.0	24,210
Mali AMP 2010	MARA	-	7.1	92.9	100.0	1,578
Namibia DHS 2006	MARA	16.9	70.5	12.6	100.0	9,036
Nigeria MIS 2010	MARA	-	1.3	98.7	100.0	5,895
Rwanda DHS 2011	MARA	30.1	63.1	6.8	100.0	12,540
Senegal DHS 2010	MARA	-	4.1	95.9	100.0	7,780
Sierra Leone DHS 2008	MARA	0.5	-	99.5	100.0	7,224
Swaziland DHS 2006	MARA	1.2	28.2	70.6	100.0	4,756
Tanzania DHS 2010	MARA	3.8	23.3	72.8	100.0	9,282
Uganda MIS 2009	MARA	5.4	17.7	77.0	100.0	4,421
Zambia DHS 2007	MARA	1.1	16.1	82.8	100.0	7,164
Zimbabwe DHS 2010	MARA	1.2	49.6	49.2	100.0	9,442

Table A3. Percent of household ownership of at least 1 ITN and 1 ITN for every 2 people for all countries

	At least 1 ITN	At least 1 ITN for every 2 people	N
Angola MIS 2011	34.6	6.3	7,753
DRC DHS 2007	9.2	1.4	8,679
Ghana DHS 2008	41.7	17.1	11,574
Kenya DHS 2008	55.7	27.2	9,033
Liberia MIS 2011	49.7	17.1	4,162
Madagascar DHS 2008	57.2	18.7	17,578
Malawi DHS 2010	56.9	19.9	24,210
Mali AMP 2010	86.3	33.0	1,578
Namibia DHS 2006	20.3	6.5	9,036
Nigeria MIS 2010	41.5	14.2	5,895
Rwanda DHS 2011	82.0	40.4	12,540
Senegal DHS 2010	62.9	17.1	7,780
Sierra Leone DHS 2008	36.4	6.6	7,224
Swaziland DHS 2006	4.2	0.9	4,756
Tanzania DHS 2010	63.7	22.8	9,282
Uganda MIS 2009	46.7	16.4	4,421
Zambia DHS 2007	53.3	18.1	7,164
Zimbabwe DHS 2010	28.4	12.1	9,442

* Each column is independent not a % across a single row

Table A4. Percent of household ownership of at least 1 ITN by MAP 2007 endemicity categories (4) and by Urban-Rural residence

		Endemicity										
		No Malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	36.9	[32.2,41.6]	-	-	33.2	[29.4,37.1]	36.8	[32.0,41.5]	34.6	[31.8,37.3]	7,699
	Urban	*	*	-	-	30.2	[25.0,35.4]	36.6	[30.9,42.3]	32.1	[28.0,36.2]	4,759
Angola MIS 2011	Rural	37.1	[32.3,41.8]	-	-	40.1	[36.1,44.0]	37.3	[28.6,46.0]	38.6	[35.8,41.5]	2,939
	Total	1.9	[0.2,3.6]	-	-	7.3	[5.3,9.3]	10.5	[8.6,12.4]	9.2	[7.8,10.6]	8,758
	Urban	1.9	[0.2,3.6]	-	-	6.4	[3.1,9.7]	7.9	[5.8,10.0]	7.2	[5.5,8.9]	5,243
DRC DHS 2007	Rural	-	-	-	-	8.2	[6.2,10.3]	15.0	[12.1,17.8]	12.3	[10.3,14.3]	3,515
	Total	31.9	[23.5,40.3]	-	-	30.6	[27.8,33.4]	45.5	[43.6,47.5]	41.7	[40.1,43.3]	11,603
	Urban	(26.7)	[26.7,26.7]	-	-	35.3	[27.4,43.1]	49.0	[46.5,51.4]	48.0	[45.6,50.4]	6,081
Ghana DHS 2008	Rural	32.5	[23.1,42.0]	-	-	29.9	[26.9,33.0]	38.7	[35.8,41.7]	34.7	[32.6,36.7]	5,521
	Total	38.2	[31.6,44.7]	58.3	[54.4,62.2]	67.9	[63.8,71.9]	73.5	[67.0,80.0]	55.7	[52.7,58.7]	9,033
	Urban	35.9	[28.0,43.8]	58.6	[53.4,63.8]	66.9	[62.7,71.1]	73.4	[66.9,79.9]	54.9	[51.5,58.3]	6,682
Kenya DHS 2008	Rural	44.9	[31.9,58.0]	57.8	[52.5,63.1]	71.5	[59.4,83.7]	*	*	57.8	[51.1,64.5]	2,350
	Total	46.6	[34.5,58.8]	-	-	-	-	50.0	[46.3,53.8]	49.7	[46.1,53.3]	4,162
	Urban	(76.7)	[76.7,76.7]	-	-	-	-	47.1	[41.9,52.3]	47.2	[42.0,52.4]	2,104
Liberia MIS 2011	Rural	46.0	[33.5,58.5]	-	-	-	-	53.9	[49.0,58.9]	52.2	[47.2,57.1]	2,058
	Total	26.1	[17.3,34.9]	-	-	52.3	[49.7,54.9]	79.5	[77.1,81.8]	57.2	[55.5,58.9]	17,644
Madagascar DHS	Urban	10.4	[3.4,17.4]	-	-	52.5	[49.5,55.5]	79.3	[76.7,81.9]	56.6	[54.6,58.6]	14,974
2008	Rural	82.9	[78.2,87.6]	-	-	51.1	[47.8,54.5]	81.0	[77.3,84.8]	60.8	[58.1,63.5]	2,669
	Total	-	-	-	-	59.2	[57.5,61.0]	55.0	[53.2,56.7]	56.9	[55.6,58.1]	24,202
	Urban	-	-	-		57.0	[54.9,59.0]	54.6	[52.8,56.4]	55.4	[54.1,56.8]	20,275
Malawi DHS 2011	Rural	-	-	-	-	64.0	[60.5,67.5]	66.0	[57.5,74.4]	64.2	[61.0,67.4]	3,927
	Total	61.3	[53.2,69.4]	-	-	88.6	[83.2,94.0]	86.8	[83.9,89.8]	86.3	[83.6,89.0]	1,586
	Urban	63.9	[56.6,71.2]	-	-	88.5	[82.3,94.8]	86.7	[82.9,90.5]	86.2	[82.8,89.5]	1,244
Mali AMP 2010	Rural	33.3	[33.3,33.3]	-	-	89.2	[83.5,94.9]	87.3	[84.1,90.6]	86.8	[83.6,90.1]	341
	Total	4.6	[3.5,5.7]	19.5	[14.8,24.3]	34.0	[31.9,36.1]	-	-	20.3	[19.0,21.6]	9,031
	Urban	7.6	[5.1,10.0]	19.6	[9.8,29.4]	-	-	34.0	[31.6,36.3]	28.7	[26.7,30.7]	4,870
Namibia DHS 2006	Rural	3.8	[2.6,5.1]	19.5	[15.8,23.2]	34.1	[30.2,38.0]	-	-	10.4	[9.1,11.7]	4,161
	Total	32.9	[5.1,60.6]	-	-	47.9	[37.9,58.0]	40.5	[35.5,45.5]	41.5	[37.1,45.9]	5,895
	Urban	56.0	[56.0,56.0]	-	-	53.0	[34.5,71.5]	44.1	[38.2,50.1]	45.0	[39.4,50.6]	4,175
Nigeria MIS 2010	Rural	(15.4)	[15.4,15.4]	-	-	43.9	[32.8,55.0]	29.1	[20.9,37.3]	33.1	[26.5,39.6]	1,720
	Total	73.6	[71.5,75.7]	-	-	87.5	[86.4,88.7]	91.2	[89.6,92.8]	82.0	[81.0,82.9]	12,540
	Urban	73.3	[71.1,75.5]	-		87.8	[86.4,89.1]	91.5	[89.8,93.1]	81.6	[80.5,82.7]	10,781
Rwanda DHS 2011	Rural	76.5	[70.3,82.7]	-	-	86.6	[84.5,88.7]	(88.5)	[88.5,88.5]	84.5	[82.2,86.7]	1,759

(Continued...)

Table A4. – *Continued*

		Endemicity										
		No Malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	29.2	[15.5,43.0]	-	-	66.6	[63.6,69.6]	-	-	62.9	[59.7,66.0]	7,793
	Urban	-	-	-	-	73.4	[70.5,76.3]	-	-	73.4	[70.5,76.3]	3,929
Senegal DHS 2010	Rural	29.2	[15.4,43.1]	-	-	57.9	[52.8,63.1]	-	-	52.2	[46.9,57.4]	3,864
	Total	31.6	[23.1,40.0]	-	-	31.9	[26.9,36.8]	37.5	[34.9,40.2]	36.4	[34.1,38.7]	7,230
Sierra Leone DHS	Urban	35.1	[20.8,49.5]	-	-	28.4	[20.0,36.8]	36.8	[33.8,39.9]	36.6	[33.7,39.6]	4,794
2008	Rural	26.8	[21.8,31.8]	-	-	32.2	[26.8,37.5]	40.0	[34.9,45.1]	36.1	[32.4,39.7]	2,436
	Total	51.2	[42.2,60.2]	54.8	[49.4,60.2]	64.3	[61.8,66.7]	69.1	[66.1,72.1]	63.7	[62.0,65.5]	9,352
	Urban	47.4	[37.4,57.3]	53.2	[45.2,61.1]	63.8	[60.7,66.9]	69.0	[65.7,72.3]	63.4	[61.3,65.6]	6,938
Tanzania DHS 2010	Rural	64.2	[55.1,73.2]	57.2	[50.6,63.8]	65.5	[61.8,69.1]	69.8	[62.0,77.5]	64.6	[61.7,67.4]	2,414
	Total	42.3	[34.0,50.5]	-	-	50.8	[45.4,56.2]	39.6	[33.8,45.5]	46.7	[42.7,50.6]	4,421
	Urban	42.3	[34.0,50.5]	-	-	51.2	[45.0,57.5]	38.5	[31.1,45.8]	46.7	[42.2,51.2]	3,711
Uganda MIS 2008	Rural	-	-	-	-	48.4	[41.4,55.3]	43.8	[33.5,54.1]	46.4	[39.3,53.4]	710
	Total	-	-	-	-	53.2	[50.7,55.7]	*	*	53.3	[50.8,55.8]	7,164
	Urban	-	-	-	-	53.6	[50.2,56.9]	*	*	53.7	[50.4,57.1]	4,685
Zambia DHS 2007	Rural	-	-	-	-	52.6	[49.2,55.9]	-	-	52.6	[49.2,55.9]	2,479
	Total	17.3	[14.7,19.8]	28.5	[24.0,32.9]	55.9	[47.5,64.4]	-	-	28.4	[25.6,31.2]	9,467
	Urban	13.8	[8.3,19.2]	27.8	[22.6,33.0]	56.9	[48.0,65.8]	-	-	31.4	[27.3,35.5]	6,249
Zimbabwe DHS 2010	Rural	19.5	[17.3,21.8]	31.6	[25.0,38.1]	38.7	[19.4,58.0]	-	-	22.5	[20.2,24.7]	3,217

Table A5. Percent of household ownership of at least 1 ITN by MAP 2007 endemicity categories (2) and by Urban-Rural residence

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	36.9	[32.2,41.6]	34.2	[31.2,37.3]	34.6	[31.8,37.3]	7,699
	Urban	*	*	32.1	[28.0,36.2]	32.1	[28.0,36.2]	4,759
Angola MIS 2011	Rural	37.1	[32.3,41.8]	39.4	[35.7,43.1]	38.6	[35.8,41.5]	2,939
	Total	1.9	[0.2,3.6]	9.4	[8.0,10.9]	9.2	[7.8,10.6]	8,758
	Urban	1.9	[0.2,3.6]	7.5	[5.7,9.3]	7.2	[5.5,8.9]	5,243
DRC DHS 2007	Rural	-	-	12.3	[10.3,14.3]	12.3	[10.3,14.3]	3,515
	Total	31.9	[23.5,40.3]	42.0	[40.3,43.6]	41.7	[40.1,43.3]	11,603
	Urban	(26.7)	[26.7,26.7]	48.2	[45.7,50.6]	48.0	[45.6,50.4]	6,081
Ghana DHS 2008	Rural	32.5	[23.1,42.0]	34.8	[32.7,36.9]	34.7	[32.6,36.7]	5,521
	Total	48.5	[44.3,52.7]	68.2	[64.3,72.0]	55.7	[52.7,58.7]	9,033
	Urban	46.8	[41.6,51.9]	67.3	[63.4,71.3]	54.9	[51.5,58.3]	6,682
Kenya DHS 2008	Rural	52.5	[44.9,60.1]	71.6	[59.5,83.7]	57.8	[51.1,64.5]	2,350
	Total	46.6	[34.5,58.8]	50.0	[46.3,53.8]	49.7	[46.1,53.3]	4,162
	Urban	(76.7)	[76.7,76.7]	47.1	[41.9,52.3]	47.2	[42.0,52.4]	2,104
Liberia MIS 2011	Rural	46.0	[33.5,58.5]	53.9	[49.0,58.9]	52.2	[47.2,57.1]	2,058
	Total	26.1	[17.3,34.9]	60.3	[58.2,62.3]	57.2	[55.5,58.9]	17,644
	Urban	10.4	[3.4,17.4]	60.7	[58.4,63.1]	56.6	[54.6,58.6]	14,974
Madagascar DHS 2008	Rural	82.9	[78.2,87.6]	57.5	[54.4,60.7]	60.8	[58.1,63.5]	2,669
	Total	-	-	56.9	[55.6,58.1]	56.9	[55.6,58.1]	24,202
	Urban	-	-	55.4	[54.1,56.8]	55.4	[54.1,56.8]	20,275
Malawi DHS 2011	Rural	-	-	64.2	[61.0,67.4]	64.2	[61.0,67.4]	3,927
	Total	61.3	[53.2,69.4]	87.2	[84.5,89.8]	86.3	[83.6,89.0]	1,586
	Urban	63.9	[56.6,71.2]	87.0	[83.7,90.4]	86.2	[82.8,89.5]	1,244
Mali AMP 2010	Rural	*	*	87.5	[84.6,90.5]	86.8	[83.6,90.1]	341
	Total	6.9	[5.7,8.1]	34.0	[31.9,36.1]	20.3	[19.0,21.6]	9,031
	Urban	10.8	[7.7,14.0]	34.0	[31.6,36.3]	28.7	[26.7,30.7]	4,870
Namibia DHS 2006	Rural	5.6	[4.4,6.8]	34.1	[30.2,38.0]	10.4	[9.1,11.7]	4,161
	Total	32.9	[5.1,60.6]	41.6	[37.2,46.0]	41.5	[37.1,45.9]	5,895
	Urban	*	*	45.0	[39.4,50.6]	45.0	[39.4,50.6]	4,175
Nigeria MIS 2010	Rural	(15.4)	[15.4,15.4]	33.3	[26.6,40.0]	33.1	[26.5,39.6]	1,720
	Total	73.6	[71.5,75.7]	87.7	[86.6,88.8]	82.0	[81.0,82.9]	12,540
	Urban	73.3	[71.1,75.5]	87.9	[86.6,89.3]	81.6	[80.5,82.7]	10,781
Rwanda DHS 2011	Rural	76.5	[70.3,82.7]	86.6	[84.6,88.7]	84.5	[82.2,86.7]	1,759
	Total	29.2	[15.5,43.0]	66.6	[63.6,69.6]	62.9	[59.7,66.0]	7,793
	Urban	-	-	73.4	[70.5,76.3]	73.4	[70.5,76.3]	3,929
Senegal DHS 2010	Rural	29.2	[15.4,43.1]	57.9	[52.8,63.1]	52.2	[46.9,57.4]	3,864
	Total	31.6	[23.1,40.0]	36.5	[34.2,38.9]	36.4	[34.1,38.7]	7,230
	Urban	35.1	[20.8,49.5]	36.7	[33.7,39.7]	36.6	[33.7,39.6]	4,794
Sierra Leone DHS 2008	Rural	26.8	[21.8,31.8]	36.3	[32.5,40.1]	36.1	[32.4,39.7]	2,436
	Total	53.7	[49.2,58.1]	65.6	[63.8,67.5]	63.7	[62.0,65.5]	9,352
	Urban	50.9	[44.9,57.0]	65.4	[63.2,67.7]	63.4	[61.3,65.6]	6,938
Tanzania DHS 2010	Rural	58.6	[52.7,64.6]	66.2	[63.0,69.5]	64.6	[61.7,67.4]	2,414
	Total	42.3	[34.0,50.5]	47.0	[42.8,51.2]	46.7	[42.7,50.6]	4,421
	Urban	42.3	[34.0,50.5]	47.1	[42.3,52.0]	46.7	[42.2,51.2]	3,711
Uganda MIS 2008	Rural	-	-	46.4	[39.3,53.4]	46.4	[39.3,53.4]	710
	Total	-	-	53.3	[50.8,55.8]	53.3	[50.8,55.8]	7,164
	Urban	-	-	53.7	[50.4,57.1]	53.7	[50.4,57.1]	4,685
Zambia DHS 2007	Rural	-	-	52.6	[49.2,55.9]	52.6	[49.2,55.9]	2,479
	Total	22.6	[20.0,25.1]	55.9	[47.5,64.4]	28.4	[25.6,31.2]	9,467
	Urban	22.9	[18.9,26.9]	56.9	[48.0,65.8]	31.4	[27.3,35.5]	6,249
Zimbabwe DHS 2010	Rural	22.0	[19.8,24.3]	38.7	[19.4,58.0]	22.5	[20.2,24.7]	3,217

Table A6. Percent of household ownership of at least 1 ITN by MAP 2010 endemicity categories (4) and by Urban-Rural residence

		Endemicity										
		No malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	51.4	[43.9,58.8]	-	-	35.0	[31.7,38.4]	30.4	[25.6,35.2]	34.6	[31.8,37.3]	7,699
	Urban	55.1	[42.0,68.1]	-	-	31.9	[26.3,37.6]	30.3	[25.2,35.5]	32.1	[28.0,36.2]	4,759
Angola MIS 2011	Rural	48.0	[46.6,49.4]	-	-	38.4	[35.3,41.6]	31.2	[22.7,39.8]	38.6	[35.8,41.5]	2,939
	Total	1.6	[-0.4,3.6]	4.7	[2.4,7.0]	10.5	[8.3,12.8]	8.8	[6.7,10.9]	9.2	[7.8,10.6]	8,758
	Urban	1.6	[-0.5,3.6]	3.6	[2.3,4.8]	7.1	[3.6,10.6]	7.7	[5.4,9.9]	7.2	[5.5,8.9]	5,243
DRC DHS 2007	Rural	(3.3)	[3.3,3.3]	5.4	[1.7,9.1]	13.9	[11.6,16.2]	11.1	[7.4,14.8]	12.3	[10.3,14.3]	3,515
	Total	24.3	[9.3,39.3]	-	-	36.3	[34.5,38.2]	51.7	[48.8,54.5]	41.7	[40.1,43.3]	11,603
	Urban	-	-	-	-	41.8	[38.4,45.1]	54.2	[50.8,57.5]	48.0	[45.6,50.4]	6,081
Ghana DHS 2008	Rural	24.3	[9.3,39.4]	-	-	32.6	[30.5,34.8]	44.1	[38.8,49.4]	34.7	[32.6,36.7]	5,521
	Total	36.6	[30.6,42.7]	58.3	[53.7,62.8]	68.8	[64.0,73.7]	73.3	[67.8,78.9]	55.7	[52.7,58.7]	9,033
	Urban	26.0	[18.8,33.3]	58.6	[54.2,63.0]	67.4	[62.1,72.7]	72.5	[66.4,78.5]	54.9	[51.5,58.3]	6,682
Kenya DHS 2008	Rural	51.9	[45.7,58.1]	57.3	[44.8,69.9]	76.8	[66.9,86.7]	80.4	[76.1,84.7]	57.8	[51.1,64.5]	2,350
	Total	53.5	[35.9,71.1]	-	-	50.2	[45.6,54.8]	48.6	[42.6,54.5]	49.7	[46.1,53.3]	4,162
	Urban	(76.7)	[76.7,76.7]	-	-	49.0	[42.1,55.9]	46.3	[39.4,53.2]	47.2	[42.0,52.4]	2,104
Liberia MIS 2011	Rural	52.6	[34.2,70.9]	-	-	50.7	[44.8,56.7]	57.3	[47.5,67.0]	52.2	[47.2,57.1]	2,058
	Total	15.2	[4.5,26.0]	-	-	45.6	[42.6,48.5]	78.0	[76.1,79.9]	57.2	[55.5,58.9]	17,644
	Urban	11.0	[1.0,20.9]	-	-	44.6	[41.0,48.2]	77.3	[75.1,79.4]	56.6	[54.6,58.6]	14,974
Madagascar DHS 2008	Rural	84.0	[78.8,89.3]	-	-	49.5	[46.2,52.8]	83.5	[80.6,86.3]	60.8	[58.1,63.5]	2,669
	Total	-	-	-	-	55.1	[53.4,56.9]	59.1	[57.5,60.8]	56.9	[55.6,58.1]	24,202
	Urban	-	-	-	-	52.6	[50.5,54.7]	58.4	[56.7,60.1]	55.4	[54.1,56.8]	20,275
Malawi DHS 2011	Rural	-	-	-	-	62.8	[59.3,66.4]	73.8	[69.5,78.0]	64.2	[61.0,67.4]	3,927
	Total	77.4	[63.8,91.1]	-	-	84.1	[79.8,88.5]	87.4	[84.2,90.6]	86.3	[83.6,89.0]	1,586
	Urban	75.5	[60.0,91.0]	-	-	82.3	[74.5,90.2]	87.2	[83.6,90.8]	86.2	[82.8,89.5]	1,244
Mali AMP 2010	Rural	(95.1)	[91.3,98.9]	-	-	85.2	[80.0,90.5]	88.9	[86.4,91.4]	86.8	[83.6,90.1]	341
	Total	7.3	[5.8,8.8]	46.0	[37.1,54.8]	30.7	[28.7,32.8]	-	-	20.3	[19.0,21.6]	9,031
	Urban	15.1	[11.3,18.8]	(52.6)	[42.9,62.4]	32.0	[29.5,34.4]	-	-	28.7	[26.7,30.7]	4,870
Namibia DHS 2006	Rural	4.7	[3.4,6.1]	43.3	[32.9,53.8]	25.3	[22.0,28.6]	-	-	10.4	[9.1,11.7]	4,161
	Total	19.5	[-11.9,50.8]	-	-	39.0	[30.5,47.4]	42.7	[37.2,48.2]	41.5	[37.1,45.9]	5,895
	Urban	-	-	-	-	48.9	[36.4,61.3]	44.1	[37.7,50.6]	45.0	[39.4,50.6]	4,175
Nigeria MIS 2010	Rural	19.5	[-12.3,51.2]	-	-	28.2	[17.3,39.0]	37.6	[27.5,47.7]	33.1	[26.5,39.6]	1,720
	Total	72.0	[69.7,74.3]	85.5	[84.0,87.0]	90.2	[88.6,91.8]	-	-	82.0	[81.0,82.9]	12,540
	Urban	71.9	[69.5,74.3]	85.5	[83.6,87.4]	90.2	[88.5,91.9]	-	-	81.6	[80.5,82.7]	10,781
Rwanda DHS 2011	Rural	74.0	[67.4,80.5]	85.5	[83.1,87.9]	89.6	[85.0,94.2]	-	-	84.5	[82.2,86.7]	1,759

(Continued...)

Table A6. – *Continued*

		Endemicity										
		No malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	61.7	[46.9,76.4]	50.6	[45.5,55.8]	76.5	[73.5,79.6]	87.3	[74.1,100.5]	62.9	[59.7,66.0]	7,793
	Urban	-	-	67.6	[61.6,73.5]	75.6	[72.1,79.0]	87.3	[74.1,100.5]	73.4	[70.5,76.3]	3,929
Senegal DHS 2010	Rural	61.7	[46.9,76.5]	43.4	[36.7,50.1]	79.5	[73.1,85.9]	-	-	52.2	[46.9,57.4]	3,864
	Total	-	-	-	-	33.5	[30.2,36.8]	38.8	[35.6,42.0]	36.4	[34.1,38.7]	7,230
Sierra Leone DHS 2008	Urban	-	-	-	-	33.8	[28.9,38.6]	37.9	[34.2,41.6]	36.6	[33.7,39.6]	4,794
	Rural	-	-	-	-	33.3	[28.8,37.7]	42.9	[37.4,48.3]	36.1	[32.4,39.7]	2,436
	Total	54.1	[45.7,62.4]	54.5	[50.1,58.9]	67.2	[65.1,69.4]	66.8	[61.3,72.3]	63.7	[62.0,65.5]	9,352
	Urban	53.6	[44.2,62.9]	51.1	[44.8,57.4]	67.5	[64.9,70.1]	66.4	[60.8,72.0]	63.4	[61.3,65.6]	6,938
Tanzania DHS 2010	Rural	57.9	[57.9,57.9]	60.7	[55.8,65.5]	66.5	[62.7,70.3]	(79.4)	[69.0,89.7]	64.6	[61.7,67.4]	2,414
	Total	38.7	[30.5,46.8]	-	-	54.6	[48.8,60.4]	41.9	[36.1,47.6]	46.7	[42.7,50.6]	4,421
	Urban	38.7	[30.5,46.9]	-	-	56.6	[49.6,63.7]	41.2	[34.6,47.8]	46.7	[42.2,51.2]	3,711
Uganda MIS 2008	Rural	-	-	-	-	46.6	[39.7,53.6]	46.1	[34.3,58.0]	46.4	[39.3,53.4]	710
	Total	-	-	48.4	[43.6,53.3]	53.2	[50.3,56.1]	80.6	[63.2,97.9]	53.3	[50.8,55.8]	7,164
	Urban	-	-	46.9	[32.0,61.8]	52.6	[49.0,56.1]	81.4	[62.0,100.7]	53.7	[50.4,57.1]	4,685
Zambia DHS 2007	Rural	-	-	48.6	[43.4,53.7]	55.2	[50.6,59.8]	(73.1)	[65.9,80.3]	52.6	[49.2,55.9]	2,479
	Total	13.8	[13.0,14.6]	16.2	[14.2,18.2]	46.2	[40.9,51.5]	*	*	28.4	[25.6,31.2]	9,467
	Urban	13.8	[13.0,14.6]	11.9	[8.5,15.4]	46.6	[40.9,52.4]	*	*	31.4	[27.3,35.5]	6,249
Zimbabwe DHS 2010	Rural	-	-	20.1	[18.1,22.1]	42.0	[31.1,53.0]	-	-	22.5	[20.2,24.7]	3,217

Table A7. Percent of household ownership of at least 1 ITN by MAP 2010 endemicity categories (2) and by Urban-Rural residence

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
Angola MIS 2011	Total	51.4	[43.9,58.8]	33.9	[31.1,36.7]	34.6	[31.8,37.3]	7,699
	Urban	55.1	[42.0,68.1]	31.4	[27.3,35.4]	32.1	[28.0,36.2]	4,759
	Rural	48.0	[46.6,49.4]	38.1	[35.0,41.1]	38.6	[35.8,41.5]	2,939
DRC DHS 2007	Total	3.3	[1.7,4.9]	9.5	[8.1,11.0]	9.2	[7.8,10.6]	8,758
	Urban	2.2	[0.6,3.8]	7.5	[5.7,9.3]	7.2	[5.5,8.9]	5,243
	Rural	5.3	[1.7,9.0]	12.5	[10.5,14.6]	12.3	[10.3,14.3]	3,515
Ghana DHS 2008	Total	24.3	[9.3,39.3]	41.8	[40.2,43.4]	41.7	[40.1,43.3]	11,603
	Urban	-	-	48.0	[45.6,50.4]	48.0	[45.6,50.4]	6,081
	Rural	24.3	[9.3,39.4]	34.8	[32.7,36.9]	34.7	[32.6,36.7]	5,521
Kenya DHS 2008	Total	51.1	[47.4,54.8]	70.1	[66.3,74.0]	55.7	[52.7,58.7]	9,033
	Urban	49.5	[45.0,54.0]	68.9	[64.8,73.1]	54.9	[51.5,58.3]	6,682
	Rural	54.9	[47.9,61.8]	77.6	[69.8,85.4]	57.8	[51.1,64.5]	2,350
Liberia MIS 2011	Total	53.5	[35.9,71.1]	49.4	[45.8,53.1]	49.7	[46.1,53.3]	4,162
	Urban	(76.7)	[76.7,76.7]	47.1	[41.9,52.3]	47.2	[42.0,52.4]	2,104
	Rural	52.6	[34.2,70.9]	52.1	[47.1,57.2]	52.2	[47.2,57.1]	2,058
Madagascar DHS 2008	Total	15.2	[4.5,26.0]	59.8	[57.8,61.8]	57.2	[55.5,58.9]	17,644
	Urban	11.0	[1.0,20.9]	59.7	[57.4,62.0]	56.6	[54.6,58.6]	14,974
	Rural	84.0	[78.8,89.3]	60.3	[57.5,63.0]	60.8	[58.1,63.5]	2,669
Malawi DHS 2011	Total	-	-	56.9	[55.6,58.1]	56.9	[55.6,58.1]	24,202
	Urban	-	-	55.4	[54.1,56.8]	55.4	[54.1,56.8]	20,275
	Rural	-	-	64.2	[61.0,67.4]	64.2	[61.0,67.4]	3,927
Mali AMP 2010	Total	77.4	[63.8,91.1]	86.7	[84.0,89.4]	86.3	[83.6,89.0]	1,586
	Urban	75.5	[60.0,91.0]	86.7	[83.3,90.1]	86.2	[82.8,89.5]	1,244
	Rural	(95.1)	[91.3,98.9]	86.7	[83.4,90.0]	86.8	[83.6,90.1]	341
Namibia DHS 2006	Total	9.3	[7.5,11.0]	30.7	[28.7,32.8]	20.3	[19.0,21.6]	9,031
	Urban	17.3	[12.8,21.8]	32.0	[29.5,34.4]	28.7	[26.7,30.7]	4,870
	Rural	6.6	[5.2,8.0]	25.3	[22.0,28.6]	10.4	[9.1,11.7]	4,161
Nigeria MIS 2010	Total	19.5	[-11.9,50.8]	41.7	[37.3,46.2]	41.5	[37.1,45.9]	5,895
	Urban	-	-	45.0	[39.4,50.6]	45.0	[39.4,50.6]	4,175
	Rural	19.5	[-12.3,51.2]	33.5	[26.7,40.3]	33.1	[26.5,39.6]	1,720
Rwanda DHS 2011	Total	79.4	[78.2,80.6]	90.2	[88.6,91.8]	82.0	[81.0,82.9]	12,540
	Urban	78.5	[77.0,79.9]	90.2	[88.5,91.9]	81.6	[80.5,82.7]	10,781
	Rural	84.0	[81.6,86.5]	89.6	[85.0,94.2]	84.5	[82.2,86.7]	1,759
Senegal DHS 2010	Total	51.1	[46.1,56.0]	76.8	[73.9,79.8]	62.9	[59.7,66.0]	7,793
	Urban	67.6	[61.6,73.5]	76.0	[72.6,79.3]	73.4	[70.5,76.3]	3,929
	Rural	44.5	[38.1,50.8]	79.5	[73.1,85.9]	52.2	[46.9,57.4]	3,864
Sierra Leone DHS 2008	Total	-	-	36.4	[34.1,38.7]	36.4	[34.1,38.7]	7,230
	Urban	-	-	36.6	[33.7,39.6]	36.6	[33.7,39.6]	4,794
	Rural	-	-	36.1	[32.4,39.7]	36.1	[32.4,39.7]	2,436
Tanzania DHS 2010	Total	54.5	[50.4,58.5]	67.2	[65.3,69.1]	63.7	[62.0,65.5]	9,352
	Urban	51.4	[45.7,57.0]	67.3	[65.1,69.5]	63.4	[61.3,65.6]	6,938
	Rural	60.6	[55.9,65.3]	66.8	[63.0,70.5]	64.6	[61.7,67.4]	2,414
Uganda MIS 2008	Total	38.7	[30.5,46.8]	47.0	[43.0,51.1]	46.7	[42.7,50.6]	4,421
	Urban	38.7	[30.5,46.9]	47.2	[42.5,51.9]	46.7	[42.2,51.2]	3,711
	Rural	-	-	46.4	[39.3,53.4]	46.4	[39.3,53.4]	710
Zambia DHS 2007	Total	48.4	[43.6,53.3]	54.3	[51.5,57.1]	53.3	[50.8,55.8]	7,164
	Urban	46.9	[32.0,61.8]	53.9	[50.5,57.3]	53.7	[50.4,57.1]	4,685
	Rural	48.6	[43.4,53.7]	55.5	[51.0,60.1]	52.6	[49.2,55.9]	2,479
Zimbabwe DHS 2010	Total	16.1	[14.2,18.1]	46.2	[40.9,51.5]	28.4	[25.6,31.2]	9,467
	Urban	12.0	[8.7,15.3]	46.6	[40.9,52.4]	31.4	[27.3,35.5]	6,249
	Rural	20.1	[18.1,22.1]	42.0	[31.1,53.0]	22.5	[20.2,24.7]	3,217

Table A8. Percent of household ownership of at least 1 ITN by MARA suitability categories and by Urban-Rural residence

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
Angola MIS 2011	Total	48.5	[46.2,50.7]	36.1	[32.3,39.8]	32.5	[28.4,36.5]	34.6	[31.8,37.3]	7,699
	Urban	-	-	33.3	[25.2,41.3]	31.4	[27.1,35.7]	32.1	[28.0,36.2]	4,759
	Rural	48.5	[46.2,50.8]	38.1	[35.2,41.0]	41.2	[30.0,52.5]	38.6	[35.8,41.5]	2,939
DRC DHS 2007	Total	1.1	[-0.6,2.9]	4.9	[2.8,7.1]	10.0	[8.4,11.6]	9.2	[7.8,10.6]	8,758
	Urban	1.1	[-0.6,2.9]	2.1	[0.2,4.1]	8.2	[6.2,10.2]	7.2	[5.5,8.9]	5,243
	Rural	(3.3)	[3.3,3.3]	9.8	[6.5,13.0]	12.5	[10.4,14.7]	12.3	[10.3,14.3]	3,515
Ghana DHS 2008	Total	-	-	28.8	[22.3,35.4]	42.0	[40.4,43.7]	41.7	[40.1,43.3]	11,603
	Urban	-	-	(34.6)	[34.6,34.6]	48.1	[45.6,50.5]	48.0	[45.6,50.4]	6,081
	Rural	-	-	28.4	[21.4,35.4]	35.0	[32.9,37.2]	34.7	[32.6,36.7]	5,521
Kenya DHS 2008	Total	33.8	[26.8,40.9]	59.8	[56.8,62.9]	70.2	[64.5,75.9]	55.7	[52.7,58.7]	9,033
	Urban	30.4	[21.7,39.1]	59.9	[56.2,63.6]	71.1	[65.7,76.5]	54.9	[51.5,58.3]	6,682
	Rural	43.1	[28.5,57.8]	59.6	[54.6,64.5]	68.6	[56.1,81.1]	57.8	[51.1,64.5]	2,350
Liberia MIS 2011	Total	-	-	-	-	49.7	[46.1,53.3]	49.7	[46.1,53.3]	4,162
	Urban	-	-	-	-	47.2	[42.0,52.4]	47.2	[42.0,52.4]	2,104
	Rural	-	-	-	-	52.2	[47.2,57.1]	52.2	[47.2,57.1]	2,058
Madagascar DHS 2008	Total	46.9	[30.2,63.6]	31.4	[27.6,35.3]	72.3	[70.4,74.2]	57.2	[55.5,58.9]	17,644
	Urban	24.6	[4.4,44.9]	28.7	[23.9,33.5]	71.5	[69.5,73.6]	56.6	[54.6,58.6]	14,974
	Rural	80.9	[75.9,85.8]	41.3	[37.5,45.0]	79.2	[76.7,81.7]	60.8	[58.1,63.5]	2,669
Malawi DHS 2011	Total	52.6	[43.2,62.1]	57.2	[54.2,60.2]	56.8	[55.4,58.1]	56.9	[55.6,58.1]	24,202
	Urban	51.7	[42.2,61.3]	54.3	[50.8,57.7]	55.9	[54.4,57.3]	55.4	[54.1,56.8]	20,275
	Rural	89.5	[89.5,89.5]	69.9	[65.4,74.3]	61.8	[58.0,65.7]	64.2	[61.0,67.4]	3,927
Mali AMP 2010	Total	-	-	81.2	[70.3,92.0]	86.7	[83.9,89.5]	86.3	[83.6,89.0]	1,586
	Urban	-	-	82.7	[70.9,94.5]	86.5	[83.0,89.9]	86.2	[82.8,89.5]	1,244
	Rural	-	-	72.9	[49.1,96.7]	87.6	[84.6,90.6]	86.8	[83.6,90.1]	341
Namibia DHS 2006	Total	7.1	[5.1,9.2]	20.8	[19.0,22.6]	35.0	[31.0,39.1]	20.3	[19.0,21.6]	9,031
	Urban	13.1	[9.4,16.8]	28.5	[26.0,31.1]	41.0	[35.7,46.3]	28.7	[26.7,30.7]	4,870
	Rural	3.7	[1.0,6.5]	11.0	[9.4,12.7]	23.2	[18.8,27.6]	10.4	[9.1,11.7]	4,161
Nigeria MIS 2010	Total	-	-	30.0	[22.2,37.9]	41.7	[37.2,46.1]	41.5	[37.1,45.9]	5,895
	Urban	-	-	28.1	[17.7,38.6]	45.3	[39.6,50.9]	45.0	[39.4,50.6]	4,175
	Rural	-	-	(35.0)	[34.5,35.4]	33.0	[26.4,39.7]	33.1	[26.5,39.6]	1,720
Rwanda DHS 2011	Total	71.0	[68.4,73.6]	86.9	[85.7,88.0]	85.4	[81.3,89.4]	82.0	[81.0,82.9]	12,540
	Urban	70.8	[68.1,73.5]	87.0	[85.7,88.3]	85.7	[80.2,91.1]	81.6	[80.5,82.7]	10,781
	Rural	73.7	[67.6,79.9]	86.1	[83.6,88.5]	84.8	[78.9,90.7]	84.5	[82.2,86.7]	1,759
Senegal DHS 2010	Total	-	-	74.1	[64.6,83.7]	62.4	[59.1,65.6]	62.9	[59.7,66.0]	7,793
	Urban	-	-	79.1	[69.8,88.4]	73.2	[70.3,76.2]	73.4	[70.5,76.3]	3,929
	Rural	-	-	71.7	[57.9,85.4]	51.0	[45.5,56.5]	52.2	[46.9,57.4]	3,864
Sierra Leone DHS 2008	Total	(41.0)	[37.4,44.7]	-	-	36.4	[34.1,38.7]	36.4	[34.1,38.7]	7,230
	Urban	(41.0)	[37.4,44.7]	-	-	36.6	[33.6,39.6]	36.6	[33.7,39.6]	4,794
	Rural	-	-	-	-	36.1	[32.4,39.7]	36.1	[32.4,39.7]	2,436
Tanzania DHS 2010	Total	51.5	[45.5,57.5]	57.6	[53.0,62.1]	66.4	[64.4,68.4]	63.7	[62.0,65.5]	9,352
	Urban	50.8	[44.0,57.6]	56.4	[51.0,61.8]	66.7	[64.2,69.3]	63.4	[61.3,65.6]	6,938
	Rural	56.1	[53.5,58.7]	62.0	[53.9,70.0]	65.4	[62.3,68.6]	64.6	[61.7,67.4]	2,414
Uganda MIS 2008	Total	41.3	[32.9,49.6]	39.2	[29.8,48.6]	48.7	[44.1,53.4]	46.7	[42.7,50.6]	4,421
	Urban	41.3	[32.9,49.6]	39.8	[29.8,49.8]	49.0	[43.5,54.5]	46.7	[42.2,51.2]	3,711
	Rural	-	-	*	*	47.7	[39.8,55.6]	46.4	[39.3,53.4]	710
Zambia DHS 2007	Total	45.2	[20.9,69.6]	49.1	[42.8,55.4]	54.2	[51.5,57.0]	53.3	[50.8,55.8]	7,164
	Urban	(29.7)	[29.6,29.8]	46.5	[37.1,55.9]	55.1	[51.5,58.7]	53.7	[50.4,57.1]	4,685
	Rural	*	*	52.1	[43.8,60.5]	52.4	[48.7,56.1]	52.6	[49.2,55.9]	2,479
Zimbabwe DHS 2010	Total	13.7	[11.2,16.3]	21.4	[18.2,24.5]	35.8	[31.1,40.5]	28.4	[25.6,31.2]	9,467
	Urban	13.7	[11.2,16.3]	23.2	[17.3,29.0]	36.9	[31.3,42.6]	31.4	[27.3,35.5]	6,249
	Rural	-	-	19.6	[17.2,21.9]	30.7	[25.6,35.7]	22.5	[20.2,24.7]	3,217

Table A9. Percent of household ownership of at least 1 ITN for every 2 people in household by MAP 2007 endemicity categories (4) and by Urban-Rural residence

		Endemicity										
		No malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	8.0	[5.8,10.2]	-	-	5.1	[4.1,6.1]	8.5	[6.4,10.6]	6.3	[5.4,7.2]	7,699
	Urban	*	*	-	-	3.9	[2.7,5.1]	8.5	[6.1,10.9]	5.3	[4.1,6.5]	4,759
Angola MIS 2011	Rural	7.9	[5.7,10.1]	-	-	7.9	[6.3,9.5]	8.5	[4.4,12.5]	8.0	[6.7,9.3]	2,939
	Total	0.8	[-0.3,1.9]	-	-	1.7	[0.9,2.5]	1.3	[0.8,1.8]	1.4	[1.0,1.8]	8,758
	Urban	0.8	[-0.3,1.9]	-	-	1.2	[0.5,2.0]	0.9	[0.5,1.3]	1.0	[0.6,1.3]	5,243
DRC DHS 2007	Rural	-	-	-	-	2.1	[0.7,3.6]	2.1	[1.1,3.1]	2.1	[1.3,2.9]	3,515
	Total	12.7	[6.7,18.7]	-	-	12.9	[10.9,15.0]	18.6	[17.2,20.0]	17.1	[16.0,18.3]	11,603
	Urban	(6.7)	[6.7,6.7]	-	-	11.4	[7.5,15.3]	19.6	[17.8,21.4]	19.0	[17.3,20.8]	6,081
Ghana DHS 2008	Rural	13.5	[6.8,20.2]	-	-	13.2	[10.9,15.4]	16.7	[14.6,18.8]	15.0	[13.5,16.5]	5,521
	Total	18.0	[14.3,21.8]	31.3	[27.6,35.0]	31.1	[27.1,35.1]	34.4	[21.8,46.9]	27.2	[25.0,29.3]	9,033
	Urban	13.9	[9.8,17.9]	27.4	[22.7,32.1]	27.1	[23.1,31.1]	34.0	[21.3,46.8]	23.2	[20.8,25.7]	6,682
Kenya DHS 2008	Rural	30.6	[27.6,33.7]	38.7	[33.3,44.2]	46.4	[31.9,60.9]	*	*	38.4	[33.9,43.0]	2,350
	Total	17.6	[10.1,25.1]	-	-	-	-	17.1	[14.8,19.3]	17.1	[15.0,19.3]	4,162
	Urban	(40.0)	[40.0,40.0]	-	-	-	-	14.3	[11.6,16.9]	14.4	[11.7,17.0]	2,104
Liberia MIS 2011	Rural	17.1	[9.5,24.8]	-	-	-	-	20.8	[17.1,24.4]	20.0	[16.6,23.4]	2,058
	Total	12.4	[7.9,16.9]	-	-	15.3	[14.1,16.4]	29.3	[27.1,31.5]	18.7	[17.8,19.7]	17,644
	Urban	2.3	[0.7,4.0]	-	-	14.4	[13.1,15.6]	27.7	[25.4,30.0]	17.1	[16.1,18.1]	14,974
Madagascar DHS 2008	Rural	48.6	[41.8,55.4]	-	-	20.0	[17.0,22.9]	42.9	[37.7,48.1]	27.9	[25.4,30.5]	2,669
	Total	-	-	-	-	22.9	[21.3,24.4]	17.4	[16.3,18.6]	19.9	[18.9,20.8]	24,202
	Urban	-	-	-	-	19.5	[17.7,21.3]	16.9	[15.8,18.1]	17.8	[16.9,18.8]	20,275
Malawi DHS 2011	Rural	-	-		-	30.0	[26.7,33.4]	31.3	[24.2,38.5]	30.2	[27.2,33.3]	3,927
	Total	10.5	[3.6,17.4]	-	-	38.9	[30.2,47.5]	32.6	[28.6,36.7]	33.0	[29.4,36.6]	1,586
	Urban	10.9	[3.3,18.4]	-	-	37.7	[28.1,47.3]	30.5	[25.7,35.3]	31.1	[26.9,35.3]	1,244
Mali AMP 2010	Rural	*	*	-	-	45.9	[26.7,65.2]	39.7	[32.2,47.1]	39.9	[33.0,46.8]	341
	Total	1.6	[1.1,2.1]	7.2	[4.4,10.1]	10.5	[9.3,11.8]	-	-	6.5	[5.7,7.2]	9,031
	Urban	2.4	[1.5,3.4]	7.6	[1.7,13.4]	9.6	[8.2,11.0]	-	-	8.3	[7.2,9.4]	4,870
Namibia DHS 2006	Rural	1.4	[0.8,2.0]	7.0	[4.5,9.4]	15.5	[12.6,18.4]	-	-	4.3	[3.6,5.1]	4,161
	Total	14.3	[-2.3,30.8]	-	-	20.9	[14.5,27.3]	13.0	[10.7,15.3]	14.2	[12.0,16.3]	5,895
	Urban	*	*	-	-	26.3	[13.6,39.0]	14.1	[11.4,16.8]	15.3	[12.6,18.0]	4,175
Nigeria MIS 2010	Rural	(3.8)	[3.8,3.8]	-	-	16.5	[10.9,22.2]	9.6	[5.7,13.4]	11.4	[8.1,14.8]	1,720
	Total	29.2	[26.7,31.6]	-	-	48.2	[46.3,50.1]	43.3	[36.4,50.2]	40.4	[39.0,41.7]	12,540
	Urban	28.6	[26.1,31.1]	-	-	46.5	[44.3,48.8]	42.2	[35.1,49.4]	38.6	[37.1,40.1]	10,781
Rwanda DHS 2011	Rural	35.8	[25.0,46.7]	-	-	55.3	[51.7,58.8]	(53.8)	[53.8,53.8]	51.1	[47.1,55.0]	1,759

(Continued...)

Table A9. – *Continued*

		Endemicity										
		No malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	4.5	[1.7,7.4]	-	-	18.5	[17.0,20.1]	-	-	17.1	[15.7,18.5]	7,793
	Urban	-	-	-	-	20.6	[18.7,22.4]	-	-	20.6	[18.7,22.4]	3,929
Senegal DHS 2010	Rural	4.5	[1.7,7.4]	-	-	16.0	[13.6,18.4]	-	-	13.7	[11.7,15.7]	3,864
	Total	10.1	[5.0,15.2]	-	-	6.9	[4.9,9.0]	6.4	[5.5,7.3]	6.6	[5.7,7.4]	7,230
	Urban	14.4	[9.5,19.2]	-	-	2.4	[-0.3,5.2]	6.4	[5.3,7.4]	6.4	[5.4,7.4]	4,794
Sierra Leone DHS 2008	Rural	4.3	[-0.6,9.3]	-	-	7.4	[5.2,9.5]	6.5	[4.7,8.3]	6.8	[5.5,8.2]	2,436
	Total	20.4	[13.6,27.3]	22.8	[19.4,26.2]	22.1	[20.4,23.8]	25.1	[22.3,28.0]	22.8	[21.5,24.1]	9,352
	Urban	18.1	[10.8,25.4]	21.6	[17.0,26.1]	18.4	[16.5,20.3]	22.7	[19.9,25.5]	19.8	[18.4,21.3]	6,938
Tanzania DHS 2010	Rural	28.4	[16.3,40.5]	24.5	[19.3,29.7]	31.8	[28.0,35.5]	38.7	[30.1,47.2]	31.3	[28.4,34.3]	2,414
	Total	11.4	[8.9,13.8]	-	-	19.7	[16.8,22.6]	11.1	[8.2,14.1]	16.4	[14.2,18.5]	4,421
	Urban	11.4	[8.9,13.8]	-	-	18.0	[14.7,21.3]	10.4	[7.1,13.7]	15.2	[12.8,17.5]	3,711
Uganda MIS 2008	Rural	-	-	-	-	29.5	[24.8,34.1]	13.6	[4.7,22.5]	22.6	[13.3,31.8]	710
	Total	-	-	-	-	18.0	[16.4,19.6]	*	*	18.1	[16.5,19.7]	7,164
	Urban	-	-	-	-	17.7	[15.6,19.7]	*	*	17.8	[15.8,19.8]	4,685
Zambia DHS 2007	Rural	-	-	-	-	18.6	[16.0,21.2]	-	-	18.6	[16.0,21.2]	2,479
	Total	6.3	[5.1,7.5]	10.3	[8.0,12.7]	30.6	[23.9,37.3]	-	-	12.1	[10.3,13.9]	9,467
	Urban	4.8	[2.4,7.1]	9.4	[6.7,12.1]	31.0	[23.9,38.0]	-	-	13.6	[11.0,16.2]	6,249
Zimbabwe DHS 2010	Rural	7.3	[6.0,8.5]	14.7	[10.4,18.9]	24.0	[5.9,42.2]	-	-	9.2	[7.8,10.6]	3,217

Table A10. Percent of household ownership of at least 1 ITN for every 2 people in household by MAP 2007 endemicity categories (2) and by Urban-Rural residence

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	8.0	[5.8,10.2]	6.1	[5.1,7.0]	6.3	[5.4,7.2]	7,699
	Urban	*	*	5.3	[4.0,6.5]	5.3	[4.1,6.5]	4,759
Angola MIS 2011	Rural	7.9	[5.7,10.1]	8.0	[6.5,9.6]	8.0	[6.7,9.3]	2,939
	Total	0.8	[-0.3,1.9]	1.4	[1.0,1.9]	1.4	[1.0,1.8]	8,758
	Urban	0.8	[-0.3,1.9]	1.0	[0.6,1.3]	1.0	[0.6,1.3]	5,243
DRC DHS 2007	Rural	-	-	2.1	[1.3,2.9]	2.1	[1.3,2.9]	3,515
	Total	12.7	[6.7,18.7]	17.3	[16.1,18.4]	17.1	[16.0,18.3]	11,603
	Urban	(6.7)	[6.7,6.7]	19.1	[17.4,20.9]	19.0	[17.3,20.8]	6,081
Ghana DHS 2008	Rural	13.5	[6.8,20.2]	15.1	[13.6,16.6]	15.0	[13.5,16.5]	5,521
	Total	24.8	[22.1,27.5]	31.3	[27.4,35.1]	27.2	[25.0,29.3]	9,033
	Urban	20.4	[17.0,23.7]	27.6	[23.8,31.4]	23.2	[20.8,25.7]	6,682
Kenya DHS 2008	Rural	35.4	[31.6,39.3]	46.4	[31.9,60.9]	38.4	[33.9,43.0]	2,350
	Total	17.6	[10.1,25.1]	17.1	[14.8,19.3]	17.1	[15.0,19.3]	4,162
	Urban	(40.0)	[40.0,40.0]	14.3	[11.6,16.9]	14.4	[11.7,17.0]	2,104
Liberia MIS 2011	Rural	17.1	[9.5,24.8]	20.8	[17.1,24.4]	20.0	[16.6,23.4]	2,058
	Total	12.4	[7.9,16.9]	19.4	[18.3,20.4]	18.7	[17.8,19.7]	17,644
	Urban	2.3	[0.7,4.0]	18.4	[17.3,19.6]	17.1	[16.1,18.1]	14,974
Madagascar DHS 2008	Rural	48.6	[41.8,55.4]	24.9	[22.0,27.7]	27.9	[25.4,30.5]	2,669
	Total	-	-	19.9	[18.9,20.8]	19.9	[18.9,20.8]	24,202
	Urban	-	-	17.8	[16.9,18.8]	17.8	[16.9,18.8]	20,275
Malawi DHS 2011	Rural	-	-	30.2	[27.2,33.3]	30.2	[27.2,33.3]	3,927
	Total	10.5	[3.6,17.4]	33.7	[30.1,37.4]	33.0	[29.4,36.6]	1,586
	Urban	10.9	[3.3,18.4]	31.9	[27.6,36.2]	31.1	[26.9,35.3]	1,244
Mali AMP 2010	Rural	*	*	40.4	[33.4,47.3]	39.9	[33.0,46.8]	341
	Total	2.5	[1.9,3.1]	10.5	[9.3,11.8]	6.5	[5.7,7.2]	9,031
	Urban	3.8	[2.1,5.5]	9.6	[8.2,11.0]	8.3	[7.2,9.4]	4,870
Namibia DHS 2006	Rural	2.0	[1.4,2.6]	15.5	[12.6,18.4]	4.3	[3.6,5.1]	4,161
	Total	14.3	[-2.3,30.8]	14.2	[12.0,16.3]	14.2	[12.0,16.3]	5,895
	Urban	*	*	15.3	[12.5,18.0]	15.3	[12.6,18.0]	4,175
Nigeria MIS 2010	Rural	(3.8)	[3.8,3.8]	11.6	[8.1,15.0]	11.4	[8.1,14.8]	1,720
	Total	29.2	[26.7,31.6]	48.0	[46.1,49.8]	40.4	[39.0,41.7]	12,540
	Urban	28.6	[26.1,31.1]	46.3	[44.1,48.5]	38.6	[37.1,40.1]	10,781
Rwanda DHS 2011	Rural	35.8	[25.0,46.7]	55.2	[51.8,58.7]	51.1	[47.1,55.0]	1,759
	Total	4.5	[1.7,7.4]	18.5	[17.0,20.1]	17.1	[15.7,18.5]	7,793
	Urban	-	-	20.6	[18.7,22.4]	20.6	[18.7,22.4]	3,929
Senegal DHS 2010	Rural	4.5	[1.7,7.4]	16.0	[13.6,18.4]	13.7	[11.7,15.7]	3,864
	Total	10.1	[5.0,15.2]	6.5	[5.7,7.3]	6.6	[5.7,7.4]	7,230
	Urban	14.4	[9.5,19.2]	6.3	[5.3,7.3]	6.4	[5.4,7.4]	4,794
Sierra Leone DHS 2008	Rural	4.3	[-0.6,9.3]	6.9	[5.5,8.3]	6.8	[5.5,8.2]	2,436
	Total	22.0	[19.0,25.1]	22.9	[21.4,24.4]	22.8	[21.5,24.1]	9,352
	Urban	20.2	[16.4,24.1]	19.8	[18.2,21.3]	19.8	[18.4,21.3]	6,938
Tanzania DHS 2010	Rural	25.3	[20.4,30.2]	33.0	[29.5,36.5]	31.3	[28.4,34.3]	2,414
	Total	11.4	[8.9,13.8]	16.7	[14.4,19.1]	16.4	[14.2,18.5]	4,421
	Urban	11.4	[8.9,13.8]	15.5	[13.0,18.1]	15.2	[12.8,17.5]	3,711
Uganda MIS 2008	Rural	-	-	22.6	[13.3,31.8]	22.6	[13.3,31.8]	710
	Total	-	-	18.1	[16.5,19.7]	18.1	[16.5,19.7]	7,164
	Urban	-	-	17.8	[15.8,19.8]	17.8	[15.8,19.8]	4,685
Zambia DHS 2007	Rural	-	-	18.6	[16.0,21.2]	18.6	[16.0,21.2]	2,479
	Total	8.2	[6.9,9.5]	30.6	[23.9,37.3]	12.1	[10.3,13.9]	9,467
	Urban	7.8	[5.8,9.7]	31.0	[23.9,38.0]	13.6	[11.0,16.2]	6,249
Zimbabwe DHS 2010	Rural	8.8	[7.5,10.1]	24.0	[5.9,42.2]	9.2	[7.8,10.6]	3,217

Table A11. Percent of household ownership of at least 1 ITN for every 2 people in household by MAP 2010 endemicity categories (4) and by Urban-Rural residence

		Endemicity										
		No malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	5.5	[1.6,9.4]	-	-	6.8	[5.7,7.9]	5.0	[3.4,6.7]	6.3	[5.4,7.2]	7,699
	Urban	2.0	[-2.2,6.2]	-	-	5.5	[3.8,7.2]	5.2	[3.5,6.9]	5.3	[4.1,6.5]	4,759
Angola MIS 2011	Rural	8.6	[4.5,12.8]	-	-	8.2	[6.8,9.5]	3.5	[-0.4,7.4]	8.0	[6.7,9.3]	2,939
	Total	0.2	[-0.1,0.5]	1.1	[-0.0,2.3]	1.3	[0.9,1.7]	1.6	[0.9,2.2]	1.4	[1.0,1.8]	8,758
	Urban	0.2	[-0.1,0.5]	1.9	[0.0,3.7]	0.8	[0.3,1.4]	1.1	[0.6,1.5]	1.0	[0.6,1.3]	5,243
DRC DHS 2007	Rural	(0.0)	[0.0,0.0]	0.7	[-0.3,1.7]	1.8	[1.1,2.4]	2.6	[1.0,4.1]	2.1	[1.3,2.9]	3,515
	Total	11.9	[-0.5,24.4]	-	-	15.2	[13.8,16.6]	20.8	[18.9,22.7]	17.1	[16.0,18.3]	11,603
	Urban	-	-	-	-	16.8	[14.3,19.3]	21.2	[19.0,23.5]	19.0	[17.3,20.8]	6,081
Ghana DHS 2008	Rural	11.9	[-0.6,24.5]	-	-	14.0	[12.4,15.6]	19.5	[15.9,23.1]	15.0	[13.5,16.5]	5,521
	Total	20.3	[15.7,25.0]	28.4	[25.6,31.1]	31.1	[25.5,36.7]	33.8	[25.7,42.0]	27.2	[25.0,29.3]	9,033
	Urban	9.8	[5.3,14.4]	25.6	[22.3,29.0]	26.4	[21.5,31.2]	33.0	[23.9,42.1]	23.2	[20.8,25.7]	6,682
Kenya DHS 2008	Rural	35.4	[29.7,41.1]	36.8	[30.2,43.4]	58.0	[42.7,73.2]	41.0	[34.4,47.7]	38.4	[33.9,43.0]	2,350
	Total	20.8	[12.4,29.2]	-	-	19.0	[15.7,22.3]	14.7	[11.8,17.5]	17.1	[15.0,19.3]	4,162
	Urban	(40.0)	[40.0,40.0]	-	-	16.2	[12.8,19.7]	13.4	[10.1,16.8]	14.4	[11.7,17.0]	2,104
Liberia MIS 2011	Rural	20.0	[11.4,28.6]	-	-	20.1	[15.7,24.6]	19.3	[14.2,24.3]	20.0	[16.6,23.4]	2,058
	Total	5.3	[0.9,9.7]	-	-	12.5	[11.3,13.7]	28.6	[26.8,30.4]	18.7	[17.8,19.7]	17,644
Madagascar DHS	Urban	3.2	[-0.7,7.2]	-	-	11.0	[9.7,12.3]	26.3	[24.4,28.1]	17.1	[16.1,18.1]	14,974
2008	Rural	38.5	[25.8,51.3]	-	-	18.7	[15.6,21.9]	47.0	[43.5,50.5]	27.9	[25.4,30.5]	2,669
	Total	-	-	-	-	19.6	[18.3,20.9]	20.2	[18.9,21.5]	19.9	[18.9,20.8]	24,202
	Urban	-	-	-	-	16.4	[14.9,17.9]	19.4	[18.0,20.7]	17.8	[16.9,18.8]	20,275
Malawi DHS 2011	Rural	-	-	-	-	29.3	[25.9,32.7]	36.6	[31.7,41.4]	30.2	[27.2,33.3]	3,927
	Total	24.5	[8.4,40.6]	-	-	36.2	[29.3,43.1]	32.6	[28.2,36.9]	33.0	[29.4,36.6]	1,586
	Urban	23.7	[5.6,41.8]	-	-	35.9	[26.3,45.5]	30.9	[26.2,35.6]	31.1	[26.9,35.3]	1,244
Mali AMP 2010	Rural	(32.1)	[29.4,34.8]	-	-	36.4	[26.6,46.2]	45.6	[37.3,54.0]	39.9	[33.0,46.8]	341
	Total	2.5	[1.8,3.2]	25.7	[18.5,32.9]	9.1	[7.9,10.3]	-	-	6.5	[5.7,7.2]	9,031
	Urban	4.3	[2.8,5.8]	(31.7)	[16.7,46.6]	9.0	[7.6,10.3]	-	-	8.3	[7.2,9.4]	4,870
Namibia DHS 2006	Rural	1.9	[1.2,2.6]	23.3	[16.7,29.9]	9.6	[7.3,12.0]	-	-	4.3	[3.6,5.1]	4,161
	Total	3.2	[-2.0,8.5]	-	-	15.9	[11.3,20.5]	13.7	[11.2,16.2]	14.2	[12.0,16.3]	5,895
	Urban	-	-	-	-	20.6	[13.6,27.7]	14.1	[11.2,17.0]	15.3	[12.6,18.0]	4,175
Nigeria MIS 2010	Rural	3.2	[-2.0,8.5]	-	-	10.7	[5.3,16.1]	12.4	[7.7,17.2]	11.4	[8.1,14.8]	1,720
	Total	27.9	[25.3,30.5]	46.1	[43.7,48.6]	48.1	[45.4,50.8]	-	-	40.4	[39.0,41.7]	12,540
	Urban	27.8	[25.1,30.5]	43.3	[40.2,46.3]	47.8	[45.0,50.6]	-	-	38.6	[37.1,40.1]	10,781
Rwanda DHS 2011	Rural	29.0	[17.7,40.3]	54.0	[50.0,57.9]	54.5	[43.2,65.8]	-	-	51.1	[47.1,55.0]	1,759

(Continued...)

Table A11. – *Continued*

		Endemicity										
		No malaria		Low (<5%)		Intermediate (5-<40%)		High (>40%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
Senegal DHS 2010	Total	21.6	[14.6,28.7]	10.4	[8.5,12.4]	24.3	[22.3,26.3]	34.5	[21.5,47.5]	17.1	[15.7,18.5]	7,793
	Urban	-	-	13.6	[10.2,17.1]	23.3	[20.8,25.7]	34.5	[21.4,47.6]	20.6	[18.7,22.4]	3,929
	Rural	21.6	[14.6,28.7]	9.1	[6.8,11.4]	27.5	[24.2,30.7]	-	-	13.7	[11.7,15.7]	3,864
Sierra Leone DHS 2008	Total	-	-	-	-	6.2	[5.0,7.3]	6.9	[5.7,8.0]	6.6	[5.7,7.4]	7,230
	Urban	-	-	-	-	5.2	[3.8,6.7]	6.9	[5.6,8.3]	6.4	[5.4,7.4]	4,794
	Rural	-	-	-	-	6.9	[5.2,8.7]	6.6	[4.7,8.5]	6.8	[5.5,8.2]	2,436
Tanzania DHS 2010	Total	13.9	[10.3,17.4]	21.1	[18.2,24.0]	23.7	[22.0,25.5]	23.3	[19.9,26.6]	22.8	[21.5,24.1]	9,352
	Urban	14.3	[10.3,18.3]	16.7	[13.6,19.9]	20.5	[18.6,22.4]	22.9	[19.5,26.3]	19.8	[18.4,21.3]	6,938
	Rural	*	*	28.9	[23.9,34.0]	32.9	[29.2,36.7]	(33.7)	[31.3,36.1]	31.3	[28.4,34.3]	2,414
Uganda MIS 2008	Total	10.3	[8.3,12.4]	-	-	22.7	[18.9,26.5]	12.6	[10.1,15.0]	16.4	[14.2,18.5]	4,421
	Urban	10.3	[8.3,12.4]	-	-	20.5	[15.9,25.1]	12.2	[9.6,14.9]	15.2	[12.8,17.5]	3,711
	Rural	-	-	-	-	31.2	[26.9,35.5]	14.4	[6.0,22.7]	22.6	[13.3,31.8]	710
Zambia DHS 2007	Total	-	-	16.6	[13.0,20.1]	17.8	[16.0,19.6]	32.4	[20.8,43.9]	18.1	[16.5,19.7]	7,164
	Urban	-	-	19.1	[8.7,29.5]	17.1	[14.9,19.2]	32.8	[19.9,45.6]	17.8	[15.8,19.8]	4,685
	Rural	-	-	16.3	[12.5,20.1]	20.2	[16.5,23.9]	(28.7)	[23.5,33.8]	18.6	[16.0,21.2]	2,479
Zimbabwe DHS 2010	Total	11.6	[10.1,13.2]	5.5	[4.7,6.4]	21.5	[17.7,25.4]	*	*	12.1	[10.3,13.9]	9,467
	Urban	11.6	[10.1,13.2]	3.2	[2.0,4.4]	21.4	[17.3,25.6]	*	*	13.6	[11.0,16.2]	6,249
	Rural	-	-	7.6	[6.5,8.7]	22.2	[14.2,30.1]	-	-	9.2	[7.8,10.6]	3,217

Table A12. Percent of household ownership of at least 1 ITN for every 2 people in household by MAP 2010 endemicity categories (2) and by Urban-Rural residence

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
Angola MIS 2011	Total	5.5	[1.6,9.4]	6.3	[5.4,7.3]	6.3	[5.4,7.2]	7,699
	Urban	2.0	[-2.2,6.2]	5.4	[4.2,6.6]	5.3	[4.1,6.5]	4,759
	Rural	8.6	[4.5,12.8]	7.9	[6.6,9.3]	8.0	[6.7,9.3]	2,939
DRC DHS 2007	Total	0.7	[-0.0,1.5]	1.5	[1.0,1.9]	1.4	[1.0,1.8]	8,758
	Urban	0.7	[-0.3,1.7]	1.0	[0.6,1.3]	1.0	[0.6,1.3]	5,243
	Rural	0.7	[-0.3,1.7]	2.2	[1.3,3.0]	2.1	[1.3,2.9]	3,515
Ghana DHS 2008	Total	11.9	[-0.5,24.4]	17.2	[16.0,18.3]	17.1	[16.0,18.3]	11,603
	Urban	-	-	19.0	[17.3,20.8]	19.0	[17.3,20.8]	6,081
	Rural	11.9	[-0.6,24.5]	15.0	[13.5,16.6]	15.0	[13.5,16.5]	5,521
Kenya DHS 2008	Total	25.7	[23.3,28.1]	31.9	[27.3,36.5]	27.2	[25.0,29.3]	9,033
	Urban	21.2	[18.2,24.2]	28.3	[23.9,32.8]	23.2	[20.8,25.7]	6,682
	Rural	36.2	[31.9,40.4]	54.1	[40.7,67.5]	38.4	[33.9,43.0]	2,350
Liberia MIS 2011	Total	20.8	[12.4,29.2]	16.9	[14.7,19.2]	17.1	[15.0,19.3]	4,162
	Urban	(40.0)	[40.0,40.0]	14.3	[11.6,16.9]	14.4	[11.7,17.0]	2,104
	Rural	20.0	[11.4,28.6]	20.0	[16.3,23.6]	20.0	[16.6,23.4]	2,058
Madagascar DHS 2008	Total	5.3	[0.9,9.7]	19.6	[18.5,20.6]	18.7	[17.8,19.7]	17,644
	Urban	3.2	[-0.7,7.2]	18.1	[17.0,19.2]	17.1	[16.1,18.1]	14,974
	Rural	38.5	[25.8,51.3]	27.7	[25.0,30.3]	27.9	[25.4,30.5]	2,669
Malawi DHS 2011	Total	-	-	19.9	[18.9,20.8]	19.9	[18.9,20.8]	24,202
	Urban	-	-	17.8	[16.9,18.8]	17.8	[16.9,18.8]	20,275
	Rural	-	-	30.2	[27.2,33.3]	30.2	[27.2,33.3]	3,927
Mali AMP 2010	Total	24.5	[8.4,40.6]	33.3	[29.6,37.1]	33.0	[29.4,36.6]	1,586
	Urban	23.7	[5.6,41.8]	31.4	[27.1,35.8]	31.1	[26.9,35.3]	1,244
	Rural	(32.1)	[29.4,34.8]	40.1	[33.0,47.1]	39.9	[33.0,46.8]	341
Namibia DHS 2006	Total	3.7	[2.8,4.6]	9.1	[7.9,10.3]	6.5	[5.7,7.2]	9,031
	Urban	5.9	[3.2,8.7]	9.0	[7.6,10.3]	8.3	[7.2,9.4]	4,870
	Rural	2.9	[2.2,3.7]	9.6	[7.3,12.0]	4.3	[3.6,5.1]	4,161
Nigeria MIS 2010	Total	3.2	[-2.0,8.5]	14.3	[12.1,16.5]	14.2	[12.0,16.3]	5,895
	Urban	-	-	15.3	[12.6,18.0]	15.3	[12.6,18.0]	4,175
	Rural	3.2	[-2.0,8.5]	11.7	[8.2,15.2]	11.4	[8.1,14.8]	1,720
Rwanda DHS 2011	Total	37.9	[36.3,39.5]	48.1	[45.4,50.8]	40.4	[39.0,41.7]	12,540
	Urban	35.3	[33.4,37.2]	47.8	[45.0,50.6]	38.6	[37.1,40.1]	10,781
	Rural	50.8	[46.6,55.0]	54.5	[43.2,65.8]	51.1	[47.1,55.0]	1,759
Senegal DHS 2010	Total	10.9	[9.0,12.8]	24.6	[22.6,26.5]	17.1	[15.7,18.5]	7,793
	Urban	13.6	[10.2,17.1]	23.6	[21.3,26.0]	20.6	[18.7,22.4]	3,929
	Rural	9.8	[7.6,12.0]	27.5	[24.2,30.7]	13.7	[11.7,15.7]	3,864
Sierra Leone DHS 2008	Total	-	-	6.6	[5.7,7.4]	6.6	[5.7,7.4]	7,230
	Urban	-	-	6.4	[5.4,7.4]	6.4	[5.4,7.4]	4,794
	Rural	-	-	6.8	[5.5,8.2]	6.8	[5.5,8.2]	2,436
Tanzania DHS 2010	Total	20.5	[17.8,23.2]	23.7	[22.1,25.2]	22.8	[21.5,24.1]	9,352
	Urban	16.5	[13.7,19.3]	20.9	[19.2,22.6]	19.8	[18.4,21.3]	6,938
	Rural	28.4	[23.5,33.4]	32.9	[29.3,36.6]	31.3	[28.4,34.3]	2,414
Uganda MIS 2008	Total	10.3	[8.3,12.4]	16.7	[14.4,18.9]	16.4	[14.2,18.5]	4,421
	Urban	10.3	[8.3,12.4]	15.5	[13.0,17.9]	15.2	[12.8,17.5]	3,711
	Rural	-	-	22.6	[13.3,31.8]	22.6	[13.3,31.8]	710
Zambia DHS 2007	Total	16.6	[13.0,20.1]	18.4	[16.6,20.1]	18.1	[16.5,19.7]	7,164
	Urban	19.1	[8.7,29.5]	17.8	[15.7,19.8]	17.8	[15.8,19.8]	4,685
	Rural	16.3	[12.5,20.1]	20.3	[16.6,24.0]	18.6	[16.0,21.2]	2,479
Zimbabwe DHS 2010	Total	5.7	[4.8,6.5]	21.4	[17.6,25.3]	12.1	[10.3,13.9]	9,467
	Urban	3.6	[2.4,4.9]	21.4	[17.2,25.5]	13.6	[11.0,16.2]	6,249
	Rural	7.6	[6.5,8.7]	22.2	[14.2,30.1]	9.2	[7.8,10.6]	3,217

Table A13. Percent of household ownership of at least 1 ITN for every 2 people in household by MARA suitability categories and by Urban-Rural residence

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
Angola MIS 2011	Total	12.1	[2.8,21.4]	7.3	[6.0,8.6]	5.0	[3.7,6.2]	6.3	[5.4,7.2]	7,699
	Urban	-	-	6.6	[4.0,9.1]	4.5	[3.3,5.7]	5.3	[4.1,6.5]	4,759
	Rural	12.1	[2.8,21.5]	7.8	[6.6,9.0]	8.6	[2.5,14.7]	8.0	[6.7,9.3]	2,939
DRC DHS 2007	Total	0.0	[0.0,0.0]	0.9	[0.2,1.5]	1.5	[1.1,2.0]	1.4	[1.0,1.8]	8,758
	Urban	0.0	[0.0,0.0]	0.3	[-0.2,0.8]	1.1	[0.7,1.5]	1.0	[0.6,1.3]	5,243
	Rural	(0.0)	[0.0,0.0]	1.8	[0.6,3.0]	2.1	[1.2,3.0]	2.1	[1.3,2.9]	3,515
Ghana DHS 2008	Total	-	-	11.9	[7.8,16.1]	17.3	[16.1,18.5]	17.1	[16.0,18.3]	11,603
	Urban	-	-	(3.8)	[3.8,3.8]	19.1	[17.4,20.8]	19.0	[17.3,20.8]	6,081
	Rural	-	-	12.5	[8.2,16.8]	15.2	[13.6,16.7]	15.0	[13.5,16.5]	5,521
Kenya DHS 2008	Total	16.3	[11.6,21.1]	28.5	[25.9,31.2]	36.8	[30.8,42.8]	27.2	[25.0,29.3]	9,033
	Urban	11.2	[6.5,15.8]	25.6	[22.5,28.7]	31.4	[25.9,36.9]	23.2	[20.8,25.7]	6,682
	Rural	30.5	[27.2,33.7]	38.1	[33.3,42.9]	47.3	[30.2,64.4]	38.4	[33.9,43.0]	2,350
Liberia MIS 2011	Total	-	-	-	-	17.1	[15.0,19.3]	17.1	[15.0,19.3]	4,162
	Urban	-	-	-	-	14.4	[11.7,17.0]	14.4	[11.7,17.0]	2,104
	Rural	-	-	-	-	20.0	[16.6,23.4]	20.0	[16.6,23.4]	2,058
Madagascar DHS 2008	Total	24.2	[14.7,33.6]	8.5	[7.1,9.9]	24.0	[22.6,25.4]	18.7	[17.8,19.7]	17,644
	Urban	9.9	[0.3,19.6]	7.2	[5.6,8.9]	22.2	[20.8,23.7]	17.1	[16.1,18.1]	14,974
	Rural	45.9	[39.8,52.0]	13.3	[10.5,16.2]	40.8	[37.2,44.3]	27.9	[25.4,30.5]	2,669
Malawi DHS 2011	Total	24.0	[12.6,35.4]	20.1	[18.2,22.0]	19.7	[18.6,20.9]	19.9	[18.9,20.8]	24,202
	Urban	23.2	[11.6,34.8]	17.0	[15.0,18.9]	18.1	[17.0,19.2]	17.8	[16.9,18.8]	20,275
	Rural	*	*	33.5	[29.2,37.8]	28.8	[25.0,32.6]	30.2	[27.2,33.3]	3,927
Mali AMP 2010	Total	-	-	31.3	[20.8,41.9]	33.1	[29.3,36.9]	33.0	[29.4,36.6]	1,586
	Urban	-	-	32.0	[19.8,44.3]	31.0	[26.6,35.4]	31.1	[26.9,35.3]	1,244
	Rural	-	-	27.6	[16.0,39.2]	40.6	[33.4,47.8]	39.9	[33.0,46.8]	341
Namibia DHS 2006	Total	1.9	[1.1,2.6]	6.5	[5.6,7.5]	12.2	[9.6,14.9]	6.5	[5.7,7.2]	9,031
	Urban	3.8	[2.1,5.5]	7.7	[6.2,9.1]	14.5	[10.9,18.2]	8.3	[7.2,9.4]	4,870
	Rural	0.8	[0.2,1.4]	5.1	[4.0,6.1]	7.7	[4.8,10.5]	4.3	[3.6,5.1]	4,161
Nigeria MIS 2010	Total	-	-	16.3	[0.8,31.8]	14.2	[12.0,16.3]	14.2	[12.0,16.3]	5,895
	Urban	-	-	17.8	[-3.1,38.8]	15.3	[12.5,18.0]	15.3	[12.6,18.0]	4,175
	Rural	-	-	(12.3)	[10.6,14.1]	11.4	[8.0,14.8]	11.4	[8.1,14.8]	1,720
Rwanda DHS 2011	Total	26.2	[23.2,29.2]	46.4	[44.5,48.2]	47.0	[41.7,52.4]	40.4	[39.0,41.7]	12,540
	Urban	26.1	[23.0,29.2]	45.0	[42.9,47.1]	42.1	[36.3,47.9]	38.6	[37.1,40.1]	10,781
	Rural	27.8	[16.2,39.4]	53.4	[49.5,57.2]	56.9	[46.8,67.0]	51.1	[47.1,55.0]	1,759
Senegal DHS 2010	Total	-	-	21.0	[16.3,25.7]	17.0	[15.5,18.4]	17.1	[15.7,18.5]	7,793
	Urban	-	-	23.5	[17.8,29.3]	20.5	[18.6,22.4]	20.6	[18.7,22.4]	3,929
	Rural	-	-	19.7	[13.3,26.1]	13.3	[11.2,15.4]	13.7	[11.7,15.7]	3,864
Sierra Leone DHS 2008	Total	(16.2)	[10.6,21.8]	-	-	6.5	[5.7,7.3]	6.6	[5.7,7.4]	7,230
	Urban	(16.2)	[10.6,21.9]	-	-	6.3	[5.3,7.4]	6.4	[5.4,7.4]	4,794
	Rural	-	-	-	-	6.8	[5.5,8.2]	6.8	[5.5,8.2]	2,436
Tanzania DHS 2010	Total	13.5	[9.9,17.0]	20.2	[17.1,23.2]	24.1	[22.5,25.7]	22.8	[21.5,24.1]	9,352
	Urban	14.1	[10.1,18.1]	17.5	[14.4,20.5]	21.0	[19.2,22.8]	19.8	[18.4,21.3]	6,938
	Rural	9.3	[5.3,13.3]	30.5	[22.3,38.6]	32.1	[28.8,35.4]	31.3	[28.4,34.3]	2,414
Uganda MIS 2008	Total	10.4	[8.7,12.1]	16.0	[9.4,22.6]	16.9	[14.5,19.2]	16.4	[14.2,18.5]	4,421
	Urban	10.4	[8.7,12.1]	15.3	[8.3,22.4]	15.6	[13.0,18.1]	15.2	[12.8,17.5]	3,711
	Rural	-	-	*	*	22.4	[12.4,32.5]	22.6	[13.3,31.8]	710
Zambia DHS 2007	Total	14.2	[7.6,20.9]	14.9	[11.2,18.7]	18.7	[17.0,20.5]	18.1	[16.5,19.7]	7,164
	Urban	(9.6)	[6.0,13.2]	13.0	[8.0,18.0]	18.6	[16.4,20.8]	17.8	[15.8,19.8]	4,685
	Rural	*	*	17.2	[11.3,23.1]	18.9	[16.0,21.9]	18.6	[16.0,21.2]	2,479
Zimbabwe DHS 2010	Total	8.8	[4.9,12.6]	9.1	[6.9,11.2]	15.2	[12.3,18.1]	12.1	[10.3,13.9]	9,467
	Urban	8.8	[4.9,12.6]	10.6	[6.6,14.7]	15.5	[12.0,19.0]	13.6	[11.0,16.2]	6,249
	Rural	-	-	7.5	[6.0,9.0]	13.9	[10.9,16.9]	9.2	[7.8,10.6]	3,217

Table A14. Logistic regression for all countries (outcome at least 1 ITN in household) using MAP 2007 categories (2)

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Angola MIS 2011										
Intermediate/High Endemicity	0.56***	0.48,0.64	0.51***	0.43,0.62	0.66***	0.57,0.76	0.64***	0.53,0.77	0.62***	0.52,0.76
Target population in household			1.83***	1.61,2.07			1.92***	1.70,2.17	1.94***	1.71,2.19
Rural household					1.31*	1.05,1.65	1.45**	1.16,1.81	0.86	0.69,1.08
Poorer									1.73***	1.25,2.40
Middle									2.85***	1.98,4.10
Richer									4.43***	3.09,6.36
Richest									5.11***	3.53,7.40
DRC DHS 2007										
Intermediate/High Endemicity	5.30***	2.11,13.27	5.32***	2.12,13.36	4.10**	1.60,10.48	4.11**	1.60,10.53	4.86**	1.90,12.47
Target population in household			1.50***	1.20,1.87			1.51***	1.21,1.89	1.56***	1.24,1.96
Rural household					1.73***	1.26,2.38	1.74***	1.27,2.39	0.86	0.55,1.34
Poorer									1.92***	1.31,2.82
Middle									3.28***	2.10,5.13
Richer									3.91***	2.50,6.12
Richest									6.18***	3.77,10.12
Ghana DHS 2008										
Intermediate/High Endemicity	2.23	0.99,5.05	2.20	0.89,5.34	1.70	0.73,3.77	2.00	0.69,4.11	1.77	0.79,3.93
Target population in household			3.96***	3.44,4.55			3.76***	3.26,4.33	3.79***	3.29,4.35
Rural household					0.58***	0.51,0.66	0.62***	0.54,0.71	0.57***	0.48,0.68
Poorer									0.96	0.79,1.18
Middle									0.95	0.76,1.19
Richer									0.97	0.77,1.22
Richest									1.23	0.95,1.58
Kenya DHS 2008										
Intermediate/High Endemicity	2.26***	1.76,2.89	2.14***	1.66,2.75	2.32***	1.78,3.01	2.20***	1.68,2.89	2.42***	1.82,3.22
Target population in household			1.85***	1.50,2.29			1.93***	1.58,2.36	2.15***	1.79,2.58
Rural household					1.30	0.92,1.73	1.00	1.00,1.84	1.16	0.83,1.63
Poorer									1.71***	1.41,2.06
Middle									2.15***	1.63,2.84
Richer									1.85***	1.35,2.52
Richest									2.02***	1.40,2.91

(Continued...)

Table A14. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Liberia MIS 2011										
Intermediate/High Endemicity	0.85	0.41,1.75	0.80	0.39,1.68	0.90	0.45,1.94	1.00	0.43,1.90	0.94	0.45,1.99
Target population in household			1.32**	1.10,1.59			1.37***	1.15,1.65	1.40***	1.16,1.68
Rural household					1.20	0.91,1.61	1.00	0.95,1.68	1.03	0.69,1.54
Poorer									1.67**	1.17,2.39
Middle									1.42	0.95,2.14
Richer									1.64*	1.04,2.58
Richest									1.72*	1.04,2.86
Madagascar DHS 2008										
Intermediate/High Endemicity	12.79***	5.34,30.67	13.19***	5.42,32.07	12.67***	5.28,30.41	13.01***	5.36,31.57	12.45***	5.11,30.32
Target population in household			1.53***	1.35,1.74			1.55***	1.37,1.76	1.45***	1.28,1.64
Rural household					1.10	0.93,1.30	1.00	0.98,1.37	1.39**	1.12,1.74
Poorer									0.91	0.79,1.06
Middle									0.68***	0.56,0.81
Richer									0.66***	0.53,0.82
Richest									0.62***	0.49,0.79
Malawi DHS 2010										
Intermediate/High Endemicity	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Target population in household			1.88***	1.73,2.04			1.94***	1.78,2.11	2.11***	1.93,2.30
Rural household					1.44***	1.24,1.67	1.54***	1.32,1.81	0.75***	0.63,0.88
Poorer									1.55***	1.40,1.72
Middle									2.10***	1.89,2.33
Richer									2.52***	2.25,2.83
Richest									5.42***	4.68,6.28
Mali AMP 2010										
Intermediate/High Endemicity	3.62***	2.19,6.01	5.45***	3.16,9.40	3.61***	2.12,6.16	5.33***	3.03,9.36	5.33***	3.03,9.36
Target population in household			3.56***	2.25,5.64			3.58***	2.25,5.72	3.58***	2.25,5.72
Rural household					1.00	0.68,1.51	1.00	0.73,1.71	1.12	0.73,1.71
Poorer									1.00	1.00,1.00
Middle									1.00	1.00,1.00
Richer									1.00	1.00,1.00
Richest									1.00	1.00,1.00

(Continued...)

Table A14. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Namibia DHS 2006										
Intermediate/High Endemicity	9.35***	7.19,12.15	8.91***	6.84,11.60	8.16***	6.23,10.69	8.02***	6.11,10.52	8.53***	6.59,11.04
Target population in household			1.72***	1.49,1.98			1.69***	1.47,1.95	1.71***	1.48,1.97
Rural household					0.80*	0.66,0.95	1.00	0.70,1.00	0.70**	0.56,0.89
Poorer									1.34**	1.11,1.62
Middle									1.49***	1.20,1.86
Richer									1.69***	1.28,2.22
Richest									1.44*	1.03,2.01
Nigeria MIS 2010										
Intermediate/High Endemicity	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Target population in household			1.68***	1.39,2.04			1.61***	1.33,1.96	1.59***	1.30,1.94
Rural household					0.60**	0.42,0.87	0.63*	0.44,0.92	0.74	0.49,1.11
Poorer									0.80	0.54,1.20
Middle									0.89	0.56,1.42
Richer									0.65	0.40,1.05
Richest									0.65	0.39,1.08
Rwanda DHS 2011										
Intermediate/High Endemicity	2.56***	2.19,3.00	2.62***	2.23,3.08	2.57***	2.18,3.02	2.61***	2.21,3.08	2.35***	1.99,2.78
Target population in household			4.23***	3.52,5.09			4.24***	3.52,5.09	4.35***	3.62,5.23
Rural household					1.00	0.81,1.19	1.00	0.85,1.26	0.88	0.71,1.10
Poorer									1.37***	1.20,1.58
Middle									1.94***	1.62,2.32
Richer									2.48***	2.08,2.96
Richest									2.31***	1.89,2.81
Senegal DHS 2010										
Intermediate/High Endemicity	4.82***	2.44,9.55	4.28***	2.20,8.32	3.33***	1.65,6.74	3.15**	1.58,6.26	2.72**	1.40,5.27
Target population in household			1.73***	1.45,2.06			1.57***	1.34,1.84	1.58***	1.36,1.84
Rural household					0.50***	0.39,0.65	0.54***	0.42,0.70	0.88	0.67,1.16
Poorer									1.06	0.83,1.35
Middle									0.89	0.65,1.21
Richer									0.54***	0.38,0.76
Richest									0.37***	0.25,0.54

(Continued...)

Table A14. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sierra Leone DHS 2008										
Intermediate/High Endemicity	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Target population in household			1.45***	1.26,1.66			1.45***	1.26,1.66	1.45***	1.27,1.66
Rural household					1.00	0.80,1.19	1.00	0.83,1.25	0.73*	0.55,0.98
Poorer									1.17	0.93,1.45
Middle									1.54***	1.22,1.94
Richer									1.90***	1.44,2.49
Richest									1.89***	1.31,2.72
Tanzania DHS 2010										
Intermediate/High Endemicity	1.68***	1.36,2.06	1.48**	1.17,1.86	1.69***	1.38,2.08	1.51***	1.20,1.90	1.81***	1.41,2.33
Target population in household			4.36***	3.57,5.31			4.51***	3.70,5.50	4.83***	3.96,5.88
Rural household					1.10	0.93,1.27	1.30**	1.10,1.53	0.74**	0.59,0.92
Poorer									1.34***	1.13,1.59
Middle									1.47***	1.23,1.77
Richer									2.16***	1.72,2.71
Richest									3.08***	2.32,4.10
Uganda MIS 2009										
Intermediate/High Endemicity	1.41	0.96,2.06	1.30	0.87,1.94	1.40	0.96,2.10	1.00	0.85,1.94	1.27	0.83,1.96
Target population in household			1.79***	1.53,2.08			1.80***	1.54,2.09	1.82***	1.56,2.12
Rural household					1.00	0.69,1.37	1.00	0.75,1.50	0.95	0.70,1.30
Poorer									0.91	0.68,1.21
Middle									1.16	0.78,1.73
Richer									0.99	0.70,1.40
Richest									1.22	0.85,1.77
Zambia DHS 2007										
Intermediate/High Endemicity	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Target population in household			1.36***	1.21,1.53			1.36***	1.21,1.53	1.43***	1.27,1.61
Rural household					1.00	0.79,1.15	1.00	0.82,1.20	0.55***	0.41,0.73
Poorer									1.31*	1.06,1.62
Middle									1.48***	1.19,1.84
Richer									1.89***	1.39,2.58
Richest									3.13***	2.15,4.56

(Continued...)

Table A14. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Zimbabwe DHS 2010										
Intermediate/High Endemicity	4.34***	3.36,5.61	4.31***	3.34,5.57	5.08***	3.78,6.82	5.06***	3.77,6.80	5.35***	3.97,7.20
Target population in household			1.10	0.98,1.31			1.17*	1.01,1.35	1.19*	1.04,1.38
Rural household					1.42**	1.09,1.84	1.43**	1.10,1.86	1.10	0.83,1.46
Poorer									0.92	0.75,1.12
Middle									1.03	0.83,1.29
Richer									1.18	0.91,1.53
Richest									1.68**	1.21,2.33

OR = Odds ratio, CI = Confidence interval, * p<0.05, ** p<0.01, *** p<0.001

Reference categories:

Intermediate/High endemicity (Ref: No\Low endemicity)

Target population in household (Ref: No member of target population in household)

Rural household (Ref: Urban household)

Wealth (Poorer, Middle, Richer, Richest) (Ref: Poorest)

Table A15. Logistic regression for all countries (outcome at least 1 ITN in household) using MAP 2010 categories (2)

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Angola MIS 2011										
Intermediate/High endemicity	0.48***	0.35,0.67	0.49***	0.37,0.65	0.50***	0.34,0.74	0.52***	0.36,0.74	0.64***	0.52,0.79
Target population in household			1.81***	1.60,2.05			1.91***	1.70,2.16	1.93***	1.71,2.18
Rural household					1.31*	1.05,1.64	1.45**	1.16,1.80	0.88	0.71,1.09
Poorer									1.73***	1.25,2.40
Middle									2.82***	1.96,4.07
Richer									4.34***	3.03,6.22
Richest									4.97***	3.43,7.21
DRC DHS 2007										
Intermediate/High endemicity	3.07***	1.81,5.21	3.11***	1.83,5.28	3.00***	1.77,5.10	3.05***	1.79,5.20	3.54***	2.07,6.07
Target population in household			1.51***	1.21,1.88			1.52***	1.22,1.90	1.57***	1.25,1.97
Rural household					1.79***	1.30,2.44	1.80***	1.31,2.46	0.88	0.56,1.37
Poorer									1.92***	1.31,2.82
Middle									3.27***	2.09,5.11
Richer									4.02***	2.56,6.30
Richest									6.26***	3.84,10.22
Ghana DHS 2008										
Intermediate/High endemicity	2.23	0.99,5.05	2.18	0.89,5.34	1.66	0.73,3.77	1.68	0.69,4.11	1.77	0.79,3.93
Target population in household			3.96***	3.44,4.55			3.76***	3.26,4.33	3.79***	3.29,4.35
Rural household					0.58***	0.51,0.66	0.62***	0.54,0.71	0.57***	0.48,0.68
Poorer									0.96	0.79,1.18
Middle									0.95	0.76,1.19
Richer									0.97	0.77,1.22
Richest									1.23	0.95,1.58
Kenya DHS 2008										
Intermediate/High endemicity	2.25***	1.77,2.85	2.15***	1.68,2.74	2.34***	1.84,2.98	2.26***	1.76,2.90	2.31***	1.80,2.96
Target population in household			1.92***	1.57,2.36			2.02***	1.66,2.45	2.20***	1.83,2.64
Rural household					1.27	0.95,1.72	1.38*	1.04,1.85	1.28	0.91,1.79
Poorer									1.52***	1.25,1.84
Middle									1.85***	1.41,2.43
Richer									1.57**	1.15,2.14
Richest									1.62**	1.14,2.30

(Continued...)

Table A15. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Liberia MIS 2011										
Intermediate/High endemicity	0.85	0.41,1.75	0.82	0.39,1.68	0.93	0.45,1.94	0.91	0.43,1.90	0.94	0.45,1.99
Target population in household			1.32**	1.10,1.59			1.37***	1.15,1.65	1.40***	1.16,1.68
Rural household					1.21	0.91,1.61	1.26	0.95,1.68	1.03	0.69,1.54
Poorer									1.67**	1.17,2.39
Middle									1.42	0.95,2.14
Richer									1.64*	1.04,2.58
Richest									1.72*	1.04,2.86
Madagascar DHS 2008										
Intermediate/High endemicity	8.27***	3.53,19.39	8.45***	3.53,20.20	8.20***	3.49,19.22	8.34***	3.49,19.91	7.89***	3.26,19.12
Target population in household			1.51***	1.33,1.72			1.53***	1.35,1.74	1.44***	1.28,1.63
Rural household					1.10	0.94,1.30	1.16	0.99,1.37	1.37**	1.08,1.73
Poorer									0.91	0.78,1.05
Middle									0.67***	0.56,0.80
Richer									0.66***	0.53,0.82
Richest									0.65***	0.50,0.83
Malawi DHS 2010										
Intermediate/High endemicity	-	-	-	-	-	-	-	-	-	-
Target population in household			1.88***	1.73,2.04			1.94***	1.78,2.11	2.11***	1.93,2.30
Rural household					1.44***	1.24,1.67	1.54***	1.32,1.81	0.75***	0.63,0.88
Poorer									1.55***	1.40,1.72
Middle									2.10***	1.89,2.33
Richer									2.52***	2.25,2.83
Richest									5.42***	4.68,6.28
Mali AMP 2010										
Intermediate/High endemicity	1.90	0.86,4.20	2.22	0.78,6.32	1.89	0.85,4.21	2.18	0.76,6.27	2.18	0.76,6.27
Target population in household			3.38***	2.17,5.27			3.42***	2.18,5.36	3.42***	2.18,5.36
Rural household					1.04	0.70,1.54	1.15	0.75,1.76	1.15	0.75,1.76
Poorer									-	-
Middle									-	-
Richer									-	-
Richest									-	-

(Continued...)

Table A15. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Namibia DHS 2006										
Intermediate/High endemicity	4.36***	3.45,5.49	4.13***	3.27,5.22	3.10***	2.35,4.08	3.03***	2.30,4.00	3.09***	2.32,4.12
Target population in household			1.80***	1.57,2.07			1.71***	1.49,1.97	1.70***	1.48,1.96
Rural household					0.53***	0.42,0.66	0.56***	0.44,0.70	0.56***	0.44,0.72
Poorer									1.35**	1.11,1.64
Middle									1.38**	1.11,1.72
Richer									1.40*	1.05,1.86
Richest									0.97	0.67,1.41
Nigeria MIS 2010										
Intermediate/High endemicity	2.97	0.39,22.29	2.62	0.34,19.97	2.09	0.27,16.16	1.92	0.25,15.04	1.92	0.23,16.31
Target population in household			1.67***	1.38,2.02			1.61***	1.32,1.95	1.58***	1.30,1.93
Rural household					0.61*	0.42,0.90	0.64*	0.44,0.94	0.75	0.50,1.13
Poorer									0.80	0.54,1.20
Middle									0.90	0.57,1.42
Richer									0.65	0.40,1.05
Richest									0.65	0.39,1.08
Rwanda DHS 2011										
Intermediate/High endemicity	2.38***	1.95,2.90	2.35***	1.91,2.89	2.47***	2.02,3.03	2.46***	1.99,3.03	2.38***	1.92,2.95
Target population in household			4.07***	3.39,4.89			4.12***	3.44,4.95	4.30***	3.58,5.17
Rural household					1.41***	1.16,1.72	1.48***	1.21,1.81	1.08	0.86,1.35
Poorer									1.40***	1.22,1.61
Middle									2.03***	1.70,2.43
Richer									2.67***	2.24,3.18
Richest									2.93***	2.39,3.58
Senegal DHS 2010										
Intermediate/High endemicity	3.17***	2.46,4.10	2.99***	2.33,3.84	2.50***	1.96,3.19	2.47***	1.94,3.14	2.10***	1.66,2.67
Target population in household			1.74***	1.47,2.06			1.63***	1.39,1.90	1.63***	1.41,1.90
Rural household					0.59***	0.46,0.76	0.65***	0.51,0.83	0.88	0.66,1.16
Poorer									1.11	0.86,1.44
Middle									1.08	0.79,1.49
Richer									0.68*	0.49,0.94
Richest									0.48***	0.33,0.70

(Continued...)

Table A15. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sierra Leone DHS 2008										
Intermediate/High endemicity	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Target population in household			1.45***	1.26,1.66			1.45***	1.26,1.66	1.45***	1.27,1.66
Rural household					0.98	0.80,1.19	1.02	0.83,1.25	0.73*	0.55,0.98
Poorer									1.17	0.93,1.45
Middle									1.54***	1.22,1.94
Richer									1.90***	1.44,2.49
Richest									1.89***	1.31,2.72
Tanzania DHS 2010										
Intermediate/High endemicity	1.71***	1.42,2.07	1.50***	1.22,1.85	1.73***	1.43,2.10	1.54***	1.25,1.91	1.74***	1.38,2.19
Target population in household			4.27***	3.50,5.21			4.43***	3.63,5.40	4.74***	3.89,5.77
Rural household					1.12	0.95,1.32	1.32**	1.11,1.57	0.76*	0.62,0.95
Poorer									1.35***	1.13,1.60
Middle									1.49***	1.23,1.79
Richer									2.17***	1.72,2.75
Richest									3.04***	2.27,4.09
Uganda MIS 2009										
Intermediate/High endemicity	1.41	0.96,2.06	1.30	0.87,1.94	1.42	0.96,2.10	1.29	0.85,1.94	1.27	0.83,1.96
Target population in household			1.79***	1.53,2.08			1.80***	1.54,2.09	1.82***	1.56,2.12
Rural household					0.97	0.69,1.37	1.06	0.75,1.50	0.95	0.70,1.30
Poorer									0.91	0.68,1.21
Middle									1.16	0.78,1.73
Richer									0.99	0.70,1.40
Richest									1.22	0.85,1.77
Zambia DHS 2007										
Intermediate/High endemicity	1.26*	1.01,1.58	1.22	0.97,1.53	1.32*	1.03,1.70	1.30*	1.01,1.68	1.51***	1.19,1.93
Target population in household			1.34***	1.19,1.51			1.35***	1.20,1.52	1.42***	1.26,1.60
Rural household					1.07	0.86,1.33	1.10	0.89,1.37	0.60***	0.45,0.81
Poorer									1.31*	1.06,1.62
Middle									1.48***	1.19,1.84
Richer									2.03***	1.50,2.75
Richest									3.53***	2.41,5.17

(Continued...)

Table A15. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Zimbabwe DHS 2010										
Intermediate/High endemicity	4.47***	3.46,5.77	4.44***	3.43,5.73	5.28***	3.92,7.10	5.26***	3.91,7.07	5.53***	4.10,7.46
Target population in household			1.13	0.98,1.31			1.16*	1.01,1.35	1.19*	1.03,1.38
Rural household					1.45**	1.11,1.88	1.46**	1.12,1.90	1.13	0.85,1.51
Poorer									0.94	0.76,1.15
Middle									1.04	0.83,1.30
Richer									1.18	0.91,1.53
Richest									1.67**	1.20,2.31

OR = Odds ratio, CI = Confidence interval, * p<0.05, ** p<0.01, *** p<0.001

Reference categories:

Intermediate/High endemicity (Ref: No\Low endemicity)

Target population in household (Ref: No member of target population in household)

Rural household (Ref: Urban household)

Wealth (Poorer, Middle, Richer, Richest) (Ref: Poorest)

Appendix B: Use

Table B1. Percent of individuals by season categories (4)

	Seasonality					
	No season	Out season	Transition season	In season	Total	N
Angola MIS 2011	28.9	17.8	9.8	43.6	100.0	35,431
DRC DHS 2007	6.6	0.8	10.1	82.5	100.0	42,337
Ghana DHS 2008	-	1.6	10.1	88.2	100.0	40,883
Kenya DHS 2008	49.4	22.8	1.6	26.3	100.0	35,772
Liberia MIS 2011						
Madagascar DHS 2008	37.9	5.4	3.7	53.0	100.0	76,131
Malawi DHS 2010	14.1	61.5	20.1	4.4	100.0	105,251
Mali AMP 2010	5.4		0.5	94.0	100.0	8,749
Namibia DHS 2006	44.6	6.0	9.4	40.0	100.0	37,957
Nigeria MIS 2010		0.4	19.5	80.1	100.0	28,284
Rwanda DHS 2011	51.5	21.3	7.1	20.2	100.0	52,877
Senegal DHS 2010						
Sierra Leone DHS 2008	0.4	63.9	5.5	30.2	100.0	38,348
Swaziland DHS 2006	29.0	50.9	8.5	11.6	100.0	20,520
Tanzania DHS 2010	13.3	8.3	4.4	74.0	100.0	42,557
Uganda MIS 2009	7.8	16.9	4.2	71.1	100.0	19,160
Zambia DHS 2007	10.5	58.8	15.4	15.4	100.0	31,332
Zimbabwe DHS 2010	50.2	16.7	14.5	18.6	100.0	37,475

Table B2. Percent of individuals, children under 5 years, and pregnant women use of ITN previous night (All in households included)

	All individuals		Children under 5 years		Pregnant women	
	Percent	N	Percent	N	Percent	N
Angola MIS 2011	19.2	35,431	26.4	7,584	25.9	1,281
DRC DHS 2007	4.5	42,337	6.0	8,035	7.5	1,038
Ghana DHS 2008	20.9	40,883	39.1	5,443	27.0	340
Kenya DHS 2008	35.6	35,772	47.1	5,569	48.6	574
Liberia MIS 2011	32.3	17,255	37.8	3,185	39.8	352
Madagascar DHS 2008	37.3	76,131	46.3	11,871	46.8	1,355
Malawi DHS 2010	29.0	105,251	39.5	18,074	34.6	1,963
Mali AMP 2010*	57.1	8,749	72.2	1,867	-	-
Namibia DHS 2006	5.6	37,957	10.6	4,977	9.0	507
Nigeria MIS 2010	23.0	28,284	28.9	5,810	33.2	709
Rwanda DHS 2011	57.8	52,877	69.8	8,611	72.2	932
Senegal DHS 2010	28.7	67,087	34.3	11,364	36.1	1,148
Sierra Leone DHS 2008	19.6	38,348	26.5	6,000	27.7	589
Swaziland DHS 2006	0.2	20,520	0.6	2,919	0.6	279
Tanzania DHS 2010	45.3	42,557	64.1	7,302	57.1	894
Uganda MIS 2009	25.8	19,160	32.8	3,699	43.5	395
Zambia DHS 2007	23.4	31,332	29.0	5,827	32.8	725
Zimbabwe DHS 2010	8.6	37,475	9.6	5,539	9.1	705

*No information collected on pregnant women in Mali

Table B3. Percent of individuals, children under 5 years, and pregnant women use of ITN previous night (Only households with at least 1 ITN)

	All individuals		Children under 5 years		Pregnant women	
	Percent	N	Percent	N	Percent	N
Angola MIS 2011	52.7	12,919	62.4	3,208	69.3	479
DRC DHS 2007	44.4	4,295	54.7	882	65.0	120
Ghana DHS 2008	43.2	19,756	58.3	3,649	52.3	175
Kenya DHS 2008	58.7	21,695	69.2	3,793	76.3	366
Liberia MIS 2011	61.4	9,086	69.1	1,742	77.3	181
Madagascar DHS 2008	63.2	44,896	71.8	7,658	76.9	825
Malawi DHS 2010	48.5	62,996	59.1	12,071	56.3	1,207
Mali AMP 2010*	63.7	7,844	78.2	1,724	-	-
Namibia DHS 2006	23.1	9,188	34.3	1,546	31.7	144
Nigeria MIS 2010	49.9	13,027	58.7	2,859	64.9	363
Rwanda DHS 2011	67.5	45,234	75.3	7,978	81.0	831
Senegal DHS 2010	43.6	44,229	48.8	7,987	51.4	806
Sierra Leone DHS 2008	51.3	14,663	61.9	2,571	71.0	230
Swaziland DHS 2006	4.7	1,085	7.5	224	(5.8)	27
Tanzania DHS 2010	63.7	30,270	76.8	6,093	74.1	689
Uganda MIS 2009	50.3	9,807	59.1	2,052	77.6	222
Zambia DHS 2007	41.8	17,524	49.4	3,425	58.0	410
Zimbabwe DHS 2010	28.3	11,340	30.2	1,757	30.0	215

*No information collected on pregnant women in Mali

Table B4. Percent of individual use of ITN previous night by season categories (4) and by Urban-Rural residence (All households included)

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	21.9	[17.7,26.0]	16.5	[13.5,19.5]	15.0	[9.1,20.9]	19.5	[17.3,21.8]	19.2	[17.5,21.0]	35,431
	Urban	20.3	[14.1,26.4]	8.6	[4.5,12.6]	14.2	[1.4,27.1]	18.7	[16.4,21.0]	18.7	[16.1,21.3]	20,977
Angola MIS 2011	Rural	24.5	[20.2,28.7]	17.0	[13.9,20.1]	15.5	[12.5,18.5]	23.3	[15.7,30.8]	20.0	[17.7,22.2]	14,454
	Total	2.7	[1.4,4.1]	3.0	[0.4,5.6]	4.3	[1.3,7.4]	4.7	[3.8,5.6]	4.5	[3.7,5.3]	42,337
	Urban	0.7	[0.0,1.4]	-	-	1.6	[-0.1,3.3]	3.8	[2.6,4.9]	3.4	[2.4,4.3]	24,148
DRC DHS 2007	Rural	4.6	[2.1,7.2]	3.0	[0.4,5.6]	7.9	[2.8,12.9]	6.0	[4.7,7.2]	6.0	[4.8,7.2]	18,189
	Total	-	-	12.0	[7.5,16.4]	11.3	[8.8,13.9]	22.1	[20.9,23.3]	20.9	[19.7,22.0]	40,883
	Urban	-	-	11.6	[10.4,12.8]	12.0	[3.7,20.4]	26.3	[24.6,28.1]	25.9	[24.2,27.6]	22,951
Ghana DHS 2008	Rural	-	-	12.1	[6.1,18.1]	11.2	[8.5,14.0]	15.3	[13.9,16.7]	14.4	[13.2,15.6]	17,932
	Total	28.0	[24.5,31.4]	42.1	[37.2,47.1]	42.7	[33.5,51.9]	43.9	[40.3,47.5]	35.6	[33.3,37.9]	35,772
	Urban	24.0	[19.9,28.1]	39.0	[33.8,44.3]	38.8	[31.4,46.2]	42.5	[38.4,46.5]	32.8	[30.1,35.4]	28,491
Kenya DHS 2008	Rural	41.2	[35.3,47.0]	62.2	[55.8,68.6]	58.0	[38.4,77.5]	49.2	[40.2,58.3]	46.8	[42.1,51.5]	7,282
	Total	-	-	30.7	[27.4,34.0]	-	-	32.6	[29.4,35.9]	32.3	[29.6,35.1]	17,255
	Urban	-	-	30.1	[26.5,33.6]	-	-	30.7	[26.2,35.2]	30.5	[27.0,34.1]	8,903
Liberia MIS 2011	Rural	-	-	32.7	[25.2,40.3]	-	-	34.4	[29.8,38.9]	34.2	[30.0,38.5]	8,352
	Total	17.3	[14.8,19.7]	45.9	[38.8,53.0]	45.7	[36.5,54.9]	50.1	[48.2,52.0]	37.3	[35.9,38.6]	76,131
	Urban	12.6	[9.6,15.5]	45.7	[38.1,53.3]	45.0	[35.6,54.3]	48.9	[46.8,50.9]	36.1	[34.6,37.7]	65,276
Madagascar DHS 2008	Rural	33.2	[29.5,36.8]	47.8	[36.7,58.9]	63.7	[63.7,63.7]	61.7	[57.7,65.7]	44.0	[41.2,46.8]	10,855
	Total	26.7	[24.0,29.4]	27.3	[25.9,28.7]	34.7	[32.6,36.9]	34.6	[28.0,41.1]	29.0	[28.0,30.1]	105,251
	Urban	23.4	[20.6,26.2]	25.5	[24.1,27.0]	34.6	[32.5,36.8]	27.7	[21.9,33.5]	27.4	[26.2,28.5]	88,862
Malawi DHS 2011	Rural	41.5	[36.8,46.2]	36.0	[32.1,39.8]	36.2	[21.9,50.5]	50.9	[43.8,57.9]	38.1	[35.0,41.3]	16,389
	Total	51.2	[41.6,60.9]	-	-	77.8	[77.8,77.8]	57.4	[54.3,60.4]	57.1	[54.2,60.1]	8,749
	Urban	52.2	[41.6,62.8]	-	-	77.8	[77.8,77.8]	57.8	[54.0,61.5]	57.6	[54.0,61.2]	6,787
Mali AMP 2010	Rural	47.4	[25.2,69.7]	-	-			55.9	[50.9,60.9]	55.5	[50.6,60.4]	1,962
	Total	2.7	[1.9,3.5]	9.6	[4.9,14.3]	5.2	[3.2,7.2]	8.3	[7.1,9.5]	5.6	[5.0,6.2]	37,957
	Urban	3.3	[1.1,5.5]	10.6	[5.5,15.6]	4.3	[2.3,6.3]	8.3	[6.9,9.7]	6.8	[5.9,7.8]	22,251
Namibia DHS 2006	Rural	2.4	[1.8,3.0]	4.3	[-1.9,10.4]	8.5	[2.7,14.3]	8.3	[6.2,10.4]	3.8	[3.1,4.5]	15,707
	Total	-	-	4.9	[2.2,7.7]	42.8	[35.9,49.7]	18.2	[15.1,21.4]	23.0	[20.0,25.9]	28,284
	Urban	-	-	3.8	[3.8,3.8]	44.3	[36.4,52.3]	20.1	[16.0,24.2]	25.5	[21.8,29.2]	20,726
Nigeria MIS 2010	Rural	-	-	17.4	[17.4,17.4]	34.0	[25.3,42.7]	13.8	[9.6,18.0]	16.0	[12.0,20.0]	7,559
	Total	51.8	[49.9,53.7]	61.9	[59.4,64.3]	65.3	[60.7,69.9]	66.0	[63.4,68.6]	57.8	[56.6,58.9]	52,877
	Urban	51.2	[49.2,53.2]	62.2	[59.5,64.8]	63.6	[58.4,68.8]	65.7	[62.7,68.7]	56.9	[55.6,58.2]	45,761
Rwanda DHS 2011	Rural	58.7	[52.8,64.7]	59.3	[52.3,66.3]	71.8	[63.7,79.8]	66.8	[62.0,71.7]	63.4	[60.1,66.8]	7,116

(Continued...)

Table B4. – *Continued*

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	58.0	[58.0,58.0]	35.2	[31.7,38.7]	30.9	[28.2,33.7]	14.6	[9.7,19.4]	28.7	[26.7,30.8]	67,087
	Urban	-	-	34.1	[30.4,37.9]	30.5	[27.2,33.9]	23.8	[14.1,33.5]	31.9	[29.5,34.3]	36,722
Senegal DHS 2010	Rural	58.0	[58.0,58.0]	38.0	[30.1,45.8]	31.7	[26.8,36.6]	14.0	[8.9,19.1]	24.9	[21.6,28.2]	30,365
	Total	25.8	[24.0,27.6]	21.1	[19.2,23.1]	18.7	[14.8,22.6]	16.5	[13.7,19.2]	19.6	[18.1,21.1]	38,348
	Urban	25.8	[24.0,27.6]	22.9	[20.2,25.6]	18.3	[13.2,23.4]	16.0	[13.3,18.8]	20.3	[18.4,22.2]	25,805
Sierra Leone DHS 2008	Rural	-	-	18.1	[15.3,20.8]	19.2	[13.2,25.1]	18.0	[10.3,25.8]	18.1	[15.6,20.7]	12,543
	Total	28.4	[23.6,33.3]	43.6	[34.6,52.6]	41.2	[34.5,47.9]	48.7	[46.6,50.9]	45.3	[43.5,47.1]	42,557
	Urban	27.0	[22.0,32.1]	35.7	[21.0,50.4]	41.5	[33.9,49.0]	47.8	[45.5,50.0]	43.8	[41.8,45.8]	32,920
Tanzania DHS 2010	Rural	37.2	[20.6,53.8]	50.4	[44.1,56.7]	40.1	[25.9,54.4]	52.3	[47.0,57.7]	50.3	[46.2,54.3]	9,638
	Total	18.7	[10.7,26.7]	22.2	[15.8,28.6]	28.6	[9.5,47.7]	27.2	[23.6,30.8]	25.8	[22.8,28.7]	19,160
	Urban	18.7	[10.7,26.7]	21.9	[15.1,28.7]	28.6	[9.5,47.7]	26.6	[22.2,31.0]	25.1	[21.7,28.5]	16,543
Uganda MIS 2008	Rural	-	-	27.1	[27.1,27.1]	-	-	30.2	[24.2,36.1]	29.9	[24.5,35.3]	2,618
	Total	20.8	[16.3,25.4]	21.9	[19.5,24.2]	27.4	[22.7,32.2]	26.7	[22.5,30.8]	23.4	[21.7,25.0]	31,332
	Urban	18.6	[13.9,23.4]	23.4	[19.9,26.9]	27.0	[22.0,32.0]	24.0	[18.5,29.6]	23.9	[21.7,26.1]	20,129
Zambia DHS 2007	Rural	23.1	[15.3,30.8]	19.7	[17.0,22.4]	35.0	[25.6,44.4]	31.3	[25.3,37.3]	22.4	[20.1,24.7]	11,203
	Total	6.1	[4.7,7.4]	7.7	[5.4,10.1]	9.0	[6.2,11.8]	15.6	[11.0,20.1]	8.6	[7.3,9.8]	37,475
	Urban	5.9	[3.4,8.4]	7.6	[5.0,10.2]	8.4	[5.5,11.4]	15.8	[10.7,20.9]	9.1	[7.4,10.9]	25,846
Zimbabawe DHS 2010	Rural	6.2	[5.1,7.4]	9.1	[6.1,12.0]	14.1	[6.9,21.4]	14.0	[7.6,20.3]	7.3	[6.1,8.5]	11,629

Table B5. Percent of children under 5 years use of ITN previous night by season categories (4) and by Urban-Rural residence (All households included)

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	29.4	[23.5,35.2]	23.8	[19.2,28.4]	20.8	[10.8,30.8]	26.4	[23.4,29.5]	26.4	[23.9,29.0]	7,584
	Urban	26.9	[18.6,35.1]	9.1	[4.4,13.8]	18.1	[1.5,34.7]	25.4	[22.1,28.6]	24.9	[21.4,28.4]	5,071
Angola MIS 2011	Rural	34.5	[27.9,41.1]	25.4	[21.3,29.5]	24.4	[18.1,30.7]	32.6	[23.6,41.5]	29.5	[26.3,32.6]	2,514
	Total	3.3	[0.7,5.8]	5.2	[0.1,10.2]	6.3	[1.0,11.5]	6.2	[4.8,7.6]	6.0	[4.7,7.3]	8,035
	Urban	0.5	[-0.1,1.0]	-	-	2.3	[-0.2,4.8]	5.2	[3.3,7.0]	4.6	[3.1,6.2]	4,798
DRC DHS 2007	Rural	6.1	[0.8,11.4]	5.2	[0.0,10.3]	12.4	[1.8,23.1]	7.7	[5.8,9.7]	8.0	[6.0,10.1]	3,237
	Total	-	-	24.8	[18.8,30.8]	31.0	[23.8,38.2]	40.0	[37.9,42.1]	39.1	[37.1,41.1]	5,443
	Urban	-	-	(31.8)	[29.5,34.1]	19.0	[6.8,31.3]	43.8	[41.0,46.5]	43.2	[40.5,45.9]	3,333
Ghana DHS 2008	Rural	-	-	(22.1)	[14.7,29.6]	33.2	[25.5,40.9]	32.8	[29.4,36.1]	32.6	[29.6,35.6]	2,110
	Total	38.1	[32.5,43.8]	53.7	[47.1,60.3]	60.5	[53.4,67.5]	57.1	[53.3,60.9]	47.1	[43.7,50.6]	5,569
	Urban	33.6	[27.2,40.0]	50.5	[43.3,57.6]	59.0	[51.7,66.3]	55.9	[51.5,60.2]	43.8	[39.9,47.8]	4,583
Kenya DHS 2008	Rural	58.6	[51.8,65.5]	72.3	[58.0,86.5]	67.2	[50.7,83.7]	62.3	[53.7,71.0]	62.4	[57.6,67.2]	986
	Total	-	-	37.3	[32.5,42.0]	-	-	37.9	[34.0,41.8]	37.8	[34.5,41.1]	3,185
	Urban	-	-	36.9	[31.8,42.1]	-	-	34.7	[29.5,39.9]	35.2	[31.0,39.3]	1,895
Liberia MIS 2011	Rural	-	-	38.8	[26.3,51.3]	-	-	41.9	[36.1,47.6]	41.7	[36.3,47.0]	1,290
	Total	22.7	[19.0,26.4]	49.2	[40.2,58.2]	58.2	[52.7,63.8]	60.4	[57.9,62.9]	46.3	[44.3,48.3]	11,871
	Urban	17.3	[12.9,21.6]	48.6	[39.1,58.1]	58.0	[52.3,63.7]	59.5	[56.8,62.1]	45.0	[42.8,47.2]	10,575
Madagascar DHS 2008	Rural	47.3	[42.1,52.5]	*	*	66.7	[66.7,66.7]	72.1	[66.4,77.9]	57.1	[53.2,61.0]	1,296
	Total	38.9	[35.1,42.6]	37.5	[35.6,39.4]	44.8	[42.1,47.6]	44.8	[36.5,53.0]	39.5	[38.0,41.0]	18,074
	Urban	35.8	[31.7,39.9]	36.2	[34.1,38.2]	44.6	[41.8,47.4]	38.1	[29.5,46.7]	38.1	[36.6,39.6]	15,634
Malawi DHS 2011	Rural	55.9	[49.2,62.6]	45.0	[38.4,51.6]	48.3	[34.5,62.2]	63.3	[54.3,72.4]	48.4	[43.3,53.5]	2,440
	Total	61.5	[50.7,72.4]	-	-	*	*	72.9	[68.7,77.2]	72.2	[68.2,76.3]	1,867
	Urban	63.1	[51.6,74.6]	-	-	*	*	74.1	[69.0,79.2]	73.4	[68.6,78.2]	1,508
Mali AMP 2010	Rural	54.5	[24.8,84.3]	-	-	-	-	68.2	[61.4,74.9]	67.3	[60.6,74.1]	359
	Total	5.0	[3.4,6.7]	15.7	[9.2,22.2]	11.0	[6.3,15.7]	15.3	[12.8,17.8]	10.6	[9.3,12.0]	4,977
	Urban	6.3	[2.8,9.8]	16.5	[9.6,23.5]	9.2	[4.7,13.7]	15.3	[12.5,18.0]	12.4	[10.6,14.2]	3,265
Namibia DHS 2006	Rural	4.2	[2.7,5.7]	*	*	17.4	[3.8,31.0]	15.6	[10.8,20.3]	7.3	[5.6,8.9]	1,712
	Total	-	-	(4.8)	[0.4,9.2]	52.2	[43.4,60.9]	22.7	[18.7,26.6]	28.9	[24.9,32.8]	5,810
	Urban	-	-	(3.1)	[3.1,3.1]	53.4	[43.4,63.4]	23.8	[18.9,28.7]	30.8	[25.9,35.7]	4,490
Nigeria MIS 2010	Rural	-	-	*	*	43.7	[36.3,51.1]	19.3	[13.4,25.2]	22.2	[16.9,27.6]	1,320
	Total	67.3	[65.3,69.3]	72.6	[69.8,75.4]	71.0	[66.1,75.9]	72.4	[68.9,75.9]	69.8	[68.4,71.2]	8,611
	Urban	66.8	[64.7,69.0]	72.4	[69.4,75.5]	68.8	[63.3,74.3]	70.8	[66.7,74.8]	68.9	[67.4,70.5]	7,588
Rwanda DHS 2011	Rural	73.2	[67.0,79.4]	74.3	[69.4,79.3]	81.7	[73.7,89.6]	77.8	[71.4,84.1]	76.1	[72.6,79.6]	1,023

(Continued...)

Table B5. – *Continued*

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	*	*	40.4	[36.4,44.5]	35.5	[31.9,39.0]	19.6	[13.4,25.8]	34.3	[31.8,36.9]	11,364
	Urban	-	-	38.6	[34.1,43.1]	35.1	[30.9,39.3]	25.6	[14.2,37.0]	36.4	[33.4,39.4]	7,047
Senegal DHS 2010	Rural	*	*	47.0	[38.0,56.0]	36.5	[29.5,43.5]	19.2	[12.6,25.8]	30.9	[26.5,35.3]	4,317
	Total	*	*	29.3	[26.1,32.5]	26.8	[20.0,33.6]	20.0	[15.5,24.5]	26.5	[24.0,29.0]	6,000
	Urban	*	*	28.4	[24.4,32.4]	23.3	[17.0,29.7]	18.7	[14.9,22.6]	25.1	[22.3,28.0]	4,388
Sierra Leone DHS 2008	Rural	-	-	31.4	[26.4,36.3]	31.7	[19.6,43.8]	25.6	[8.9,42.2]	30.3	[25.4,35.2]	1,611
	Total	55.3	[46.6,64.0]	54.0	[39.4,68.5]	65.2	[54.1,76.2]	66.4	[63.8,69.1]	64.1	[61.4,66.7]	7,302
	Urban	53.9	[44.2,63.6]	44.8	[23.7,65.9]	67.1	[56.3,77.9]	66.8	[63.8,69.8]	64.0	[61.0,67.1]	5,884
Tanzania DHS 2010	Rural	63.1	[46.2,79.9]	64.8	[57.3,72.3]	(55.3)	[22.6,87.9]	64.6	[58.3,71.0]	64.2	[59.5,68.9]	1,418
	Total	*	*	27.1	[18.9,35.2]	38.1	[13.4,62.7]	34.1	[29.2,39.0]	32.8	[28.9,36.7]	3,699
	Urban	*	*	26.1	[17.9,34.4]	38.1	[13.4,62.7]	34.6	[28.8,40.3]	32.8	[28.4,37.3]	3,205
Uganda MIS 2008	Rural	-	-	57.1	[57.1,57.1]	31.8	[23.9,39.8]	32.7	[24.3,41.1]	-	-	494.0
	Total	26.6	[20.6,32.5]	27.4	[24.2,30.6]	32.6	[26.1,39.1]	32.8	[27.4,38.1]	29.0	[26.7,31.3]	5,827
	Urban	22.3	[16.0,28.6]	27.8	[23.5,32.0]	32.3	[25.5,39.2]	28.7	[22.2,35.2]	28.5	[25.7,31.3]	4,171
Zambia DHS 2007	Rural	32.7	[22.5,42.9]	26.6	[22.2,31.1]	37.6	[22.1,53.1]	43.7	[38.4,49.0]	30.3	[26.6,34.1]	1,656
	Total	7.2	[5.6,8.8]	7.8	[5.0,10.6]	10.1	[6.7,13.5]	17.0	[11.3,22.7]	9.6	[8.0,11.2]	5,539
	Urban	5.1	[2.9,7.4]	7.8	[4.8,10.8]	9.5	[6.0,13.1]	17.2	[11.0,23.4]	9.4	[7.4,11.4]	4,017
Zimbabwe DHS 2010	Rural	9.4	[7.1,11.8]	8.1	[2.7,13.5]	14.9	[3.7,26.1]	15.1	[5.3,24.9]	10.1	[7.9,12.3]	1,522

Table B6. Percent of pregnant women use of ITN previous night by season categories (4) and by Urban-Rural residence (All households included)

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	30.3	[21.7,38.9]	24.6	[15.3,33.9]	22.1	[6.5,37.7]	24.4	[20.5,28.4]	25.9	[22.2,29.7]	1,281
	Urban	28.0	[17.7,38.3]	*	*	22.5	[-2.0,47.1]	23.8	[19.3,28.4]	24.9	[20.0,29.8]	883
Angola MIS 2011	Rural	36.2	[19.7,52.7]	25.2	[15.7,34.6]	21.3	[12.2,30.4]	27.5	[20.9,34.0]	28.2	[22.5,34.0]	398
	Total	3.4	[-0.7,7.6]	*	*	4.5	[-1.3,10.2]	8.3	[4.7,11.9]	7.5	[4.4,10.5]	1,038
	Urban	-	-	-	-	(7.0)	[-1.7,15.6]	6.6	[2.8,10.4]	6.3	[3.0,9.6]	638
DRC DHS 2007	Rural	*	*	*	*	(0.0)	[0.0,0.0]	11.0	[4.3,17.7]	9.4	[3.7,15.0]	400
	Total	-	-	*	*	*	*	28.0	[22.7,33.4]	27.0	[21.9,32.0]	340
	Urban	-	-	*	*	*	*	34.5	[27.6,41.5]	34.0	[27.2,40.8]	200
Ghana DHS 2008	Rural	-	-	*	*	*	*	16.4	[8.6,24.3]	16.9	[9.9,24.0]	140
	Total	35.3	[25.2,45.4]	59.5	[49.7,69.2]	*	*	60.8	[49.7,71.9]	48.6	[41.6,55.7]	574
	Urban	29.8	[19.5,40.0]	59.9	[49.2,70.6]	*	*	62.9	[49.2,76.6]	47.9	[39.6,56.2]	429
Kenya DHS 2008	Rural	47.7	[25.5,69.9]	*	*	*	*	(53.2)	[46.0,60.4]	50.9	[37.6,64.2]	145
	Total	-	-	38.5	[27.3,49.7]	-	-	40.0	[32.9,47.1]	39.8	[33.5,46.0]	352
	Urban	-	-	(42.5)	[31.2,53.9]	-	-	37.9	[28.9,46.9]	39.0	[31.5,46.4]	199
Liberia MIS 2011	Rural	-	-	*	*	-	-	42.3	[31.2,53.4]	40.8	[30.1,51.6]	152
	Total	20.0	[14.3,25.8]	40.8	[24.8,56.9]	49.9	[34.2,65.7]	60.6	[56.2,65.0]	46.8	[43.2,50.4]	1,355
	Urban	16.1	[9.5,22.8]	39.3	[21.7,57.0]	47.0	[31.3,62.7]	59.9	[55.3,64.6]	46.3	[42.4,50.2]	1,203
Madagascar DHS 2008	Rural	35.7	[23.1,48.4]	*	*	*	*	69.8	[58.8,80.8]	51.0	[41.9,60.0]	152
	Total	36.9	[29.1,44.7]	31.2	[27.8,34.6]	44.1	[38.7,49.4]	28.5	[19.6,37.4]	34.6	[31.9,37.2]	1,963
	Urban	34.5	[26.2,42.8]	30.5	[27.1,33.9]	44.0	[38.6,49.5]	27.7	[19.1,36.4]	33.9	[31.3,36.6]	1,739
Malawi DHS 2011	Rural	(47.0)	[27.7,66.3]	36.9	[20.8,53.1]	(44.4)	[19.0,69.8]	*	*	39.6	[28.5,50.7]	224
	Total	-	-	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-	-	-	-	-
	Total	2.4	[1.1,3.7]	*	*	(1.9)	[-1.8,5.6]	17.6	[11.6,23.7]	9.0	[6.3,11.7]	507
	Urban	1.3	[-0.6,3.2]	*	*	(0.0)	[0.0,0.0]	17.3	[10.1,24.4]	10.9	[6.7,15.1]	296
Namibia DHS 2006	Rural	3.0	[1.3,4.7]	-	-	8.2	[-7.8,24.1]	19.2	[9.3,29.1]	6.2	[3.6,8.9]	211
	Total	-	-	*	*	61.9	[48.3,75.5]	23.5	[18.0,29.1]	33.2	[26.7,39.7]	709
	Urban	-	-	*	*	64.0	[49.8,78.3]	27.6	[20.3,34.8]	38.3	[30.3,46.3]	548
Nigeria MIS 2010	Rural	-	-	*	*	*	*	12.8	[6.6,19.0]	15.9	[9.4,22.4]	161
	Total	68.8	[64.5,73.0]	74.6	[67.9,81.3]	73.9	[63.7,84.2]	77.3	[71.2,83.4]	72.2	[69.2,75.2]	932
	Urban	67.1	[62.5,71.7]	74.3	[67.0,81.5]	68.6	[57.0,80.3]	(77.6)	[70.2,85.1]	70.8	[67.4,74.1]	784
Rwanda DHS 2011	Rural	82.1	[72.8,91.4]	(77.2)	[61.0,93.4]	*	*	76.4	[66.1,86.7]	80.0	[73.9,86.0]	148

(Continued...)

Table B6. – *Continued*

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	*	*	40.6	[34.2,47.0]	40.6	[35.1,46.1]	18.2	[8.1,28.2]	36.1	[31.8,40.4]	1,148
	Urban	-	-	36.9	[30.1,43.8]	39.6	[33.6,45.6]	*	*	38.4	[33.9,42.9]	712
Senegal DHS 2010	Rural	*	*	57.4	[43.2,71.6]	43.3	[30.2,56.5]	16.9	[6.8,27.1]	32.3	[24.1,40.5]	436
	Total	*	*	25.3	[20.2,30.4]	(35.7)	[18.9,52.4]	32.7	[22.6,42.8]	27.7	[23.2,32.1]	589
	Urban	*	*	27.4	[20.9,33.9]	*	*	34.4	[21.9,46.8]	29.7	[24.0,35.3]	425
Sierra Leone DHS 2008	Rural	-	-	19.4	[12.8,25.9]	*	*	(28.4)	[12.9,44.0]	22.5	[16.3,28.7]	164
	Total	42.1	[25.4,58.8]	52.5	[32.8,72.2]	*	*	59.7	[54.6,64.7]	57.1	[52.4,61.8]	894
	Urban	43.6	[25.2,62.0]	(64.5)	[42.6,86.4]	*	*	61.5	[56.0,67.0]	59.6	[54.5,64.8]	719
Tanzania DHS 2010	Rural	*	*	(41.4)	[15.2,67.6]	*	*	50.0	[37.2,62.8]	46.7	[36.0,57.4]	174
	Total	*	*	29.5	[14.2,44.9]	*	*	47.1	[39.1,55.1]	43.5	[36.1,50.9]	395
	Urban	*	*	29.5	[14.2,44.9]	*	*	47.6	[38.4,56.7]	43.4	[35.2,51.6]	352
Uganda MIS 2008	Rural	-	-	-	-	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
	Total	32.0	[17.7,46.3]	30.1	[25.1,35.1]	40.3	[30.1,50.5]	37.3	[24.4,50.2]	32.8	[28.9,36.8]	725
	Urban	(33.2)	[15.2,51.2]	32.8	[26.8,38.8]	41.0	[30.1,51.8]	36.9	[19.9,53.9]	35.1	[30.4,39.8]	500
Zambia DHS 2007	Rural	(30.0)	[5.5,54.6]	25.3	[16.4,34.3]	*	*	(38.3)	[23.2,53.4]	27.8	[20.5,35.1]	225
	Total	7.0	[3.6,10.3]	5.3	[1.8,8.9]	8.3	[1.9,14.6]	19.2	[13.1,25.2]	9.1	[6.7,11.6]	705
	Urban	8.5	[2.4,14.7]	5.2	[1.5,8.9]	7.6	[0.9,14.3]	18.6	[12.2,25.0]	10.0	[6.9,13.1]	471
Zimbabwe DHS 2010	Rural	5.8	[2.3,9.4]	*	*	*	*	*	*	7.4	[3.8,11.0]	234

Table B7. Percent of individual use of ITN previous night by season categories (4) and by Urban-Rural residence (Only households with at least 1 ITN)

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	56.1	[52.7,59.6]	48.7	[44.7,52.7]	47.0	[39.7,54.4]	52.9	[49.9,55.9]	52.7	[50.8,54.6]	12,919
	Urban	60.3	[56.7,64.0]	(55.9)	[44.1,67.6]	56.1	[44.1,68.0]	51.8	[48.7,54.9]	54.6	[52.2,57.1]	7,182
Angola MIS 2011	Rural	51.2	[45.6,56.7]	48.5	[44.4,52.6]	42.1	[35.7,48.5]	57.6	[49.6,65.5]	50.3	[47.3,53.3]	5,736
	Total	53.1	[42.4,63.9]	(38.5)	[37.6,39.3]	52.9	[35.1,70.7]	43.4	[39.3,47.4]	44.4	[40.4,48.4]	4,295
	Urban	44.1	[27.7,60.4]	-	-	30.8	[18.4,43.3]	42.1	[35.2,49.0]	41.4	[34.9,47.8]	1,969
DRC DHS 2007	Rural	54.7	[42.6,66.8]	(38.5)	[37.6,39.3]	65.6	[48.3,82.9]	44.6	[40.0,49.1]	47.0	[42.1,51.9]	2,326
	Total	-	-	24.2	[17.5,31.0]	32.1	[26.2,38.1]	44.4	[42.8,46.1]	43.2	[41.6,44.8]	19,756
	Urban	-	-	30.7	[5.0,56.3]	28.8	[12.7,44.9]	48.1	[45.9,50.2]	47.6	[45.5,49.8]	12,477
Ghana DHS 2008	Rural	-	-	22.6	[15.7,29.5]	32.7	[26.3,39.0]	36.7	[34.4,39.0]	35.5	[33.3,37.6]	7,279
	Total	56.7	[53.0,60.4]	59.9	[54.6,65.1]	59.1	[52.5,65.8]	60.3	[57.7,63.0]	58.7	[56.6,60.9]	21,695
	Urban	50.8	[46.6,55.0]	56.7	[50.9,62.4]	54.8	[49.5,60.1]	57.7	[54.7,60.6]	54.7	[52.3,57.2]	17,050
Kenya DHS 2008	Rural	73.2	[68.6,77.8]	77.5	[73.4,81.5]	74.4	[65.9,83.0]	71.0	[64.7,77.4]	73.4	[70.2,76.6]	4,645
	Total	-	-	61.2	[56.3,66.1]	-	-	61.4	[58.7,64.1]	61.4	[59.0,63.8]	9,086
	Urban	-	-	63.4	[57.8,69.0]	-	-	59.5	[55.7,63.3]	60.3	[57.0,63.5]	4,511
Liberia MIS 2011	Rural	-	-	55.5	[46.3,64.6]	-	-	63.1	[59.4,66.8]	62.5	[59.0,66.0]	4,575
	Total	55.7	[51.8,59.5]	59.9	[53.2,66.7]	63.5	[51.4,75.6]	65.7	[64.2,67.1]	63.2	[61.8,64.5]	44,896
	Urban	49.0	[43.4,54.7]	60.0	[52.7,67.2]	62.7	[50.3,75.1]	64.6	[63.1,66.2]	61.8	[60.3,63.4]	38,143
Madagascar DHS 2008	Rural	67.4	[64.3,70.5]	59.5	[48.5,70.5]	79.6	[79.6,79.6]	74.7	[71.0,78.4]	70.7	[68.5,72.9]	6,753
	Total	47.9	[44.6,51.3]	46.7	[45.1,48.2]	53.3	[51.2,55.4]	51.5	[45.0,58.0]	48.5	[47.4,49.7]	62,996
	Urban	45.1	[41.2,49.1]	44.7	[43.0,46.4]	52.9	[50.8,55.1]	43.4	[38.7,48.0]	46.8	[45.5,48.0]	52,000
Malawi DHS 2011	Rural	56.8	[51.1,62.5]	55.0	[51.2,58.8]	59.6	[51.0,68.2]	68.0	[61.6,74.4]	56.8	[53.9,59.8]	10,996
	Total	64.1	[57.0,71.2]	-	-	77.8	[77.8,77.8]	63.6	[61.1,66.2]	63.7	[61.3,66.2]	7,844
	Urban	64.0	[55.5,72.5]	-	-	77.8	[77.8,77.8]	64.1	[61.0,67.2]	64.2	[61.3,67.1]	6,090
Mali AMP 2010	Rural	64.5	[54.3,74.6]	-	-	-	-	61.9	[57.5,66.3]	62.0	[57.8,66.3]	1,755
	Total	29.7	[23.4,36.0]	26.8	[17.8,35.7]	19.3	[13.0,25.7]	21.4	[18.8,24.0]	23.1	[21.1,25.0]	9,188
	Urban	22.3	[10.4,34.3]	27.1	[17.5,36.7]	15.7	[9.5,22.0]	20.4	[17.6,23.3]	20.8	[18.6,23.1]	7,312
Namibia DHS 2006	Rural	36.9	[30.6,43.2]	23.3	[8.1,38.6]	32.9	[16.0,49.9]	27.3	[22.5,32.2]	31.7	[28.0,35.5]	1,877
	Total	-	-	21.3	[13.1,29.4]	58.4	[52.4,64.5]	46.1	[42.5,49.7]	49.9	[47.0,52.8]	13,027
	Urban	-	-	(17.9)	[17.9,17.9]	58.8	[52.0,65.7]	48.3	[44.2,52.3]	51.9	[48.5,55.2]	10,190
Nigeria MIS 2010	Rural	-	-	(41.7)	[41.7,41.7]	55.5	[46.8,64.1]	39.9	[32.7,47.0]	42.7	[36.8,48.5]	2,838
	Total	64.9	[63.3,66.4]	68.4	[66.2,70.6]	71.3	[67.5,75.0]	71.1	[68.8,73.4]	67.5	[66.5,68.5]	45,234
	Urban	64.4	[62.8,66.1]	68.6	[66.2,71.0]	69.7	[65.5,73.9]	70.5	[67.8,73.3]	66.9	[65.8,68.0]	38,897
Rwanda DHS 2011	Rural	69.2	[64.6,73.9]	67.1	[61.1,73.1]	77.2	[70.2,84.2]	72.9	[68.6,77.1]	71.2	[68.5,73.9]	6,337

(Continued...)

Table B7. – *Continued*

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	64.8	[64.8,64.8]	44.8	[41.6,48.1]	44.9	[41.8,47.9]	35.1	[27.3,43.0]	43.6	[41.4,45.7]	44,229
	Urban	-	-	41.9	[38.1,45.6]	44.3	[41.2,47.5]	40.5	[31.0,49.9]	43.1	[40.7,45.6]	27,135
Senegal DHS 2010	Rural	64.8	[64.8,64.8]	53.6	[48.3,58.9]	45.9	[39.1,52.7]	34.7	[26.2,43.2]	44.2	[40.1,48.4]	17,094
	Total	58.8	[55.4,62.3]	53.0	[51.0,54.9]	48.7	[43.1,54.3]	47.6	[45.0,50.1]	51.3	[49.7,52.8]	14,663
	Urban	58.8	[55.4,62.3]	55.6	[53.1,58.1]	51.7	[43.7,59.6]	48.9	[45.7,52.1]	53.4	[51.5,55.4]	9,810
Sierra Leone DHS 2008	Rural	-	-	48.0	[45.1,50.9]	45.8	[38.1,53.4]	43.7	[38.9,48.5]	46.9	[44.5,49.2]	4,853
	Total	49.0	[44.0,54.1]	62.4	[48.3,76.5]	59.3	[53.2,65.5]	66.1	[64.4,67.8]	63.7	[61.8,65.5]	30,270
	Urban	47.4	[42.6,52.3]	49.0	[28.7,69.2]	57.3	[50.8,63.9]	64.3	[62.5,66.0]	61.2	[59.2,63.2]	23,572
Tanzania DHS 2010	Rural	57.7	[39.4,76.1]	74.9	[70.8,78.9]	70.1	[62.8,77.4]	73.3	[69.2,77.4]	72.3	[69.0,75.7]	6,698
	Total	37.3	[24.5,50.1]	51.9	[43.8,59.9]	56.5	[40.6,72.3]	51.0	[47.9,54.1]	50.3	[47.2,53.4]	9,807
	Urban	37.3	[24.5,50.1]	(50.2)	[42.4,57.9]	56.5	[40.6,72.3]	50.1	[47.0,53.2]	49.3	[46.1,52.4]	8,425
Uganda MIS 2008	Rural	-	-	88.5	[88.5,88.5]	-	-	55.2	[43.7,66.6]	56.7	[44.9,68.4]	1,383
	Total	43.3	[37.8,48.8]	38.2	[35.1,41.2]	49.9	[45.4,54.5]	46.9	[42.1,51.7]	41.8	[39.7,43.9]	17,524
	Urban	41.8	[35.5,48.1]	39.7	[35.3,44.1]	48.9	[44.2,53.7]	44.3	[37.3,51.3]	42.6	[39.8,45.4]	11,308
Zambia DHS 2007	Rural	44.6	[35.8,53.4]	35.8	[32.1,39.5]	65.7	[60.1,71.4]	51.1	[45.8,56.5]	40.4	[37.3,43.4]	6,217
	Total	30.3	[26.6,34.0]	20.5	[16.7,24.3]	21.9	[17.3,26.4]	36.7	[31.0,42.5]	28.3	[25.7,30.8]	11,340
	Urban	30.5	[24.0,36.9]	19.5	[15.5,23.5]	20.7	[15.7,25.6]	36.5	[30.2,42.8]	27.2	[24.0,30.5]	8,653
Zimbabwe DHS 2010	Rural	30.1	[26.1,34.2]	36.5	[23.7,49.4]	31.5	[26.7,36.3]	39.1	[29.4,48.8]	31.5	[28.1,35.0]	2,687

Table B8. Percent of children under 5 years use of ITN previous night by season categories (4) and by Urban-Rural residence (Only households with at least 1 ITN)

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	66.2	[61.3,71.2]	58.7	[52.8,64.5]	56.3	[45.1,67.4]	62.1	[58.7,65.5]	62.4	[59.9,65.0]	3,208
	Urban	68.8	[63.2,74.3]	*	*	63.3	[42.9,83.6]	61.0	[57.3,64.8]	63.3	[60.1,66.5]	1,995
Angola MIS 2011	Rural	62.5	[53.8,71.3]	59.3	[53.3,65.3]	50.6	[41.3,60.0]	67.2	[59.3,75.0]	61.1	[56.9,65.2]	1,213
	Total	(60.0)	[36.1,83.9]	*	*	61.7	[41.8,81.6]	53.8	[47.0,60.6]	54.7	[48.4,61.1]	882
	Urban	*	*	-	-	(41.9)	[15.5,68.3]	51.3	[40.3,62.2]	50.6	[40.2,60.9]	439
DRC DHS 2007	Rural	(63.5)	[37.1,89.9]	*	*	(71.5)	[51.8,91.1]	56.7	[49.4,64.0]	58.9	[51.8,65.9]	442
	Total	-	-	(35.7)	[24.4,47.0]	51.4	[40.9,61.9]	59.2	[56.6,61.7]	58.3	[55.9,60.7]	3,649
	Urban	-	-	*	*	(32.5)	[13.7,51.3]	61.3	[58.1,64.5]	60.8	[57.7,64.0]	2,366
Ghana DHS 2008	Rural	-	-	(28.9)	[21.2,36.6]	54.8	[43.8,65.8]	54.3	[49.9,58.6]	53.6	[49.6,57.6]	1,283
	Total	68.6	[64.6,72.7]	67.2	[60.3,74.2]	76.5	[67.4,85.7]	71.0	[67.1,74.8]	69.2	[66.5,71.9]	3,793
	Urban	63.9	[59.2,68.6]	64.3	[56.5,72.2]	75.8	[64.6,86.9]	68.2	[63.8,72.6]	65.7	[62.5,68.8]	3,059
Kenya DHS 2008	Rural	84.8	[79.5,90.2]	82.3	[74.7,89.9]	(79.8)	[70.2,89.4]	83.5	[80.0,86.9]	83.8	[80.6,87.0]	734
	Total	-	-	73.5	[68.6,78.4]	-	-	68.3	[64.7,71.9]	69.1	[65.9,72.3]	1,742
	Urban	-	-	77.8	[73.4,82.2]	-	-	64.6	[59.9,69.4]	67.3	[63.1,71.5]	991
Liberia MIS 2011	Rural	-	-	59.3	[49.4,69.1]	-	-	72.5	[67.3,77.8]	71.4	[66.4,76.5]	752
	Total	65.1	[60.0,70.2]	62.3	[52.9,71.7]	75.0	[69.2,80.7]	74.5	[72.4,76.5]	71.8	[70.0,73.7]	7,658
	Urban	58.1	[51.3,64.9]	61.7	[51.8,71.6]	74.9	[69.0,80.8]	73.7	[71.5,75.8]	70.5	[68.5,72.5]	6,754
Madagascar DHS 2008	Rural	81.2	[77.8,84.6]	70.2	[54.9,85.6]	*	*	83.8	[79.6,88.0]	81.9	[79.4,84.4]	904
	Total	61.1	[56.6,65.5]	57.7	[55.6,59.7]	62.0	[59.2,64.7]	59.2	[51.6,66.8]	59.1	[57.6,60.7]	12,071
	Urban	58.1	[53.0,63.2]	56.1	[53.9,58.4]	61.6	[58.8,64.5]	51.8	[43.8,59.7]	57.6	[56.0,59.2]	10,344
Malawi DHS 2011	Rural	74.4	[66.9,82.0]	65.7	[59.9,71.5]	68.1	[59.0,77.2]	77.8	[65.2,90.5]	68.4	[64.1,72.7]	1,726
	Total	78.9	[71.0,86.9]	-	-	*	*	78.2	[74.2,82.1]	78.2	[74.5,82.0]	1,724
	Urban	79.2	[69.9,88.6]	-	-	*	*	78.9	[74.1,83.7]	79.0	[74.5,83.4]	1,402
Mali AMP 2010	Rural	77.3	[65.6,89.0]	-	-	-	-	75.0	[69.1,81.0]	75.1	[69.4,80.9]	322
	Total	37.7	[28.7,46.8]	38.6	[25.3,51.9]	34.8	[22.4,47.2]	32.6	[28.3,36.9]	34.3	[30.9,37.6]	1,546
	Urban	31.5	[17.4,45.7]	38.1	[24.0,52.1]	29.1	[16.3,42.0]	31.4	[26.7,36.1]	31.9	[28.0,35.7]	1,272
Namibia DHS 2006	Rural	46.9	[37.8,55.9]	*	*	(55.6)	[32.8,78.4]	41.3	[32.4,50.1]	45.4	[39.2,51.6]	274
	Total	-	-	*	*	69.8	[63.1,76.4]	53.4	[48.7,58.2]	58.7	[54.8,62.5]	2,859
	Urban	-	-	*	*	70.8	[63.3,78.4]	54.2	[48.7,59.7]	60.0	[55.6,64.4]	2,307
Nigeria MIS 2010	Rural	-	-	*	*	62.0	[53.0,71.0]	50.8	[41.3,60.3]	53.1	[45.5,60.7]	553
	Total	74.6	[72.7,76.4]	76.1	[73.4,78.8]	74.4	[70.0,78.8]	76.6	[73.4,79.7]	75.3	[74.0,76.6]	7,978
	Urban	74.2	[72.2,76.1]	75.9	[73.0,78.8]	72.5	[67.6,77.5]	75.2	[71.6,78.9]	74.7	[73.3,76.1]	7,005
Rwanda DHS 2011	Rural	79.0	[73.7,84.3]	77.8	[73.7,81.9]	83.2	[75.3,91.0]	80.8	[74.8,86.7]	79.9	[76.8,83.0]	974

(Continued...)

Table B8. – *Continued*

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	*	*	49.7	[45.7,53.6]	50.2	[46.3,54.0]	40.4	[31.2,49.6]	48.8	[46.1,51.5]	7,987
	Urban	-	-	46.7	[42.2,51.1]	49.8	[45.9,53.6]	42.9	[31.7,54.1]	48.2	[45.2,51.2]	5,317
Senegal DHS 2010	Rural	*	*	61.1	[54.0,68.2]	51.2	[41.3,61.1]	40.2	[30.2,50.2]	50.0	[44.4,55.6]	2,670
	Total	*	*	63.6	[60.3,67.0]	65.3	[57.4,73.2]	55.8	[48.9,62.7]	61.9	[59.0,64.8]	2,571
	Urban	*	*	61.8	[57.5,66.0]	66.7	[55.9,77.6]	54.2	[48.2,60.2]	60.0	[56.5,63.4]	1,839
Sierra Leone DHS 2008	Rural	-	-	68.1	[63.2,72.9]	64.0	[52.3,75.6]	61.8	[40.6,83.0]	66.6	[61.5,71.7]	732
	Total	69.4	[63.2,75.6]	69.3	[49.0,89.5]	78.3	[70.1,86.4]	78.5	[76.6,80.4]	76.8	[74.4,79.2]	6,093
	Urban	68.8	[62.1,75.5]	55.6	[29.5,81.7]	76.5	[67.3,85.6]	77.9	[75.9,80.0]	75.6	[72.9,78.4]	4,981
Tanzania DHS 2010	Rural	72.6	[55.6,89.6]	86.7	[82.8,90.7]	*	*	81.4	[76.6,86.2]	81.9	[78.0,85.7]	1,112
	Total	49.6	[35.7,63.5]	54.9	[45.8,63.9]	70.5	[52.9,88.0]	60.0	[55.7,64.3]	59.1	[55.4,62.8]	2,052
	Urban	49.6	[35.6,63.5]	53.3	[44.3,62.2]	70.5	[52.9,88.0]	60.8	[56.2,65.3]	59.4	[55.4,63.3]	1,773
Uganda MIS 2008	Rural	-	-	*	*	-	-	56.3	[46.5,66.0]	57.8	[47.2,68.3]	280
	Total	54.2	[46.8,61.6]	44.6	[40.5,48.8]	57.1	[51.1,63.1]	57.6	[51.4,63.8]	49.4	[46.5,52.3]	3,425
	Urban	50.2	[43.3,57.2]	44.5	[39.1,50.0]	56.4	[50.1,62.6]	53.2	[45.0,61.4]	48.7	[45.1,52.3]	2,440
Zambia DHS 2007	Rural	58.7	[45.8,71.7]	44.9	[39.1,50.7]	71.3	[59.0,83.5]	67.3	[63.3,71.4]	51.0	[46.1,55.9]	985
	Total	33.2	[28.0,38.5]	19.9	[15.0,24.7]	23.6	[17.0,30.1]	41.6	[34.8,48.5]	30.2	[26.9,33.6]	1,757
	Urban	26.0	[19.0,33.1]	19.1	[14.2,24.1]	22.4	[15.5,29.2]	41.2	[33.9,48.4]	27.6	[23.6,31.6]	1,371
Zimbabwe DHS 2010	Rural	39.9	[32.3,47.4]	(37.6)	[16.3,58.9]	(33.1)	[13.6,52.6]	(47.2)	[25.7,68.8]	39.7	[33.0,46.3]	387

Table B9. Percent of pregnant women use of ITN previous night by season categories (4) and by Urban-Rural residence (Only households with at least 1 ITN)

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	74.8	[66.5,83.2]	57.6	[43.3,71.8]	(87.7)	[75.3,100.1]	65.7	[60.1,71.4]	69.3	[64.7,74.0]	479
	Urban	76.5	[69.3,83.6]	-	-	*	*	64.5	[58.0,71.0]	70.7	[65.2,76.1]	311
Angola MIS 2011	Rural	(71.8)	[52.0,91.6]	57.6	[43.2,71.9]	*	*	71.6	[61.2,82.0]	66.8	[58.3,75.4]	168
	Total	*	*	*	*	*	*	70.6	[57.5,83.8]	65.0	[52.0,78.0]	120
	Urban	*	*	*	*	*	*	67.2	[49.7,84.8]	62.4	[45.6,79.2]	64
DRC DHS 2007	Rural	*	*	*	*	*	*	74.4	[55.7,93.0]	68.0	[48.6,87.4]	55
	Total	-	-	*	*	*	*	52.5	[44.5,60.5]	52.3	[44.6,59.9]	175
	Urban	-	-	-	-	-	-	57.9	[48.9,66.8]	57.9	[48.9,66.8]	117
Ghana DHS 2008	Rural	-	-	*	*	*	*	(38.9)	[22.5,55.3]	41.0	[26.7,55.2]	58
	Total	72.3	[62.6,82.0]	76.3	[67.4,85.1]	*	*	80.5	[71.3,89.6]	76.3	[70.8,81.8]	366
	Urban	65.3	[53.4,77.3]	72.8	[63.2,82.4]	*	*	81.3	[70.6,92.1]	74.0	[67.2,80.7]	277
Kenya DHS 2008	Rural	84.9	[72.2,97.5]	*	*	*	*	(77.0)	[62.1,91.9]	83.5	[75.2,91.8]	88
	Total	-	-	(70.1)	[46.2,94.0]	-	-	78.8	[71.8,85.7]	77.3	[70.2,84.5]	181
	Urban	-	-	*	*	-	-	69.7	[61.0,78.4]	70.7	[61.5,79.8]	110
Liberia MIS 2011	Rural	-	-	*	*	-	-	90.0	[81.5,98.4]	87.7	[78.9,96.5]	71
	Total	62.3	[50.7,73.8]	59.5	[41.3,77.7]	79.4	[65.6,93.3]	81.3	[77.6,85.0]	76.9	[73.2,80.5]	825
	Urban	58.2	[42.8,73.6]	(58.3)	[38.0,78.6]	78.9	[62.9,94.8]	80.9	[77.0,84.8]	76.6	[72.6,80.6]	727
Madagascar DHS 2008	Rural	71.2	[56.3,86.1]	*	*	*	*	86.0	[74.9,97.1]	78.5	[70.1,87.0]	99
	Total	65.7	[53.7,77.7]	52.3	[47.6,57.0]	61.9	[55.4,68.5]	(50.7)	[33.8,67.5]	56.3	[52.6,59.9]	1,207
	Urban	63.2	[49.4,77.0]	50.7	[45.9,55.6]	61.5	[54.7,68.2]	(50.4)	[34.7,66.2]	54.9	[51.0,58.7]	1,076
Malawi DHS 2011	Rural	(74.9)	[54.6,95.1]	66.8	[49.6,83.9]	*	*	*	*	67.6	[55.7,79.6]	131
	Total	-	-	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-	-	-	-	-
	Total	(18.6)	[7.7,29.5]	*	*	*	*	40.0	[28.5,51.4]	31.7	[23.3,40.0]	144
	Urban	*	*	*	*	*	*	38.1	[25.0,51.3]	29.5	[19.5,39.5]	110
Namibia DHS 2006	Rural	*	*	-	-	*	*	(48.7)	[27.2,70.2]	(38.7)	[24.3,53.2]	34
	Total	-	-	*	*	82.4	[72.7,92.1]	54.7	[46.9,62.6]	64.9	[57.8,72.0]	363
	Urban	-	-	*	*	83.8	[73.6,93.9]	61.4	[52.9,69.9]	70.6	[63.1,78.0]	297
Nigeria MIS 2010	Rural	-	-	-	-	*	*	33.7	[20.1,47.4]	39.1	[26.6,51.7]	65
	Total	79.1	[74.9,83.2]	82.0	[76.0,88.0]	80.8	[69.9,91.7]	84.4	[79.1,89.6]	81.0	[78.2,83.8]	831
	Urban	77.8	[73.2,82.3]	81.6	[75.1,88.1]	(74.5)	[61.4,87.6]	85.4	[79.0,91.8]	79.9	[76.7,83.1]	695
Rwanda DHS 2011	Rural	88.4	[80.8,96.1]	*	*	*	*	81.7	[73.1,90.3]	86.6	[81.5,91.6]	136

(Continued...)

Table B9. – *Continued*

		Season										
		No season		Out of season		Transition season		In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	*	*	48.8	[42.2,55.4]	56.3	[50.5,62.2]	40.2	[22.1,58.2]	51.4	[46.8,56.0]	806
	Urban			44.3	[37.1,51.4]	53.0	[47.0,59.0]	(56.0)	[33.4,78.6]	49.1	[44.3,53.9]	557
Senegal DHS 2010	Rural	*	*	69.7	[56.1,83.3]	66.7	[49.3,84.2]	(38.6)	[19.2,58.0]	56.6	[45.8,67.5]	248
	Total	*	*	68.1	[60.4,75.9]	*	*	(76.9)	[63.8,90.0]	71.0	[64.6,77.5]	230
	Urban	*	*	70.8	[61.7,79.9]	*	*	(76.6)	[60.7,92.4]	73.0	[65.4,80.7]	173
Sierra Leone DHS 2008	Rural	*	*	59.4	[45.7,73.1]	*	*	*	*	65.0	[53.3,76.7]	57
	Total	64.2	[47.3,81.1]	69.3	[53.1,85.5]	*	*	75.6	[71.1,80.0]	74.1	[70.0,78.2]	689
	Urban	66.6	[48.4,84.9]	(77.6)	[55.4,99.9]	*	*	75.3	[70.6,80.1]	74.8	[70.3,79.3]	574
Tanzania DHS 2010	Rural	*	*	*	*	*	*	77.1	[63.9,90.3]	70.8	[60.3,81.3]	115
	Total	*	*	(56.5)	[36.5,76.5]	*	*	81.9	[74.2,89.5]	77.6	[69.9,85.3]	222
	Urban	*	*	(56.5)	[36.5,76.6]	*	*	80.5	[72.1,89.0]	76.1	[67.9,84.4]	201
Uganda MIS 2008	Rural	-	-	-	-	-	-	*	*	*	*	21
	Total	(67.1)	[46.6,87.7]	53.5	[46.4,60.7]	66.3	[55.0,77.6]	61.7	[44.7,78.7]	58.0	[52.4,63.6]	410
	Urban	*	*	53.7	[45.1,62.3]	67.1	[55.3,78.8]	(63.0)	[39.8,86.2]	58.8	[52.2,65.5]	298
Zambia DHS 2007	Rural	*	*	53.2	[40.0,66.4]	*	*	(58.8)	[39.9,77.7]	55.8	[45.2,66.4]	112
	Total	31.9	[17.7,46.0]	(14.2)	[6.1,22.4]	(20.7)	[6.6,34.8]	50.1	[34.4,65.8]	30.0	[22.7,37.2]	215
	Urban	(33.8)	[14.2,53.4]	(13.1)	[5.2,21.0]	(19.0)	[4.0,33.9]	(50.6)	[33.5,67.7]	28.9	[20.8,37.1]	163
Zimbabwe DHS 2010	Rural	(30.1)	[10.3,49.8]	*	*	*	*	(46.9)	[8.8,85.1]	33.2	[17.0,49.4]	52

Table B10. Percent of individual use of ITN previous night by season categories (2) and by Urban-Rural residence (All households included)

		Season						
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	19.8	[17.0,22.7]	18.7	[16.5,20.9]	19.2	[17.5,21.0]	35,431
	Urban	19.7	[13.7,25.7]	18.2	[15.7,20.7]	18.7	[16.1,21.3]	20,977
Angola MIS 2011	Rural	19.9	[17.4,22.5]	20.1	[15.5,24.6]	20.0	[17.7,22.2]	14,454
	Total	2.8	[1.5,4.0]	4.6	[3.8,5.5]	4.5	[3.7,5.3]	42,337
	Urban	0.7	[0.0,1.4]	3.5	[2.5,4.5]	3.4	[2.4,4.3]	24,148
DRC DHS 2007	Rural	4.3	[2.3,6.3]	6.2	[4.9,7.5]	6.0	[4.8,7.2]	18,189
	Total	12.0	[7.5,16.4]	21.0	[19.9,22.1]	20.9	[19.7,22.0]	40,883
	Urban	11.6	[10.4,12.8]	26.0	[24.3,27.8]	25.9	[24.2,27.6]	22,951
Ghana DHS 2008	Rural	12.1	[6.1,18.1]	14.5	[13.2,15.7]	14.4	[13.2,15.6]	17,932
	Total	32.4	[29.6,35.3]	43.8	[40.4,47.3]	35.6	[33.3,37.9]	35,772
	Urban	29.1	[25.8,32.5]	42.3	[38.4,46.1]	32.8	[30.1,35.4]	28,491
Kenya DHS 2008	Rural	45.6	[40.0,51.2]	49.7	[40.9,58.5]	46.8	[42.1,51.5]	7,282
	Total	30.7	[27.4,34.0]	32.6	[29.4,35.9]	32.3	[29.6,35.1]	17,255
	Urban	30.1	[26.5,33.6]	30.7	[26.2,35.2]	30.5	[27.0,34.1]	8,903
Liberia MIS 2011	Rural	32.7	[25.2,40.3]	34.4	[29.8,38.9]	34.2	[30.0,38.5]	8,352
	Total	20.8	[18.3,23.4]	49.8	[47.9,51.7]	37.3	[35.9,38.6]	76,131
	Urban	17.4	[14.3,20.5]	48.6	[46.6,50.6]	36.1	[34.6,37.7]	65,276
Madagascar DHS 2008	Rural	33.8	[30.4,37.3]	61.7	[57.9,65.6]	44.0	[41.2,46.8]	10,855
	Total	27.2	[26.0,28.4]	34.7	[32.6,36.8]	29.0	[28.0,30.1]	105,251
	Urban	25.1	[23.8,26.4]	33.7	[31.6,35.7]	27.4	[26.2,28.5]	88,862
Malawi DHS 2011	Rural	37.0	[33.8,40.3]	44.0	[33.8,54.2]	38.1	[35.0,41.3]	16,389
	Total	51.2	[41.6,60.9]	57.5	[54.4,60.5]	57.1	[54.2,60.1]	8,749
	Urban	52.2	[41.6,62.8]	57.9	[54.2,61.7]	57.6	[54.0,61.2]	6,787
Mali AMP 2010	Rural	47.4	[25.2,69.7]	55.9	[50.9,60.9]	55.5	[50.6,60.4]	1,962
	Total	3.5	[2.6,4.4]	7.7	[6.7,8.8]	5.6	[5.0,6.2]	37,957
	Urban	5.3	[3.2,7.3]	7.6	[6.4,8.8]	6.8	[5.9,7.8]	22,251
Namibia DHS 2006	Rural	2.5	[1.8,3.1]	8.3	[6.3,10.3]	3.8	[3.1,4.5]	15,707
	Total	4.9	[2.2,7.7]	23.0	[20.1,26.0]	23.0	[20.0,25.9]	28,284
	Urban	3.8	[3.8,3.8]	25.6	[21.9,29.4]	25.5	[21.8,29.2]	20,726
Nigeria MIS 2010	Rural	17.4	[17.4,17.4]	16.0	[12.0,20.0]	16.0	[12.0,20.0]	7,559
	Total	54.8	[53.3,56.2]	65.8	[63.6,68.0]	57.8	[56.6,58.9]	52,877
	Urban	54.3	[52.7,55.9]	65.1	[62.5,67.8]	56.9	[55.6,58.2]	45,761
Rwanda DHS 2011	Rural	58.9	[54.3,63.5]	67.9	[63.7,72.1]	63.4	[60.1,66.8]	7,116
	Total	35.4	[31.9,38.9]	25.6	[23.0,28.1]	28.7	[26.7,30.8]	67,087
	Urban	34.1	[30.4,37.9]	30.3	[27.0,33.5]	31.9	[29.5,34.3]	36,722
Senegal DHS 2010	Rural	38.5	[30.7,46.2]	21.4	[17.8,25.1]	24.9	[21.6,28.2]	30,365
	Total	21.2	[19.2,23.1]	16.8	[14.4,19.2]	19.6	[18.1,21.1]	38,348
	Urban	22.9	[20.3,25.6]	16.3	[13.7,18.8]	20.3	[18.4,22.2]	25,805
Sierra Leone DHS 2008	Rural	18.1	[15.3,20.8]	18.3	[12.5,24.2]	18.1	[15.6,20.7]	12,543
	Total	34.3	[29.7,38.8]	48.3	[46.3,50.3]	45.3	[43.5,47.1]	42,557
	Urban	29.2	[24.1,34.4]	47.4	[45.3,49.6]	43.8	[41.8,45.8]	32,920
Tanzania DHS 2010	Rural	46.6	[39.6,53.5]	51.7	[46.6,56.9]	50.3	[46.2,54.3]	9,638
	Total	21.1	[15.8,26.4]	27.3	[23.8,30.8]	25.8	[22.8,28.7]	19,160
	Urban	20.8	[15.3,26.4]	26.7	[22.5,30.9]	25.1	[21.7,28.5]	16,543
Uganda MIS 2008	Rural	27.1	[27.1,27.1]	30.2	[24.2,36.1]	29.9	[24.5,35.3]	2,618
	Total	21.7	[19.6,23.9]	27.1	[24.0,30.1]	23.4	[21.7,25.0]	31,332
	Urban	22.8	[19.7,25.9]	25.8	[22.1,29.4]	23.9	[21.7,26.1]	20,129
Zambia DHS 2007	Rural	20.3	[17.7,22.9]	31.8	[26.4,37.3]	22.4	[20.1,24.7]	11,203
	Total	6.5	[5.4,7.6]	12.7	[9.7,15.7]	8.6	[7.3,9.8]	37,475
	Urban	6.6	[4.8,8.4]	12.5	[9.3,15.8]	9.1	[7.4,10.9]	25,846
Zimbabwe DHS 2010	Rural	6.4	[5.3,7.5]	14.0	[9.4,18.7]	7.3	[6.1,8.5]	11,629

Table B11. Percent of children under 5 years use of ITN previous night by season categories (2) and by Urban-Rural residence (All households included)

		Season						
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	27.6	[23.2,31.9]	25.5	[22.5,28.6]	26.4	[23.9,29.0]	7,584
	Urban	25.7	[17.7,33.7]	24.5	[21.0,28.1]	24.9	[21.4,28.4]	5,071
Angola MIS 2011	Rural	29.3	[25.6,33.1]	29.7	[23.5,35.9]	29.5	[26.3,32.6]	2,514
	Total	3.5	[1.1,5.9]	6.2	[4.8,7.6]	6.0	[4.7,7.3]	8,035
	Urban	0.5	[-0.1,1.0]	4.8	[3.2,6.5]	4.6	[3.1,6.2]	4,798
DRC DHS 2007	Rural	5.9	[1.7,10.1]	8.3	[6.1,10.5]	8.0	[6.0,10.1]	3,237
	Total	24.8	[18.8,30.8]	39.3	[37.2,41.3]	39.1	[37.1,41.1]	5,443
	Urban	*	*	43.2	[40.5,45.9]	43.2	[40.5,45.9]	3,333
Ghana DHS 2008	Rural	(22.1)	[14.7,29.6]	32.8	[29.8,35.9]	32.6	[29.6,35.6]	2,110
	Total	42.9	[38.5,47.4]	57.3	[53.7,60.9]	47.1	[43.7,50.6]	5,569
	Urban	38.9	[33.9,44.0]	56.0	[51.9,60.2]	43.8	[39.9,47.8]	4,583
Kenya DHS 2008	Rural	62.3	[56.3,68.2]	62.6	[54.3,70.9]	62.4	[57.6,67.2]	986
	Total	37.3	[32.5,42.0]	37.9	[34.0,41.8]	37.8	[34.5,41.1]	3,185
	Urban	36.9	[31.8,42.1]	34.7	[29.5,39.9]	35.2	[31.0,39.3]	1,895
Liberia MIS 2011	Rural	38.8	[26.3,51.3]	41.9	[36.1,47.6]	41.7	[36.3,47.0]	1,290
	Total	26.4	[22.9,29.9]	60.3	[57.9,62.6]	46.3	[44.3,48.3]	11,871
	Urban	22.2	[18.1,26.2]	59.4	[56.8,61.9]	45.0	[42.8,47.2]	10,575
Madagascar DHS 2008	Rural	47.9	[42.9,52.9]	72.0	[66.4,77.6]	57.1	[53.2,61.0]	1,296
	Total	37.7	[36.0,39.5]	44.8	[42.2,47.5]	39.5	[38.0,41.0]	18,074
	Urban	36.1	[34.3,37.9]	43.8	[41.1,46.5]	38.1	[36.6,39.6]	15,634
Malawi DHS 2011	Rural	47.0	[41.4,52.7]	55.9	[45.9,65.8]	48.4	[43.3,53.5]	2,440
	Total	61.5	[50.7,72.4]	73.0	[68.8,77.2]	72.2	[68.2,76.3]	1,867
	Urban	63.1	[51.6,74.6]	74.2	[69.1,79.2]	73.4	[68.6,78.2]	1,508
Mali AMP 2010	Rural	54.5	[24.8,84.3]	68.2	[61.4,74.9]	67.3	[60.6,74.1]	359
	Total	6.5	[4.8,8.2]	14.5	[12.4,16.6]	10.6	[9.3,12.0]	4,977
	Urban	9.0	[5.8,12.1]	14.2	[11.8,16.6]	12.4	[10.6,14.2]	3,265
Namibia DHS 2006	Rural	4.4	[2.9,5.9]	16.0	[11.2,20.8]	7.3	[5.6,8.9]	1,712
	Total	(4.8)	[0.4,9.2]	29.0	[25.1,32.9]	28.9	[24.9,32.8]	5,810
	Urban	(3.1)	[3.1,3.1]	31.0	[26.1,35.9]	30.8	[25.9,35.7]	4,490
Nigeria MIS 2010	Rural	*	*	22.2	[16.9,27.6]	22.2	[16.9,27.6]	1,320
	Total	68.9	[67.3,70.6]	72.0	[69.2,74.9]	69.8	[68.4,71.2]	8,611
	Urban	68.5	[66.7,70.3]	70.2	[66.9,73.5]	68.9	[67.4,70.5]	7,588
Rwanda DHS 2011	Rural	73.6	[69.3,77.9]	78.6	[73.3,83.9]	76.1	[72.6,79.6]	1,023
	Total	40.6	[36.6,44.7]	31.1	[27.9,34.3]	34.3	[31.8,36.9]	11,364
	Urban	38.6	[34.1,43.1]	34.7	[30.7,38.8]	36.4	[33.4,39.4]	7,047
Senegal DHS 2010	Rural	47.6	[38.7,56.5]	26.7	[22.0,31.5]	30.9	[26.5,35.3]	4,317
	Total	29.3	[26.1,32.5]	21.1	[17.2,25.0]	26.5	[24.0,29.0]	6,000
	Urban	28.4	[24.5,32.4]	19.3	[15.8,22.8]	25.1	[22.3,28.0]	4,388
Sierra Leone DHS 2008	Rural	31.4	[26.4,36.3]	27.4	[15.4,39.5]	30.3	[25.4,35.2]	1,611
	Total	54.7	[46.7,62.7]	66.4	[63.8,68.9]	64.1	[61.4,66.7]	7,302
	Urban	50.9	[40.8,61.0]	66.8	[64.0,69.7]	64.0	[61.0,67.1]	5,884
Tanzania DHS 2010	Rural	64.3	[57.0,71.6]	64.2	[58.0,70.4]	64.2	[59.5,68.9]	1,418
	Total	27.2	[20.7,33.8]	34.3	[29.6,39.1]	32.8	[28.9,36.7]	3,699
	Urban	26.6	[20.0,33.2]	34.8	[29.4,40.3]	32.8	[28.4,37.3]	3,205
Uganda MIS 2008	Rural	*	*	31.8	[23.9,39.8]	32.7	[24.3,41.1]	494
	Total	27.3	[24.4,30.2]	32.7	[28.5,36.9]	29.0	[26.7,31.3]	5,827
	Urban	27.1	[23.2,30.9]	30.8	[26.1,35.6]	28.5	[25.7,31.3]	4,171
Zambia DHS 2007	Rural	27.7	[23.6,31.8]	42.6	[37.6,47.7]	30.3	[26.6,34.1]	1,656
	Total	7.4	[6.0,8.7]	13.8	[10.3,17.4]	9.6	[8.0,11.2]	5,539
	Urban	6.2	[4.4,8.0]	13.7	[9.8,17.6]	9.4	[7.4,11.4]	4,017
Zimbabwe DHS 2010	Rural	9.4	[7.1,11.6]	15.0	[7.9,22.1]	10.1	[7.9,12.3]	1,522

Table B12. Percent of pregnant women use of ITN previous night by season categories (2) and by Urban-Rural residence (All households included)

		Season						
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	28.8	[22.0,35.6]	24.0	[19.7,28.3]	25.9	[22.2,29.7]	1,281
	Urban	27.7	[17.4,37.9]	23.7	[18.3,29.0]	24.9	[20.0,29.8]	883
Angola MIS 2011	Rural	30.1	[21.2,38.9]	25.3	[20.0,30.7]	28.2	[22.5,34.0]	398
	Total	2.8	[-0.6,6.3]	7.8	[4.6,11.1]	7.5	[4.4,10.5]	1,038
	Urban	-	-	6.7	[3.2,10.1]	6.3	[3.0,9.6]	638
DRC DHS 2007	Rural	5.6	[-0.9,12.1]	9.8	[3.6,15.9]	9.4	[3.7,15.0]	400
	Total	*	*	26.8	[21.7,31.8]	27.0	[21.9,32.0]	340
	Urban	*	*	34.4	[27.5,41.3]	34.0	[27.2,40.8]	200
Ghana DHS 2008	Rural	*	*	15.9	[9.1,22.6]	16.9	[9.9,24.0]	140
	Total	42.4	[34.1,50.7]	60.4	[50.0,70.8]	48.6	[41.6,55.7]	574
	Urban	39.7	[30.7,48.7]	62.1	[49.3,74.9]	47.9	[39.6,56.2]	429
Kenya DHS 2008	Rural	49.5	[30.8,68.1]	54.3	[47.3,61.2]	50.9	[37.6,64.2]	145
	Total	38.5	[27.3,49.7]	40.0	[32.9,47.1]	39.8	[33.5,46.0]	352
	Urban	(42.5)	[31.2,53.9]	37.9	[28.9,46.9]	39.0	[31.5,46.4]	199
Liberia MIS 2011	Rural	*	*	42.3	[31.2,53.4]	40.8	[30.1,51.6]	152
	Total	23.1	[17.8,28.5]	59.8	[55.6,64.1]	46.8	[43.2,50.4]	1,355
	Urban	19.9	[13.8,26.0]	59.0	[54.5,63.5]	46.3	[42.4,50.2]	1,203
Madagascar DHS 2008	Rural	37.2	[25.5,49.0]	71.0	[60.8,81.2]	51.0	[41.9,60.0]	152
	Total	32.2	[29.1,35.4]	41.4	[36.5,46.3]	34.6	[31.9,37.2]	1,963
	Urban	31.2	[28.1,34.3]	41.7	[36.7,46.7]	33.9	[31.3,36.6]	1,739
Malawi DHS 2011	Rural	39.8	[26.4,53.2]	(38.9)	[19.9,57.9]	39.6	[28.5,50.7]	224
	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-
	Total	3.5	[1.6,5.3]	14.8	[9.7,19.9]	9.0	[6.3,11.7]	507
	Urban	4.3	[0.4,8.2]	14.3	[8.3,20.3]	10.9	[6.7,15.1]	296
Namibia DHS 2006	Rural	2.9	[1.2,4.6]	16.9	[8.3,25.6]	6.2	[3.6,8.9]	211
	Total	*	*	33.3	[26.8,39.8]	33.2	[26.7,39.7]	709
	Urban	*	*	38.4	[30.4,46.4]	38.3	[30.3,46.3]	548
Nigeria MIS 2010	Rural	*	*	15.9	[9.4,22.4]	15.9	[9.4,22.4]	161
	Total	70.6	[67.0,74.2]	76.5	[71.2,81.8]	72.2	[69.2,75.2]	932
	Urban	69.3	[65.4,73.2]	75.5	[69.1,81.9]	70.8	[67.4,74.1]	784
Rwanda DHS 2011	Rural	80.5	[72.3,88.7]	79.3	[70.4,88.3]	80.0	[73.9,86.0]	148
	Total	40.9	[34.5,47.3]	33.8	[28.3,39.3]	36.1	[31.8,40.4]	1,148
	Urban	36.9	[30.1,43.8]	39.5	[33.7,45.4]	38.4	[33.9,42.9]	712
Senegal DHS 2010	Rural	58.6	[44.6,72.5]	27.4	[18.7,36.0]	32.3	[24.1,40.5]	436
	Total	25.4	[20.3,30.4]	33.3	[24.7,42.0]	27.7	[23.2,32.1]	589
	Urban	27.5	[21.0,34.0]	35.6	[24.9,46.2]	29.7	[24.0,35.3]	425
Sierra Leone DHS 2008	Rural	19.4	[12.8,25.9]	(28.6)	[14.9,42.4]	22.5	[16.3,28.7]	164
	Total	47.6	[34.3,60.9]	59.6	[54.7,64.6]	57.1	[52.4,61.8]	894
	Urban	51.4	[35.6,67.2]	61.4	[56.0,66.8]	59.6	[54.5,64.8]	719
Tanzania DHS 2010	Rural	(39.5)	[16.9,62.0]	50.5	[38.2,62.7]	46.7	[36.0,57.4]	174
	Total	26.5	[11.2,41.9]	47.8	[40.1,55.5]	43.5	[36.1,50.9]	395
	Urban	26.5	[11.2,41.9]	48.3	[39.6,57.0]	43.4	[35.2,51.6]	352
Uganda MIS 2008	Rural	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
	Total	30.3	[25.6,35.1]	38.9	[30.8,46.9]	32.8	[28.9,36.8]	725
	Urban	32.8	[27.2,38.5]	39.3	[29.9,48.7]	35.1	[30.4,39.8]	500
Zambia DHS 2007	Rural	26.0	[17.5,34.6]	36.8	[24.4,49.3]	27.8	[20.5,35.1]	225
	Total	6.5	[3.9,9.2]	14.2	[9.4,19.0]	9.1	[6.7,11.6]	705
	Urban	7.1	[3.2,10.9]	13.5	[8.5,18.5]	10.0	[6.9,13.1]	471
Zimbabwe DHS 2010	Rural	5.9	[2.5,9.3]	(20.4)	[6.0,34.8]	7.4	[3.8,11.0]	234

Table B13. Percent of individual use of ITN previous night by season categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Season						
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	53.5	[50.8,56.3]	52.0	[49.2,54.7]	52.7	[50.8,54.6]	12,919
	Urban	60.2	[56.6,63.8]	52.1	[49.1,55.2]	54.6	[52.2,57.1]	7,182
Angola MIS 2011	Rural	49.7	[46.3,53.1]	51.5	[45.4,57.6]	50.3	[47.3,53.3]	5,736
	Total	50.8	[40.7,60.9]	44.2	[40.0,48.3]	44.4	[40.4,48.4]	4,295
	Urban	44.1	[27.7,60.4]	41.3	[34.8,47.9]	41.4	[34.9,47.8]	1,969
DRC DHS 2007	Rural	51.7	[40.5,62.9]	46.7	[41.5,51.9]	47.0	[42.1,51.9]	2,326
	Total	24.2	[17.5,31.0]	43.5	[41.9,45.1]	43.2	[41.6,44.8]	19,756
	Urban	30.7	[5.0,56.3]	47.7	[45.6,49.9]	47.6	[45.5,49.8]	12,477
Ghana DHS 2008	Rural	22.6	[15.7,29.5]	36.0	[33.8,38.2]	35.5	[33.3,37.6]	7,279
	Total	58.0	[54.9,61.0]	60.3	[57.8,62.8]	58.7	[56.6,60.9]	21,695
	Urban	53.3	[49.9,56.7]	57.5	[54.7,60.3]	54.7	[52.3,57.2]	17,050
Kenya DHS 2008	Rural	74.4	[70.9,77.8]	71.2	[65.2,77.3]	73.4	[70.2,76.6]	4,645
	Total	61.2	[56.3,66.1]	61.4	[58.7,64.1]	61.4	[59.0,63.8]	9,086
	Urban	63.4	[57.8,69.0]	59.5	[55.7,63.3]	60.3	[57.0,63.5]	4,511
Liberia MIS 2011	Rural	55.5	[46.3,64.6]	63.1	[59.4,66.8]	62.5	[59.0,66.0]	4,575
	Total	56.8	[53.5,60.1]	65.5	[64.0,67.1]	63.2	[61.8,64.5]	44,896
	Urban	52.7	[48.1,57.2]	64.5	[62.8,66.2]	61.8	[60.3,63.4]	38,143
Madagascar DHS 2008	Rural	66.9	[63.9,69.8]	74.8	[71.2,78.5]	70.7	[68.5,72.9]	6,753
	Total	46.9	[45.5,48.3]	53.0	[50.9,55.1]	48.5	[47.4,49.7]	62,996
	Urban	44.8	[43.2,46.3]	51.6	[49.5,53.7]	46.8	[45.5,48.0]	52,000
Malawi DHS 2011	Rural	55.4	[52.2,58.6]	64.5	[58.9,70.0]	56.8	[53.9,59.8]	10,996
	Total	64.1	[57.0,71.2]	63.7	[61.2,66.2]	63.7	[61.3,66.2]	7,844
	Urban	64.0	[55.5,72.5]	64.2	[61.2,67.3]	64.2	[61.3,67.1]	6,090
Mali AMP 2010	Rural	64.5	[54.3,74.6]	61.9	[57.5,66.3]	62.0	[57.8,66.3]	1,755
	Total	28.7	[23.7,33.7]	21.1	[18.8,23.4]	23.1	[21.1,25.0]	9,188
	Urban	24.7	[17.4,32.0]	19.8	[17.3,22.4]	20.8	[18.6,23.1]	7,312
Namibia DHS 2006	Rural	35.9	[29.9,41.8]	28.4	[23.4,33.4]	31.7	[28.0,35.5]	1,877
	Total	21.3	[13.1,29.4]	49.9	[47.0,52.8]	49.9	[47.0,52.8]	13,027
	Urban	(17.9)	[17.9,17.9]	51.9	[48.6,55.3]	51.9	[48.5,55.2]	10,190
Nigeria MIS 2010	Rural	(41.7)	[41.7,41.7]	42.7	[36.8,48.5]	42.7	[36.8,48.5]	2,838
	Total	66.0	[64.8,67.2]	71.2	[69.2,73.1]	67.5	[66.5,68.5]	45,234
	Urban	65.7	[64.4,67.1]	70.3	[68.0,72.6]	66.9	[65.8,68.0]	38,897
Rwanda DHS 2011	Rural	68.5	[64.8,72.1]	73.8	[70.1,77.5]	71.2	[68.5,73.9]	6,337
	Total	45.0	[41.8,48.2]	42.7	[39.8,45.6]	43.6	[41.4,45.7]	44,229
	Urban	41.9	[38.1,45.6]	44.2	[41.1,47.3]	43.1	[40.7,45.6]	27,135
Senegal DHS 2010	Rural	54.0	[48.8,59.2]	40.9	[35.8,45.9]	44.2	[40.1,48.4]	17,094
	Total	53.0	[51.1,54.9]	47.7	[45.4,50.1]	51.3	[49.7,52.8]	14,663
	Urban	55.6	[53.2,58.1]	49.2	[46.3,52.2]	53.4	[51.5,55.4]	9,810
Sierra Leone DHS 2008	Rural	48.0	[45.1,50.9]	44.3	[40.3,48.3]	46.9	[44.5,49.2]	4,853
	Total	54.8	[48.6,60.9]	65.7	[64.1,67.4]	63.7	[61.8,65.5]	30,270
	Urban	47.9	[41.1,54.7]	63.9	[62.1,65.6]	61.2	[59.2,63.2]	23,572
Tanzania DHS 2010	Rural	70.0	[63.7,76.3]	73.2	[69.2,77.2]	72.3	[69.0,75.7]	6,698
	Total	46.8	[38.1,55.4]	51.3	[48.3,54.3]	50.3	[47.2,53.4]	9,807
	Urban	45.5	[37.1,53.9]	50.5	[47.5,53.5]	49.3	[46.1,52.4]	8,425
Uganda MIS 2008	Rural	(88.5)	[88.5,88.5]	55.2	[43.7,66.6]	56.7	[44.9,68.4]	1,383
	Total	38.9	[36.1,41.6]	48.4	[45.1,51.7]	41.8	[39.7,43.9]	17,524
	Urban	39.9	[36.0,43.9]	47.1	[43.1,51.1]	42.6	[39.8,45.4]	11,308
Zambia DHS 2007	Rural	37.3	[33.8,40.8]	53.0	[47.9,58.1]	40.4	[37.3,43.4]	6,217
	Total	26.5	[23.6,29.4]	30.3	[25.9,34.8]	28.3	[25.7,30.8]	11,340
	Urban	24.3	[20.3,28.4]	29.7	[24.8,34.7]	27.2	[24.0,30.5]	8,653
Zimbabwe DHS 2010	Rural	30.5	[26.6,34.5]	35.5	[29.6,41.5]	31.5	[28.1,35.0]	2,687

Table B14. Percent of children under 5 years use of ITN previous night by season categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Season						
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	64.0	[59.9,68.0]	61.3	[58.0,64.5]	62.4	[59.9,65.0]	3,208
	Urban	68.0	[62.4,73.6]	61.2	[57.4,65.0]	63.3	[60.1,66.5]	1,995
Angola MIS 2011	Rural	60.9	[55.6,66.2]	61.4	[54.7,68.0]	61.1	[56.9,65.2]	1,213
	Total	58.7	[39.2,78.3]	54.6	[48.0,61.2]	54.7	[48.4,61.1]	882
	Urban	*	*	50.7	[40.2,61.1]	50.6	[40.2,60.9]	439
DRC DHS 2007	Rural	61.3	[40.1,82.5]	58.7	[51.3,66.1]	58.9	[51.8,65.9]	442
	Total	(35.7)	[24.4,47.0]	58.6	[56.1,61.1]	58.3	[55.9,60.7]	3,649
	Urban	*	*	60.8	[57.7,64.0]	60.8	[57.7,64.0]	2,366
Ghana DHS 2008	Rural	*	*	54.4	[50.3,58.4]	53.6	[49.6,57.6]	1,283
	Total	68.1	[64.4,71.7]	71.3	[67.6,75.0]	69.2	[66.5,71.9]	3,793
	Urban	64.1	[59.8,68.3]	68.6	[64.4,72.9]	65.7	[62.5,68.8]	3,059
Kenya DHS 2008	Rural	84.0	[79.6,88.5]	83.2	[79.9,86.5]	83.8	[80.6,87.0]	734
	Total	73.5	[68.6,78.4]	68.3	[64.7,71.9]	69.1	[65.9,72.3]	1,742
	Urban	77.8	[73.4,82.2]	64.6	[59.9,69.4]	67.3	[63.1,71.5]	991
Liberia MIS 2011	Rural	59.3	[49.4,69.1]	72.5	[67.3,77.8]	71.4	[66.4,76.5]	752
	Total	64.3	[59.9,68.8]	74.5	[72.6,76.4]	71.8	[70.0,73.7]	7,658
	Urban	59.3	[53.8,64.8]	73.7	[71.7,75.8]	70.5	[68.5,72.5]	6,754
Madagascar DHS 2008	Rural	80.4	[77.1,83.7]	83.6	[79.5,87.7]	81.9	[79.4,84.4]	904
	Total	58.3	[56.4,60.1]	61.5	[58.9,64.1]	59.1	[57.6,60.7]	12,071
	Urban	56.5	[54.5,58.5]	60.3	[57.6,63.1]	57.6	[56.0,59.2]	10,344
Malawi DHS 2011	Rural	67.4	[62.5,72.4]	73.3	[66.1,80.5]	68.4	[64.1,72.7]	1,726
	Total	78.9	[71.0,86.9]	78.2	[74.3,82.1]	78.2	[74.5,82.0]	1,724
	Urban	79.2	[69.9,88.6]	78.9	[74.2,83.6]	79.0	[74.5,83.4]	1,402
Mali AMP 2010	Rural	77.3	[65.6,89.0]	75.0	[69.1,81.0]	75.1	[69.4,80.9]	322
	Total	38.0	[30.6,45.4]	32.9	[29.0,36.9]	34.3	[30.9,37.6]	1,546
	Urban	34.4	[24.6,44.2]	31.1	[26.8,35.5]	31.9	[28.0,35.7]	1,272
Namibia DHS 2006	Rural	46.8	[38.1,55.5]	44.3	[35.5,53.2]	45.4	[39.2,51.6]	274
	Total	*	*	58.8	[54.9,62.6]	58.7	[54.8,62.5]	2,859
	Urban	*	*	60.1	[55.7,64.5]	60.0	[55.6,64.4]	2,307
Nigeria MIS 2010	Rural	*	*	53.1	[45.4,60.7]	53.1	[45.5,60.7]	553
	Total	75.1	[73.6,76.6]	76.0	[73.4,78.6]	75.3	[74.0,76.6]	7,978
	Urban	74.7	[73.1,76.3]	74.5	[71.5,77.4]	74.7	[73.3,76.1]	7,005
Rwanda DHS 2011	Rural	78.6	[74.9,82.2]	81.3	[76.3,86.2]	79.9	[76.8,83.0]	974
	Total	49.9	[45.9,53.9]	48.1	[44.5,51.7]	48.8	[46.1,51.5]	7,987
	Urban	46.7	[42.2,51.1]	49.6	[45.8,53.3]	48.2	[45.2,51.2]	5,317
Senegal DHS 2010	Rural	61.8	[54.8,68.8]	46.1	[39.4,52.8]	50.0	[44.4,55.6]	2,670
	Total	63.6	[60.3,67.0]	57.5	[51.7,63.3]	61.9	[59.0,64.8]	2,571
	Urban	61.8	[57.6,66.0]	55.7	[50.2,61.2]	60.0	[56.5,63.4]	1,839
Sierra Leone DHS 2008	Rural	68.1	[63.2,72.9]	62.6	[48.3,76.8]	66.6	[61.5,71.7]	732
	Total	69.4	[60.1,78.6]	78.5	[76.6,80.3]	76.8	[74.4,79.2]	6,093
	Urban	64.4	[53.0,75.7]	77.8	[75.9,79.8]	75.6	[72.9,78.4]	4,981
Tanzania DHS 2010	Rural	82.1	[75.3,88.8]	81.8	[77.0,86.6]	81.9	[78.0,85.7]	1,112
	Total	53.2	[45.3,61.1]	60.6	[56.5,64.7]	59.1	[55.4,62.8]	2,052
	Urban	52.1	[44.3,59.9]	61.5	[57.1,65.8]	59.4	[55.4,63.3]	1,773
Uganda MIS 2008	Rural	*	*	56.3	[46.5,66.0]	57.8	[47.2,68.3]	280
	Total	45.8	[42.0,49.5]	57.3	[53.0,61.6]	49.4	[46.5,52.3]	3,425
	Urban	45.1	[40.1,50.0]	55.1	[50.1,60.1]	48.7	[45.1,52.3]	2,440
Zambia DHS 2007	Rural	47.1	[41.6,52.6]	67.9	[63.8,72.0]	51.0	[46.1,55.9]	985
	Total	27.8	[24.0,31.7]	33.1	[27.4,38.9]	30.2	[26.9,33.6]	1,757
	Urban	22.0	[17.8,26.3]	32.5	[26.4,38.7]	27.6	[23.6,31.6]	1,371
Zimbabwe DHS 2010	Rural	39.8	[32.5,47.0]	39.3	[24.3,54.3]	39.7	[33.0,46.3]	387

Table B15. Percent of pregnant women use of ITN previous night by season categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Season						
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	70.1	[62.9,77.4]	68.7	[62.8,74.6]	69.3	[64.7,74.0]	479
	Urban	76.5	[69.3,83.6]	67.9	[60.7,75.1]	70.7	[65.2,76.1]	311
Angola MIS 2011	Rural	64.4	[52.5,76.4]	71.8	[62.7,80.8]	66.8	[58.3,75.4]	168
	Total	*	*	66.7	[53.5,79.9]	65.0	[52.0,78.0]	120
	Urban	*	*	63.0	[46.1,79.8]	62.4	[45.6,79.2]	64
DRC DHS 2007	Rural	*	*	71.5	[52.0,91.0]	68.0	[48.6,87.4]	55
	Total	*	*	51.7	[44.1,59.4]	52.3	[44.6,59.9]	175
	Urban	-	-	57.9	[48.9,66.8]	57.9	[48.9,66.8]	117
Ghana DHS 2008	Rural	*	*	38.9	[24.8,52.9]	41.0	[26.7,55.2]	58
	Total	73.9	[67.1,80.7]	79.7	[71.0,88.4]	76.3	[70.8,81.8]	366
	Urban	68.9	[61.0,76.7]	80.7	[70.4,91.0]	74.0	[67.2,80.7]	277
Kenya DHS 2008	Rural	87.7	[77.8,97.6]	(75.8)	[62.2,89.5]	83.5	[75.2,91.8]	88
	Total	(70.1)	[46.2,94.0]	78.8	[71.8,85.7]	77.3	[70.2,84.5]	181
	Urban	*	*	69.7	[61.0,78.4]	70.7	[61.5,79.8]	110
Liberia MIS 2011	Rural	*	*	90.0	[81.5,98.4]	87.7	[78.9,96.5]	71
	Total	61.5	[51.7,71.3]	81.2	[77.6,84.8]	76.9	[73.2,80.5]	825
	Urban	58.2	[45.8,70.6]	80.8	[76.9,84.6]	76.6	[72.6,80.6]	727
Madagascar DHS 2008	Rural	70.8	[57.2,84.4]	85.7	[75.7,95.8]	78.5	[70.1,87.0]	99
	Total	54.6	[50.1,59.0]	60.4	[54.1,66.6]	56.3	[52.6,59.9]	1,207
	Urban	52.6	[48.0,57.3]	60.2	[53.8,66.6]	54.9	[51.0,58.7]	1,076
Malawi DHS 2011	Rural	69.3	[55.6,82.9]	(62.3)	[36.4,88.1]	67.6	[55.7,79.6]	131
	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-
	Total	20.9	[10.4,31.4]	36.3	[25.5,47.1]	31.7	[23.3,40.0]	144
	Urban	*	*	34.0	[21.6,46.3]	29.5	[19.5,39.5]	110
Namibia DHS 2006	Rural	(29.3)	[11.5,47.2]	(47.2)	[26.8,67.7]	(38.7)	[24.3,53.2]	34
	Total	*	*	65.0	[58.0,72.1]	64.9	[57.8,72.0]	363
	Urban	*	*	70.8	[63.4,78.2]	70.6	[63.1,78.0]	297
Nigeria MIS 2010	Rural	-	-	39.1	[26.6,51.7]	39.1	[26.6,51.7]	65
	Total	80.0	[76.6,83.4]	83.5	[78.7,88.3]	81.0	[78.2,83.8]	831
	Urban	79.0	[75.3,82.7]	82.8	[76.8,88.7]	79.9	[76.7,83.1]	695
Rwanda DHS 2011	Rural	87.4	[80.7,94.1]	85.6	[78.1,93.1]	86.6	[81.5,91.6]	136
	Total	49.1	[42.5,55.7]	52.8	[46.6,59.0]	51.4	[46.8,56.0]	806
	Urban	44.3	[37.1,51.4]	53.1	[47.2,59.0]	49.1	[44.3,53.9]	557
Senegal DHS 2010	Rural	70.7	[57.5,84.0]	52.4	[39.4,65.5]	56.6	[45.8,67.5]	248
	Total	68.4	[60.7,76.0]	76.6	[65.2,88.0]	71.0	[64.6,77.5]	230
	Urban	71.1	[62.0,80.1]	(77.5)	[63.7,91.3]	73.0	[65.4,80.7]	173
Sierra Leone DHS 2008	Rural	59.4	[45.7,73.1]	*	*	65.0	[53.3,76.7]	57
	Total	67.1	[55.2,79.0]	75.8	[71.4,80.1]	74.1	[70.0,78.2]	689
	Urban	71.4	[56.8,85.9]	75.4	[70.8,80.0]	74.8	[70.3,79.3]	574
Tanzania DHS 2010	Rural	57.5	[38.2,76.8]	78.1	[65.4,90.8]	70.8	[60.3,81.3]	115
	Total	(54.8)	[32.7,76.8]	82.4	[75.1,89.6]	77.6	[69.9,85.3]	222
	Urban	(54.8)	[32.7,76.9]	81.2	[73.2,89.2]	76.1	[67.9,84.4]	201
Uganda MIS 2008	Rural	-	-	*	*	*	*	21
	Total	55.2	[48.3,62.1]	64.1	[54.2,74.1]	58.0	[52.4,63.6]	410
	Urban	55.2	[47.1,63.4]	65.5	[53.9,77.1]	58.8	[52.2,65.5]	298
Zambia DHS 2007	Rural	55.2	[42.3,68.1]	(58.2)	[41.4,75.0]	55.8	[45.2,66.4]	112
	Total	25.0	[15.7,34.3]	36.4	[25.3,47.5]	30.0	[22.7,37.2]	215
	Urban	22.4	[11.5,33.3]	35.3	[23.2,47.4]	28.9	[20.8,37.1]	163
Zimbabwe DHS 2010	Rural	(30.1)	[11.4,48.9]	*	*	(33.2)	[17.0,49.4]	52

Table B16. Percent of individual use of ITN previous night by MAP 2007 endemicity categories (2) and by Urban-Rural residence (All households included)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	16.6	[13.9,19.3]	19.6	[17.7,21.6]	19.2	[17.5,21.0]	35,431
	Urban	(15.2)	[15.2,15.2]	18.7	[16.1,21.3]	18.7	[16.1,21.3]	20,977
Angola MIS 2011	Rural	16.6	[13.8,19.4]	21.7	[18.8,24.7]	20.0	[17.7,22.2]	14,454
	Total	0.8	[0.1,1.5]	4.6	[3.8,5.4]	4.5	[3.7,5.3]	42,337
	Urban	0.8	[0.1,1.5]	3.5	[2.5,4.5]	3.4	[2.4,4.3]	24,148
DRC DHS 2007	Rural	-	-	6.0	[4.8,7.2]	6.0	[4.8,7.2]	18,189
	Total	13.5	[9.0,18.0]	21.1	[19.9,22.2]	20.9	[19.7,22.0]	40,883
	Urban	9.6	[9.6,9.6]	26.0	[24.2,27.7]	25.9	[24.2,27.6]	22,951
Ghana DHS 2008	Rural	14.0	[9.0,18.9]	14.4	[13.2,15.7]	14.4	[13.2,15.6]	17,932
	Total	31.3	[28.1,34.5]	42.1	[38.5,45.7]	35.6	[33.3,37.9]	35,772
	Urban	27.8	[23.9,31.7]	39.6	[35.7,43.4]	32.8	[30.1,35.4]	28,491
Kenya DHS 2008	Rural	42.8	[37.6,48.0]	55.9	[45.9,65.9]	46.8	[42.1,51.5]	7,282
	Total	31.8	[21.1,42.4]	32.4	[29.6,35.2]	32.3	[29.6,35.1]	17,255
	Urban	53.0	[53.0,53.0]	30.4	[26.9,34.0]	30.5	[27.0,34.1]	8,903
Liberia MIS 2011	Rural	31.2	[20.2,42.2]	35.1	[30.6,39.5]	34.2	[30.0,38.5]	8,352
	Total	16.6	[10.4,22.9]	39.3	[37.7,41.0]	37.3	[35.9,38.6]	76,131
	Urban	5.2	[0.8,9.6]	39.0	[37.2,40.9]	36.1	[34.6,37.7]	65,276
Madagascar DHS 2008	Rural	66.4	[59.3,73.6]	41.0	[37.7,44.3]	44.0	[41.2,46.8]	10,855
	Total	-	-	29.0	[28.0,30.1]	29.0	[28.0,30.1]	105,251
	Urban	-	-	27.4	[26.2,28.5]	27.4	[26.2,28.5]	88,862
Malawi DHS 2011	Rural	-	-	38.1	[35.0,41.3]	38.1	[35.0,41.3]	16,389
	Total	40.1	[29.0,51.1]	57.6	[54.6,60.6]	57.1	[54.2,60.1]	8,749
	Urban	44.2	[37.4,51.1]	58.0	[54.4,61.7]	57.6	[54.0,61.2]	6,787
Mali AMP 2010	Rural	2.6	[2.6,2.6]	56.1	[51.3,60.9]	55.5	[50.6,60.4]	1,962
	Total	1.7	[1.2,2.3]	8.6	[7.6,9.6]	5.6	[5.0,6.2]	37,957
	Urban	2.9	[1.3,4.5]	7.7	[6.6,8.8]	6.8	[5.9,7.8]	22,251
Namibia DHS 2006	Rural	1.4	[0.8,1.9]	14.4	[11.0,17.8]	3.8	[3.1,4.5]	15,707
	Total	15.8	[-0.8,32.3]	23.0	[20.1,26.0]	23.0	[20.0,25.9]	28,284
	Urban	28.2	[28.2,28.2]	25.5	[21.7,29.2]	25.5	[21.8,29.2]	20,726
Nigeria MIS 2010	Rural	4.4	[4.4,4.4]	16.2	[12.1,20.2]	16.0	[12.0,20.0]	7,559
	Total	48.8	[46.7,50.9]	64.0	[62.5,65.5]	57.8	[56.6,58.9]	52,877
	Urban	48.3	[46.1,50.4]	63.7	[61.9,65.4]	56.9	[55.6,58.2]	45,761
Rwanda DHS 2011	Rural	55.5	[46.8,64.1]	65.7	[62.4,68.9]	63.4	[60.1,66.8]	7,116
	Total	8.7	[3.4,14.0]	30.2	[28.0,32.5]	28.7	[26.7,30.8]	67,087
	Urban	-	-	31.9	[29.5,34.3]	31.9	[29.5,34.3]	36,722
Senegal DHS 2010	Rural	8.7	[3.3,14.0]	27.9	[23.8,32.0]	24.9	[21.6,28.2]	30,365
	Total	22.9	[14.5,31.3]	19.5	[18.0,21.1]	19.6	[18.1,21.1]	38,348
	Urban	26.8	[13.1,40.6]	20.2	[18.3,22.2]	20.3	[18.4,22.2]	25,805
Sierra Leone DHS 2008	Rural	17.6	[11.9,23.3]	18.2	[15.6,20.7]	18.1	[15.6,20.7]	12,543
	Total	34.4	[30.3,38.5]	47.1	[45.1,49.1]	45.3	[43.5,47.1]	42,557
	Urban	29.2	[24.5,33.9]	45.8	[43.7,48.0]	43.8	[41.8,45.8]	32,920
Tanzania DHS 2010	Rural	44.7	[37.9,51.5]	51.8	[46.9,56.6]	50.3	[46.2,54.3]	9,638
	Total	17.1	[9.1,25.0]	26.4	[23.4,29.4]	25.8	[22.8,28.7]	19,160
	Urban	17.1	[9.1,25.0]	25.8	[22.3,29.3]	25.1	[21.7,28.5]	16,543
Uganda MIS 2008	Rural	-	-	29.9	[24.5,35.3]	29.9	[24.5,35.3]	2,618
	Total	-	-	23.4	[21.7,25.0]	23.4	[21.7,25.0]	31,332
	Urban	-	-	23.9	[21.7,26.1]	23.9	[21.7,26.1]	20,129
Zambia DHS 2007	Rural	-	-	22.4	[20.1,24.7]	22.4	[20.1,24.7]	11,203
	Total	6.6	[5.5,7.6]	17.7	[12.9,22.5]	8.6	[7.3,9.8]	37,475
	Urban	6.2	[4.8,7.7]	17.9	[12.9,22.9]	9.1	[7.4,10.9]	25,846
Zimbabwe DHS 2010	Rural	7.2	[6.0,8.4]	12.8	[3.7,21.9]	7.3	[6.1,8.5]	11,629

Table B17. Percent of children under 5 years use of ITN previous night by MAP 2007 endemicity categories (2) and by Urban-Rural residence (All households included)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	24.0	[20.4,27.6]	26.7	[23.9,29.5]	26.4	[23.9,29.0]	7,584
	Urban	*	*	24.9	[21.4,28.4]	24.9	[21.4,28.4]	5,071
Angola MIS 2011	Rural	24.0	[20.4,27.6]	32.0	[27.8,36.1]	29.5	[26.3,32.6]	2,514
	Total	0.5	[-0.1,1.0]	6.2	[4.8,7.5]	6.0	[4.7,7.3]	8,035
	Urban	0.5	[-0.1,1.0]	4.8	[3.2,6.5]	4.6	[3.1,6.2]	4,798
DRC DHS 2007	Rural	-	-	8.0	[6.0,10.1]	8.0	[6.0,10.1]	3,237
	Total	37.0	[24.4,49.7]	39.1	[37.1,41.1]	39.1	[37.1,41.1]	5,443
	Urban	*	*	43.4	[40.7,46.0]	43.2	[40.5,45.9]	3,333
Ghana DHS 2008	Rural	41.6	[30.5,52.7]	32.1	[29.0,35.2]	32.6	[29.6,35.6]	2,110
	Total	42.8	[37.5,48.0]	52.6	[48.2,57.1]	47.1	[43.7,50.6]	5,569
	Urban	38.2	[32.1,44.4]	50.4	[45.5,55.3]	43.8	[39.9,47.8]	4,583
Kenya DHS 2008	Rural	60.4	[54.3,66.5]	66.0	[57.9,74.1]	62.4	[57.6,67.2]	986
	Total	42.0	[27.9,56.0]	37.4	[34.0,40.8]	37.8	[34.5,41.1]	3,185
	Urban	(51.7)	[51.7,51.7]	35.1	[30.9,39.3]	35.2	[31.0,39.3]	1,895
Liberia MIS 2011	Rural	41.6	[26.9,56.4]	41.7	[36.0,47.3]	41.7	[36.3,47.0]	1,290
	Total	16.2	[9.1,23.3]	49.1	[46.8,51.4]	46.3	[44.3,48.3]	11,871
	Urban	7.0	[1.0,13.0]	48.4	[45.9,50.8]	45.0	[42.8,47.2]	10,575
Madagascar DHS 2008	Rural	68.5	[58.9,78.1]	55.6	[51.3,60.0]	57.1	[53.2,61.0]	1,296
	Total	-	-	39.5	[38.0,41.0]	39.5	[38.0,41.0]	18,074
	Urban	-	-	38.1	[36.6,39.6]	38.1	[36.6,39.6]	15,634
Malawi DHS 2011	Rural	-	-	48.4	[43.3,53.5]	48.4	[43.3,53.5]	2,440
	Total	52.5	[40.1,64.9]	73.0	[68.8,77.1]	72.2	[68.2,76.3]	1,867
	Urban	57.4	[49.4,65.3]	74.1	[69.1,79.0]	73.4	[68.6,78.2]	1,508
Mali AMP 2010	Rural	*	*	68.4	[61.9,74.9]	67.3	[60.6,74.1]	359
	Total	3.7	[2.3,5.2]	15.2	[13.2,17.3]	10.6	[9.3,12.0]	4,977
	Urban	5.8	[2.5,9.0]	14.1	[11.9,16.2]	12.4	[10.6,14.2]	3,265
Namibia DHS 2006	Rural	2.8	[1.4,4.2]	23.8	[17.4,30.1]	7.3	[5.6,8.9]	1,712
	Total	16.8	[0.5,33.1]	29.0	[25.0,33.0]	28.9	[24.9,32.8]	5,810
	Urban	(27.5)	[27.5,27.5]	30.8	[25.9,35.8]	30.8	[25.9,35.7]	4,490
Nigeria MIS 2010	Rural	(3.8)	[3.8,3.8]	22.6	[17.1,28.1]	22.2	[16.9,27.6]	1,320
	Total	65.0	[62.6,67.4]	72.9	[71.1,74.6]	69.8	[68.4,71.2]	8,611
	Urban	64.8	[62.3,67.3]	72.0	[70.0,73.9]	68.9	[67.4,70.5]	7,588
Rwanda DHS 2011	Rural	69.1	[61.3,76.8]	77.8	[74.0,81.5]	76.1	[72.6,79.6]	1,023
	Total	14.2	[5.8,22.5]	35.4	[32.6,38.1]	34.3	[31.8,36.9]	11,364
	Urban	-	-	36.4	[33.4,39.4]	36.4	[33.4,39.4]	7,047
Senegal DHS 2010	Rural	14.2	[5.8,22.6]	33.5	[28.1,38.9]	30.9	[26.5,35.3]	4,317
	Total	26.5	[14.8,38.1]	26.5	[24.0,29.0]	26.5	[24.0,29.0]	6,000
	Urban	(26.4)	[17.3,35.5]	25.1	[22.2,28.0]	25.1	[22.3,28.0]	4,388
Sierra Leone DHS 2008	Rural	(26.5)	[7.1,45.9]	30.4	[25.4,35.4]	30.3	[25.4,35.2]	1,611
	Total	52.9	[46.6,59.1]	65.5	[62.6,68.3]	64.1	[61.4,66.7]	7,302
	Urban	49.5	[41.3,57.8]	65.5	[62.3,68.8]	64.0	[61.0,67.1]	5,884
Tanzania DHS 2010	Rural	59.8	[52.4,67.2]	65.2	[59.7,70.7]	64.2	[59.5,68.9]	1,418
	Total	26.3	[14.8,37.8]	33.2	[29.1,37.2]	32.8	[28.9,36.7]	3,699
	Urban	26.3	[14.8,37.8]	33.3	[28.6,37.9]	32.8	[28.4,37.3]	3,205
Uganda MIS 2008	Rural	-	-	32.7	[24.3,41.1]	32.7	[24.3,41.1]	494
	Total	-	-	29.0	[26.7,31.3]	29.0	[26.7,31.3]	5,827
	Urban	-	-	28.5	[25.7,31.3]	28.5	[25.7,31.3]	4,171
Zambia DHS 2007	Rural	-	-	30.3	[26.6,34.1]	30.3	[26.6,34.1]	1,656
	Total	7.6	[6.3,9.0]	17.5	[12.2,22.7]	9.6	[8.0,11.2]	5,539
	Urban	6.5	[4.8,8.2]	17.5	[12.1,22.9]	9.4	[7.4,11.4]	4,017
Zimbabwe DHS 2010	Rural	9.9	[7.7,12.1]	16.6	[2.5,30.6]	10.1	[7.9,12.3]	1,522

Table B18. Percent of pregnant women use of ITN previous night by MAP 2007 endemicity categories (2) and by Urban-Rural residence (All households included)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	27.4	[17.1,37.8]	25.8	[21.8,29.8]	25.9	[22.2,29.7]	1,281
	Urban	-	-	24.9	[20.0,29.8]	24.9	[20.0,29.8]	883
Angola MIS 2011	Rural	27.4	[17.0,37.9]	28.5	[22.0,35.1]	28.2	[22.5,34.0]	398
	Total	-	-	7.7	[4.6,10.8]	7.5	[4.4,10.5]	1,038
	Urban	-	-	6.6	[3.2,10.0]	6.3	[3.0,9.6]	638
DRC DHS 2007	Rural	-	-	9.4	[3.7,15.0]	9.4	[3.7,15.0]	400
	Total	*	*	27.2	[22.0,32.5]	27.0	[21.9,32.0]	340
	Urban	*	*	34.5	[27.6,41.3]	34.0	[27.2,40.8]	200
Ghana DHS 2008	Rural	*	*	16.2	[8.7,23.6]	16.9	[9.9,24.0]	140
	Total	41.0	[31.2,50.8]	56.9	[48.1,65.6]	48.6	[41.6,55.7]	574
	Urban	37.5	[26.3,48.7]	56.8	[46.5,67.2]	47.9	[39.6,56.2]	429
Kenya DHS 2008	Rural	48.0	[29.3,66.8]	57.0	[46.7,67.3]	50.9	[37.6,64.2]	145
	Total	(34.4)	[20.0,48.7]	40.2	[33.6,46.9]	39.8	[33.5,46.0]	352
	Urban	*	*	38.7	[31.2,46.2]	39.0	[31.5,46.4]	199
Liberia MIS 2011	Rural	(32.4)	[18.3,46.5]	42.5	[30.3,54.8]	40.8	[30.1,51.6]	152
	Total	12.7	[5.2,20.2]	50.1	[46.4,53.8]	46.8	[43.2,50.4]	1,355
	Urban	5.2	[-2.1,12.5]	50.0	[45.9,54.0]	46.3	[42.4,50.2]	1,203
Madagascar DHS 2008	Rural	(48.9)	[26.7,71.1]	51.3	[41.4,61.1]	51.0	[41.9,60.0]	152
	Total	-	-	34.6	[31.9,37.2]	34.6	[31.9,37.2]	1,963
	Urban	-	-	33.9	[31.3,36.6]	33.9	[31.3,36.6]	1,739
Malawi DHS 2011	Rural	-	-	39.6	[28.5,50.7]	39.6	[28.5,50.7]	224
	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-
	Total	3.2	[-0.3,6.6]	13.8	[9.7,18.0]	9.0	[6.3,11.7]	507
	Urban	7.5	[-3.7,18.8]	11.9	[7.3,16.5]	10.9	[6.7,15.1]	296
Namibia DHS 2006	Rural	1.5	[-0.2,3.1]	23.8	[14.4,33.2]	6.2	[3.6,8.9]	211
	Total	*	*	33.2	[26.6,39.7]	33.2	[26.7,39.7]	709
	Urban	*	*	38.4	[30.3,46.4]	38.3	[30.3,46.3]	548
Nigeria MIS 2010	Rural	*	*	15.4	[9.0,21.9]	15.9	[9.4,22.4]	161
	Total	65.6	[60.7,70.5]	76.6	[72.8,80.4]	72.2	[69.2,75.2]	932
	Urban	64.4	[59.3,69.5]	75.7	[71.2,80.1]	70.8	[67.4,74.1]	784
Rwanda DHS 2011	Rural	(79.4)	[65.1,93.8]	80.1	[73.4,86.8]	80.0	[73.9,86.0]	148
	Total	*	*	36.7	[32.2,41.1]	36.1	[31.8,40.4]	1,148
	Urban	-	-	38.4	[33.9,42.9]	38.4	[33.9,42.9]	712
Senegal DHS 2010	Rural	*	*	33.4	[24.4,42.5]	32.3	[24.1,40.5]	436
	Total	*	*	27.5	[23.0,32.0]	27.7	[23.2,32.1]	589
	Urban	*	*	29.2	[23.5,34.9]	29.7	[24.0,35.3]	425
Sierra Leone DHS 2008	Rural	*	*	23.0	[16.6,29.4]	22.5	[16.3,28.7]	164
	Total	42.3	[31.1,53.6]	59.0	[53.9,64.1]	57.1	[52.4,61.8]	894
	Urban	38.6	[26.0,51.2]	61.8	[56.4,67.2]	59.6	[54.5,64.8]	719
Tanzania DHS 2010	Rural	(49.5)	[28.1,71.0]	46.0	[33.9,58.1]	46.7	[36.0,57.4]	174
	Total	*	*	45.2	[38.2,52.2]	43.5	[36.1,50.9]	395
	Urban	*	*	45.3	[37.5,53.0]	43.4	[35.2,51.6]	352
Uganda MIS 2008	Rural	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
	Total	-	-	32.8	[28.9,36.8]	32.8	[28.9,36.8]	725
	Urban	-	-	35.1	[30.4,39.8]	35.1	[30.4,39.8]	500
Zambia DHS 2007	Rural	-	-	27.8	[20.5,35.1]	27.8	[20.5,35.1]	225
	Total	7.1	[4.8,9.3]	17.0	[9.6,24.3]	9.1	[6.7,11.6]	705
	Urban	6.7	[3.8,9.6]	17.5	[9.9,25.0]	10.0	[6.9,13.1]	471
Zimbabwe DHS 2010	Rural	7.5	[3.8,11.3]	*	*	7.4	[3.8,11.0]	234

Table B19. Percent of individual use of ITN previous night by MAP 2007 endemicity categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	45.0	[40.4,49.7]	54.0	[52.0,55.9]	52.7	[50.8,54.6]	12,919
	Urban	*	*	54.6	[52.1,57.0]	54.6	[52.2,57.1]	7,182
Angola MIS 2011	Rural	44.9	[40.3,49.6]	52.8	[49.5,56.2]	50.3	[47.3,53.3]	5,736
	Total	(58.8)	[36.2,81.3]	44.4	[40.4,48.4]	44.4	[40.4,48.4]	4,295
	Urban	(58.8)	[36.2,81.4]	41.2	[34.7,47.8]	41.4	[34.9,47.8]	1,969
DRC DHS 2007	Rural	-	-	47.0	[42.1,51.9]	47.0	[42.1,51.9]	2,326
	Total	33.8	[25.4,42.2]	43.4	[41.7,45.0]	43.2	[41.6,44.8]	19,756
	Urban	(24.2)	[24.2,24.2]	47.7	[45.6,49.9]	47.6	[45.5,49.8]	12,477
Ghana DHS 2008	Rural	34.9	[25.7,44.1]	35.5	[33.3,37.8]	35.5	[33.3,37.6]	7,279
	Total	59.0	[55.6,62.4]	58.4	[55.6,61.2]	58.7	[56.6,60.9]	21,695
	Urban	53.9	[50.0,57.9]	55.5	[52.4,58.6]	54.7	[52.3,57.2]	17,050
Kenya DHS 2008	Rural	73.6	[69.5,77.7]	73.0	[67.9,78.1]	73.4	[70.2,76.6]	4,645
	Total	61.6	[54.6,68.7]	61.4	[58.8,63.9]	61.4	[59.0,63.8]	9,086
	Urban	75.5	[75.5,75.5]	60.2	[56.9,63.4]	60.3	[57.0,63.5]	4,511
Liberia MIS 2011	Rural	61.1	[53.8,68.5]	62.8	[58.8,66.9]	62.5	[59.0,66.0]	4,575
	Total	67.9	[62.4,73.4]	63.0	[61.6,64.4]	63.2	[61.8,64.5]	44,896
	Urban	49.0	[39.7,58.3]	62.0	[60.5,63.6]	61.8	[60.3,63.4]	38,143
Madagascar DHS 2008	Rural	78.3	[73.4,83.1]	69.3	[66.7,71.9]	70.7	[68.5,72.9]	6,753
	Total	-	-	48.5	[47.4,49.7]	48.5	[47.4,49.7]	62,996
	Urban	-	-	46.8	[45.5,48.0]	46.8	[45.5,48.0]	52,000
Malawi DHS 2011	Rural	-	-	56.8	[53.9,59.8]	56.8	[53.9,59.8]	10,996
	Total	61.1	[53.4,68.7]	63.8	[61.3,66.3]	63.7	[61.3,66.2]	7,844
	Urban	62.8	[56.9,68.6]	64.2	[61.2,67.2]	64.2	[61.3,67.1]	6,090
Mali AMP 2010	Rural	*	*	62.2	[57.9,66.4]	62.0	[57.8,66.3]	1,755
	Total	21.9	[16.9,26.9]	23.2	[21.1,25.4]	23.1	[21.1,25.0]	9,188
	Urban	22.3	[12.8,31.9]	20.7	[18.4,23.1]	20.8	[18.6,23.1]	7,312
Namibia DHS 2006	Rural	21.6	[16.1,27.1]	39.4	[34.4,44.3]	31.7	[28.0,35.5]	1,877
	Total	41.2	[26.1,56.3]	49.9	[47.0,52.8]	49.9	[47.0,52.8]	13,027
	Urban	48.7	[48.7,48.7]	51.9	[48.5,55.2]	51.9	[48.5,55.2]	10,190
Nigeria MIS 2010	Rural	*	*	42.8	[36.9,48.7]	42.7	[36.8,48.5]	2,838
	Total	62.6	[60.9,64.4]	70.4	[69.2,71.7]	67.5	[66.5,68.5]	45,234
	Urban	62.2	[60.4,64.1]	70.1	[68.6,71.5]	66.9	[65.8,68.0]	38,897
Rwanda DHS 2011	Rural	67.3	[60.4,74.1]	72.2	[69.3,75.1]	71.2	[68.5,73.9]	6,337
	Total	23.3	[14.4,32.2]	44.4	[42.2,46.6]	43.6	[41.4,45.7]	44,229
	Urban	-	-	43.1	[40.7,45.6]	43.1	[40.7,45.6]	27,135
Senegal DHS 2010	Rural	23.3	[14.4,32.3]	46.6	[42.1,51.1]	44.2	[40.1,48.4]	17,094
	Total	64.3	[53.5,75.0]	51.1	[49.5,52.6]	51.3	[49.7,52.8]	14,663
	Urban	70.7	[57.4,84.1]	53.2	[51.2,55.1]	53.4	[51.5,55.4]	9,810
Sierra Leone DHS 2008	Rural	54.2	[48.9,59.5]	46.7	[44.3,49.1]	46.9	[44.5,49.2]	4,853
	Total	57.0	[52.7,61.4]	64.6	[62.5,66.6]	63.7	[61.8,65.5]	30,270
	Urban	50.6	[45.9,55.4]	62.3	[60.1,64.6]	61.2	[59.2,63.2]	23,572
Tanzania DHS 2010	Rural	68.2	[61.7,74.7]	73.4	[69.4,77.3]	72.3	[69.0,75.7]	6,698
	Total	34.4	[21.8,47.1]	51.5	[48.6,54.3]	50.3	[47.2,53.4]	9,807
	Urban	34.4	[21.8,47.1]	50.5	[47.7,53.4]	49.3	[46.1,52.4]	8,425
Uganda MIS 2008	Rural	-	-	56.7	[44.9,68.4]	56.7	[44.9,68.4]	1,383
	Total	-	-	41.8	[39.7,43.9]	41.8	[39.7,43.9]	17,524
	Urban	-	-	42.6	[39.8,45.4]	42.6	[39.8,45.4]	11,308
Zambia DHS 2007	Rural	-	-	40.4	[37.3,43.4]	40.4	[37.3,43.4]	6,217
	Total	27.1	[24.5,29.7]	30.5	[24.8,36.1]	28.3	[25.7,30.8]	11,340
	Urban	24.9	[21.3,28.4]	30.3	[24.5,36.0]	27.2	[24.0,30.5]	8,653
Zimbabwe DHS 2010	Rural	31.3	[27.7,34.9]	38.3	[30.4,46.2]	31.5	[28.1,35.0]	2,687

Table B20. Percent of children under 5 years use of ITN previous night by MAP 2007 endemicity categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	57.3	[51.3,63.3]	63.0	[60.4,65.7]	62.4	[59.9,65.0]	3,208
	Urban	*	*	63.3	[60.1,66.4]	63.3	[60.1,66.5]	1,995
Angola MIS 2011	Rural	57.2	[51.1,63.3]	62.5	[57.5,67.6]	61.1	[56.9,65.2]	1,213
	Total	*	*	54.8	[48.4,61.1]	54.7	[48.4,61.1]	882
	Urban	*	*	50.6	[40.2,61.0]	50.6	[40.2,60.9]	439
DRC DHS 2007	Rural	-	-	58.9	[51.8,65.9]	58.9	[51.8,65.9]	442
	Total	54.0	[34.8,73.2]	58.4	[55.9,60.9]	58.3	[55.9,60.7]	3,649
	Urban	*	*	61.1	[58.0,64.3]	60.8	[57.7,64.0]	2,366
Ghana DHS 2008	Rural	61.8	[46.1,77.6]	53.1	[48.9,57.3]	53.6	[49.6,57.6]	1,283
	Total	69.7	[65.4,74.1]	68.6	[65.3,72.0]	69.2	[66.5,71.9]	3,793
	Urban	64.8	[59.7,70.0]	66.4	[62.6,70.3]	65.7	[62.5,68.8]	3,059
Kenya DHS 2008	Rural	85.7	[80.9,90.6]	80.7	[77.8,83.7]	83.8	[80.6,87.0]	734
	Total	74.0	[63.4,84.5]	68.6	[65.3,72.0]	69.1	[65.9,72.3]	1,742
	Urban	*	*	67.3	[63.1,71.6]	67.3	[63.1,71.5]	991
Liberia MIS 2011	Rural	74.2	[63.1,85.4]	70.8	[65.2,76.3]	71.4	[66.4,76.5]	752
	Total	75.3	[67.9,82.7]	71.7	[69.9,73.6]	71.8	[70.0,73.7]	7,658
	Urban	67.6	[50.7,84.5]	70.5	[68.5,72.6]	70.5	[68.5,72.5]	6,754
Madagascar DHS 2008	Rural	80.6	[75.0,86.3]	82.1	[79.5,84.8]	81.9	[79.4,84.4]	904
	Total	-	-	59.1	[57.6,60.7]	59.1	[57.6,60.7]	12,071
	Urban	-	-	57.6	[56.0,59.2]	57.6	[56.0,59.2]	10,344
Malawi DHS 2011	Rural	-	-	68.4	[64.1,72.7]	68.4	[64.1,72.7]	1,726
	Total	77.4	[68.2,86.6]	78.3	[74.4,82.1]	78.2	[74.5,82.0]	1,724
	Urban	79.3	[72.0,86.7]	78.9	[74.3,83.6]	79.0	[74.5,83.4]	1,402
Mali AMP 2010	Rural	*	*	75.4	[69.7,81.1]	75.1	[69.4,80.9]	322
	Total	31.6	[22.8,40.3]	34.8	[31.0,38.5]	34.3	[30.9,37.6]	1,546
	Urban	32.6	[17.9,47.3]	31.8	[27.8,35.8]	31.9	[28.0,35.7]	1,272
Namibia DHS 2006	Rural	30.6	[20.7,40.5]	57.3	[50.5,64.1]	45.4	[39.2,51.6]	274
	Total	*	*	58.7	[54.9,62.6]	58.7	[54.8,62.5]	2,859
	Urban	*	*	60.1	[55.6,64.5]	60.0	[55.6,64.4]	2,307
Nigeria MIS 2010	Rural	*	*	53.2	[45.5,60.9]	53.1	[45.5,60.7]	553
	Total	72.7	[70.5,74.8]	76.9	[75.3,78.6]	75.3	[74.0,76.6]	7,978
	Urban	72.5	[70.3,74.8]	76.2	[74.4,78.0]	74.7	[73.3,76.1]	7,005
Rwanda DHS 2011	Rural	75.3	[68.7,81.9]	81.0	[77.6,84.4]	79.9	[76.8,83.0]	974
	Total	32.9	[20.2,45.7]	49.3	[46.5,52.1]	48.8	[46.1,51.5]	7,987
	Urban	-	-	48.2	[45.2,51.2]	48.2	[45.2,51.2]	5,317
Senegal DHS 2010	Rural	32.9	[20.1,45.8]	51.8	[45.5,58.0]	50.0	[44.4,55.6]	2,670
	Total	(76.4)	[56.3,96.4]	61.7	[58.8,64.6]	61.9	[59.0,64.8]	2,571
	Urban	*	*	59.9	[56.4,63.3]	60.0	[56.5,63.4]	1,839
Sierra Leone DHS 2008	Rural	*	*	66.4	[61.2,71.6]	66.6	[61.5,71.7]	732
	Total	71.1	[65.9,76.3]	77.4	[74.7,80.1]	76.8	[74.4,79.2]	6,093
	Urban	66.9	[60.5,73.4]	76.4	[73.4,79.4]	75.6	[72.9,78.4]	4,981
Tanzania DHS 2010	Rural	79.5	[71.9,87.2]	82.4	[77.8,86.9]	81.9	[78.0,85.7]	1,112
	Total	(46.7)	[32.6,60.8]	59.9	[56.1,63.6]	59.1	[55.4,62.8]	2,052
	Urban	(46.7)	[32.6,60.8]	60.2	[56.3,64.1]	59.4	[55.4,63.3]	1,773
Uganda MIS 2008	Rural	-	-	57.8	[47.2,68.3]	57.8	[47.2,68.3]	280
	Total	-	-	49.4	[46.5,52.3]	49.4	[46.5,52.3]	3,425
	Urban	-	-	48.7	[45.1,52.3]	48.7	[45.1,52.3]	2,440
Zambia DHS 2007	Rural	-	-	51.0	[46.1,55.9]	51.0	[46.1,55.9]	985
	Total	30.7	[26.8,34.5]	29.5	[22.8,36.2]	30.2	[26.9,33.6]	1,757
	Urban	26.2	[21.6,30.8]	29.2	[22.3,36.0]	27.6	[23.6,31.6]	1,371
Zimbabwe DHS 2010	Rural	39.5	[32.6,46.3]	*	*	39.7	[33.0,46.3]	387

Table B21. Percent of pregnant women use of ITN previous night by MAP 2007 endemicity categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	62.9	[45.5,80.3]	70.1	[65.5,74.7]	69.3	[64.7,74.0]	479
	Urban	-	-	70.7	[65.2,76.1]	70.7	[65.2,76.1]	311
Angola MIS 2011	Rural	62.9	[45.4,80.4]	68.6	[60.1,77.1]	66.8	[58.3,75.4]	168
	Total	*	*	65.3	[52.3,78.3]	65.0	[52.0,78.0]	120
	Urban	*	*	63.0	[46.1,79.8]	62.4	[45.6,79.2]	64
DRC DHS 2007	Rural	-	-	68.0	[48.6,87.4]	68.0	[48.6,87.4]	55
	Total	*	*	52.4	[44.5,60.3]	52.3	[44.6,59.9]	175
	Urban	-	-	57.9	[48.9,66.8]	57.9	[48.9,66.8]	117
Ghana DHS 2008	Rural	*	*	40.0	[24.3,55.7]	41.0	[26.7,55.2]	58
	Total	72.1	[63.7,80.4]	79.9	[73.1,86.8]	76.3	[70.8,81.8]	366
	Urban	65.6	[55.3,75.8]	79.8	[72.0,87.7]	74.0	[67.2,80.7]	277
Kenya DHS 2008	Rural	85.4	[74.7,96.0]	80.4	[67.7,93.1]	83.5	[75.2,91.8]	88
	Total	*	*	77.2	[69.6,84.7]	77.3	[70.2,84.5]	181
	Urban	*	*	70.6	[61.4,79.8]	70.7	[61.5,79.8]	110
Liberia MIS 2011	Rural	*	*	88.9	[79.4,98.4]	87.7	[78.9,96.5]	71
	Total	(67.1)	[42.0,92.2]	77.1	[73.4,80.8]	76.9	[73.2,80.5]	825
	Urban	*	*	76.7	[72.7,80.7]	76.6	[72.6,80.6]	727
Madagascar DHS 2008	Rural	*	*	80.9	[73.0,88.9]	78.5	[70.1,87.0]	99
	Total	-	-	56.3	[52.6,59.9]	56.3	[52.6,59.9]	1,207
	Urban	-	-	54.9	[51.0,58.7]	54.9	[51.0,58.7]	1,076
Malawi DHS 2011	Rural	-	-	67.6	[55.7,79.6]	67.6	[55.7,79.6]	131
	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-
	Total	(27.7)	[3.2,52.2]	32.5	[23.6,41.5]	31.7	[23.3,40.0]	144
	Urban	*	*	28.9	[18.8,39.1]	29.5	[19.5,39.5]	110
Namibia DHS 2006	Rural	*	*	(48.2)	[30.9,65.4]	(38.7)	[24.3,53.2]	34
	Total	*	*	64.9	[57.7,72.0]	64.9	[57.8,72.0]	363
	Urban	*	*	70.7	[63.2,78.1]	70.6	[63.1,78.0]	297
Nigeria MIS 2010	Rural	*	*	38.2	[25.7,50.7]	39.1	[26.6,51.7]	65
	Total	76.5	[71.5,81.5]	83.8	[80.5,87.1]	81.0	[78.2,83.8]	831
	Urban	75.5	[70.2,80.8]	83.1	[79.2,87.0]	79.9	[76.7,83.1]	695
Rwanda DHS 2011	Rural	*	*	86.4	[80.9,92.0]	86.6	[81.5,91.6]	136
	Total	*	*	51.3	[46.7,56.0]	51.4	[46.8,56.0]	806
	Urban	-	-	49.1	[44.3,53.9]	49.1	[44.3,53.9]	557
Senegal DHS 2010	Rural	*	*	56.9	[45.5,68.4]	56.6	[45.8,67.5]	248
	Total	*	*	70.8	[64.3,77.3]	71.0	[64.6,77.5]	230
	Urban	*	*	72.5	[64.7,80.2]	73.0	[65.4,80.7]	173
Sierra Leone DHS 2008	Rural	*	*	65.8	[54.1,77.6]	65.0	[53.3,76.7]	57
	Total	71.2	[60.3,82.0]	74.4	[70.0,78.8]	74.1	[70.0,78.2]	689
	Urban	63.8	[51.6,75.9]	75.6	[70.9,80.3]	74.8	[70.3,79.3]	574
Tanzania DHS 2010	Rural	86.4	[71.3,101.5]	67.6	[55.8,79.3]	70.8	[60.3,81.3]	115
	Total	*	*	78.9	[71.9,86.0]	77.6	[69.9,85.3]	222
	Urban	*	*	77.6	[69.9,85.2]	76.1	[67.9,84.4]	201
Uganda MIS 2008	Rural	-	-	*	*	*	*	21
	Total	-	-	58.0	[52.4,63.6]	58.0	[52.4,63.6]	410
	Urban	-	-	58.8	[52.2,65.5]	58.8	[52.2,65.5]	298
Zambia DHS 2007	Rural	-	-	55.8	[45.2,66.4]	55.8	[45.2,66.4]	112
	Total	27.5	[19.4,35.7]	34.7	[20.8,48.6]	30.0	[22.7,37.2]	215
	Urban	24.3	[14.9,33.6]	34.7	[20.8,48.7]	28.9	[20.8,37.1]	163
Zimbabwe DHS 2010	Rural	(33.2)	[17.0,49.4]	-	-	33.2	[17.0,49.4]	52

Table B22. Percent of individual use of ITN previous night by MAP 2010 endemicity categories (2) and by Urban-Rural residence (All households included)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	26.1	[19.8,32.4]	18.9	[17.1,20.7]	19.2	[17.5,21.0]	35,431
	Urban	32.4	[25.5,39.2]	18.2	[15.7,20.8]	18.7	[16.1,21.3]	20,977
Angola MIS 2011	Rural	20.7	[14.9,26.5]	19.9	[17.6,22.3]	20.0	[17.7,22.2]	14,454
	Total	1.2	[0.5,1.8]	4.7	[3.8,5.5]	4.5	[3.7,5.3]	42,337
	Urban	0.9	[0.2,1.6]	3.5	[2.5,4.5]	3.4	[2.4,4.3]	24,148
DRC DHS 2007	Rural	1.6	[0.3,2.8]	6.2	[5.0,7.4]	6.0	[4.8,7.2]	18,189
	Total	11.7	[6.9,16.4]	20.9	[19.8,22.0]	20.9	[19.7,22.0]	40,883
	Urban	-	-	25.9	[24.2,27.6]	25.9	[24.2,27.6]	22,951
Ghana DHS 2008	Rural	11.7	[6.9,16.4]	14.4	[13.2,15.7]	14.4	[13.2,15.6]	17,932
	Total	32.8	[30.0,35.6]	43.5	[39.4,47.5]	35.6	[33.3,37.9]	35,772
	Urban	29.3	[25.9,32.6]	41.1	[36.8,45.4]	32.8	[30.1,35.4]	28,491
Kenya DHS 2008	Rural	44.2	[39.3,49.0]	62.2	[56.1,68.2]	46.8	[42.1,51.5]	7,282
	Total	39.8	[24.0,55.7]	31.9	[29.1,34.7]	32.3	[29.6,35.1]	17,255
	Urban	53.0	[53.0,53.0]	30.4	[26.9,34.0]	30.5	[27.0,34.1]	8,903
Liberia MIS 2011	Rural	39.1	[22.2,56.0]	33.7	[29.4,38.0]	34.2	[30.0,38.5]	8,352
	Total	9.4	[1.5,17.2]	39.1	[37.5,40.6]	37.3	[35.9,38.6]	76,131
	Urban	6.8	[-0.8,14.3]	38.3	[36.5,40.0]	36.1	[34.6,37.7]	65,276
Madagascar DHS 2008	Rural	57.6	[45.7,69.5]	43.7	[40.8,46.6]	44.0	[41.2,46.8]	10,855
	Total	-	-	29.0	[28.0,30.1]	29.0	[28.0,30.1]	105,251
	Urban	-	-	27.4	[26.2,28.5]	27.4	[26.2,28.5]	88,862
Malawi DHS 2011	Rural	-	-	38.1	[35.0,41.3]	38.1	[35.0,41.3]	16,389
	Total	47.4	[42.3,52.6]	57.5	[54.4,60.5]	57.1	[54.2,60.1]	8,749
	Urban	45.2	[39.9,50.5]	58.1	[54.4,61.8]	57.6	[54.0,61.2]	6,787
Mali AMP 2010	Rural	63.4	[57.3,69.6]	55.3	[50.3,60.3]	55.5	[50.6,60.4]	1,962
	Total	2.9	[2.1,3.7]	7.6	[6.6,8.6]	5.6	[5.0,6.2]	37,957
	Urban	3.5	[1.1,5.9]	7.7	[6.5,8.8]	6.8	[5.9,7.8]	22,251
Namibia DHS 2006	Rural	2.7	[2.1,3.4]	7.5	[5.2,9.7]	3.8	[3.1,4.5]	15,707
	Total	10.2	[-3.0,23.4]	23.1	[20.1,26.0]	23.0	[20.0,25.9]	28,284
	Urban	-	-	25.5	[21.8,29.2]	25.5	[21.8,29.2]	20,726
Nigeria MIS 2010	Rural	10.2	[-3.1,23.5]	16.2	[12.1,20.3]	16.0	[12.0,20.0]	7,559
	Total	56.0	[54.6,57.5]	63.3	[60.9,65.6]	57.8	[56.6,58.9]	52,877
	Urban	54.7	[53.1,56.3]	63.0	[60.6,65.4]	56.9	[55.6,58.2]	45,761
Rwanda DHS 2011	Rural	62.9	[59.4,66.5]	69.5	[61.4,77.7]	63.4	[60.1,66.8]	7,116
	Total	22.7	[19.7,25.6]	35.1	[32.5,37.7]	28.7	[26.7,30.8]	67,087
	Urban	29.6	[25.3,33.8]	32.9	[29.9,35.9]	31.9	[29.5,34.3]	36,722
Senegal DHS 2010	Rural	19.2	[15.4,23.1]	42.7	[37.6,47.8]	24.9	[21.6,28.2]	30,365
	Total	-	-	19.6	[18.1,21.1]	19.6	[18.1,21.1]	38,348
	Urban	-	-	20.3	[18.4,22.2]	20.3	[18.4,22.2]	25,805
Sierra Leone DHS 2008	Rural	-	-	18.1	[15.6,20.7]	18.1	[15.6,20.7]	12,543
	Total	33.9	[30.4,37.4]	49.0	[46.8,51.2]	45.3	[43.5,47.1]	42,557
	Urban	29.1	[25.1,33.1]	47.9	[45.5,50.3]	43.8	[41.8,45.8]	32,920
Tanzania DHS 2010	Rural	44.2	[37.8,50.5]	53.5	[48.6,58.4]	50.3	[46.2,54.3]	9,638
	Total	14.2	[6.7,21.7]	26.3	[23.3,29.2]	25.8	[22.8,28.7]	19,160
	Urban	14.2	[6.7,21.7]	25.7	[22.2,29.1]	25.1	[21.7,28.5]	16,543
Uganda MIS 2008	Rural	-	-	29.9	[24.5,35.3]	29.9	[24.5,35.3]	2,618
	Total	17.5	[14.4,20.5]	24.5	[22.6,26.4]	23.4	[21.7,25.0]	31,332
	Urban	20.1	[6.4,33.8]	24.0	[21.7,26.3]	23.9	[21.7,26.1]	20,129
Zambia DHS 2007	Rural	17.2	[14.2,20.2]	26.0	[22.7,29.3]	22.4	[20.1,24.7]	11,203
	Total	4.9	[4.0,5.9]	13.4	[10.8,15.9]	8.6	[7.3,9.8]	37,475
	Urban	3.4	[1.9,4.8]	13.4	[10.7,16.1]	9.1	[7.4,10.9]	25,846
Zimbabwe DHS 2010	Rural	6.6	[5.4,7.8]	13.3	[8.9,17.7]	7.3	[6.1,8.5]	11,629

Table B23. Percent of children under 5 years use of ITN previous night by MAP 2010 endemicity categories (2) and by Urban-Rural residence (All households included)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	27.6	[23.2,31.9]	25.5	[22.5,28.6]	26.4	[23.9,29.0]	7,584
	Urban	25.7	[17.7,33.7]	24.5	[21.0,28.1]	24.9	[21.4,28.4]	5,071
Angola MIS 2011	Rural	29.3	[25.6,33.1]	29.7	[23.5,35.9]	29.5	[26.3,32.6]	2,514
	Total	3.5	[1.1,5.9]	6.2	[4.8,7.6]	6.0	[4.7,7.3]	8,035
	Urban	0.5	[-0.1,1.0]	4.8	[3.2,6.5]	4.6	[3.1,6.2]	4,798
DRC DHS 2007	Rural	5.9	[1.7,10.1]	8.3	[6.1,10.5]	8.0	[6.0,10.1]	3,237
	Total	*	*	39.3	[37.2,41.3]	39.1	[37.1,41.1]	5,443
	Urban	*	*	43.2	[40.5,45.9]	43.2	[40.5,45.9]	3,333
Ghana DHS 2008	Rural	*	*	32.8	[29.8,35.9]	32.6	[29.6,35.6]	2,110
	Total	42.9	[38.5,47.4]	57.3	[53.7,60.9]	47.1	[43.7,50.6]	5,569
	Urban	38.9	[33.9,44.0]	56.0	[51.9,60.2]	43.8	[39.9,47.8]	4,583
Kenya DHS 2008	Rural	62.3	[56.3,68.2]	62.6	[54.3,70.9]	62.4	[57.6,67.2]	986
	Total	37.3	[32.5,42.0]	37.9	[34.0,41.8]	37.8	[34.5,41.1]	3,185
	Urban	(36.9)	[31.8,42.1]	34.7	[29.5,39.9]	35.2	[31.0,39.3]	1,895
Liberia MIS 2011	Rural	38.8	[26.3,51.3]	41.9	[36.1,47.6]	41.7	[36.3,47.0]	1,290
	Total	26.4	[22.9,29.9]	60.3	[57.9,62.6]	46.3	[44.3,48.3]	11,871
	Urban	22.2	[18.1,26.2]	59.4	[56.8,61.9]	45.0	[42.8,47.2]	10,575
Madagascar DHS 2008	Rural	47.9	[42.9,52.9]	72.0	[66.4,77.6]	57.1	[53.2,61.0]	1,296
	Total	37.7	[36.0,39.5]	44.8	[42.2,47.5]	39.5	[38.0,41.0]	18,074
	Urban	36.1	[34.3,37.9]	43.8	[41.1,46.5]	38.1	[36.6,39.6]	15,634
Malawi DHS 2011	Rural	47.0	[41.4,52.7]	55.9	[45.9,65.8]	48.4	[43.3,53.5]	2,440
	Total	61.5	[50.7,72.4]	73.0	[68.8,77.2]	72.2	[68.2,76.3]	1,867
	Urban	63.1	[51.6,74.6]	74.2	[69.1,79.2]	73.4	[68.6,78.2]	1,508
Mali AMP 2010	Rural	(54.5)	[24.8,84.3]	68.2	[61.4,74.9]	67.3	[60.6,74.1]	359
	Total	6.5	[4.8,8.2]	14.5	[12.4,16.6]	10.6	[9.3,12.0]	4,977
	Urban	9.0	[5.8,12.1]	14.2	[11.8,16.6]	12.4	[10.6,14.2]	3,265
Namibia DHS 2006	Rural	4.4	[2.9,5.9]	16.0	[11.2,20.8]	7.3	[5.6,8.9]	1,712
	Total	*	*	29.0	[25.1,32.9]	28.9	[24.9,32.8]	5,810
	Urban	*	*	31.0	[26.1,35.9]	30.8	[25.9,35.7]	4,490
Nigeria MIS 2010	Rural	*	*	22.2	[16.9,27.6]	22.2	[16.9,27.6]	1,320
	Total	68.9	[67.3,70.6]	72.0	[69.2,74.9]	69.8	[68.4,71.2]	8,611
	Urban	68.5	[66.7,70.3]	70.2	[66.9,73.5]	68.9	[67.4,70.5]	7,588
Rwanda DHS 2011	Rural	73.6	[69.3,77.9]	78.6	[73.3,83.9]	76.1	[72.6,79.6]	1,023
	Total	40.6	[36.6,44.7]	31.1	[27.9,34.3]	34.3	[31.8,36.9]	11,364
	Urban	38.6	[34.1,43.1]	34.7	[30.7,38.8]	36.4	[33.4,39.4]	7,047
Senegal DHS 2010	Rural	47.6	[38.7,56.5]	26.7	[22.0,31.5]	30.9	[26.5,35.3]	4,317
	Total	29.3	[26.1,32.5]	21.1	[17.2,25.0]	26.5	[24.0,29.0]	6,000
	Urban	28.4	[24.5,32.4]	19.3	[15.8,22.8]	25.1	[22.3,28.0]	4,388
Sierra Leone DHS 2008	Rural	31.4	[26.4,36.3]	27.4	[15.4,39.5]	30.3	[25.4,35.2]	1,611
	Total	54.7	[46.7,62.7]	66.4	[63.8,68.9]	64.1	[61.4,66.7]	7,302
	Urban	50.9	[40.8,61.0]	66.8	[64.0,69.7]	64.0	[61.0,67.1]	5,884
Tanzania DHS 2010	Rural	64.3	[57.0,71.6]	64.2	[58.0,70.4]	64.2	[59.5,68.9]	1,418
	Total	(27.2)	[20.7,33.8]	34.3	[29.6,39.1]	32.8	[28.9,36.7]	3,699
	Urban	(26.6)	[20.0,33.2]	34.8	[29.4,40.3]	32.8	[28.4,37.3]	3,205
Uganda MIS 2008	Rural	*	*	31.8	[23.9,39.8]	32.7	[24.3,41.1]	494
	Total	27.3	[24.4,30.2]	32.7	[28.5,36.9]	29.0	[26.7,31.3]	5,827
	Urban	27.1	[23.2,30.9]	30.8	[26.1,35.6]	28.5	[25.7,31.3]	4,171
Zambia DHS 2007	Rural	27.7	[23.6,31.8]	42.6	[37.6,47.7]	30.3	[26.6,34.1]	1,656
	Total	7.4	[6.0,8.7]	13.8	[10.3,17.4]	9.6	[8.0,11.2]	5,539
	Urban	6.2	[4.4,8.0]	13.7	[9.8,17.6]	9.4	[7.4,11.4]	4,017
Zimbabwe DHS 2010	Rural	9.4	[7.1,11.6]	15.0	[7.9,22.1]	10.1	[7.9,12.3]	1,522

Table B24. Percent of pregnant women use of ITN previous night by MAP 2010 endemicity categories (2) and by Urban-Rural residence (All households included)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	(41.2)	[23.1,59.3]	25.2	[21.4,29.0]	25.9	[22.2,29.7]	1,281
	Urban	*	*	24.4	[19.4,29.4]	24.9	[20.0,29.8]	883
Angola MIS 2011	Rural	*	*	26.9	[21.2,32.5]	28.2	[22.5,34.0]	398
	Total	*	*	7.7	[4.6,10.9]	7.5	[4.4,10.5]	1,038
	Urban	-	-	6.6	[3.2,10.0]	6.3	[3.0,9.6]	638
DRC DHS 2007	Rural	*	*	9.5	[3.8,15.3]	9.4	[3.7,15.0]	400
	Total	*	*	26.9	[21.8,32.0]	27.0	[21.9,32.0]	340
	Urban	-	-	34.0	[27.2,40.8]	34.0	[27.2,40.8]	200
Ghana DHS 2008	Rural	*	*	16.5	[9.4,23.6]	16.9	[9.9,24.0]	140
	Total	42.6	[34.8,50.4]	62.3	[51.2,73.4]	48.6	[41.6,55.7]	574
	Urban	38.7	[29.8,47.5]	64.1	[51.9,76.4]	47.9	[39.6,56.2]	429
Kenya DHS 2008	Rural	51.3	[35.7,66.8]	(48.9)	[40.0,57.8]	50.9	[37.6,64.2]	145
	Total	*	*	40.1	[33.6,46.6]	39.8	[33.5,46.0]	352
	Urban	*	*	38.7	[31.2,46.2]	39.0	[31.5,46.4]	199
Liberia MIS 2011	Rural	*	*	42.0	[30.3,53.6]	40.8	[30.1,51.6]	152
	Total	*	*	49.6	[46.0,53.3]	46.8	[43.2,50.4]	1,355
	Urban	*	*	49.4	[45.5,53.4]	46.3	[42.4,50.2]	1,203
Madagascar DHS 2008	Rural	*	*	51.3	[42.2,60.3]	51.0	[41.9,60.0]	152
	Total	-	-	34.6	[31.9,37.2]	34.6	[31.9,37.2]	1,963
	Urban	-	-	33.9	[31.3,36.6]	33.9	[31.3,36.6]	1,739
Malawi DHS 2011	Rural	-	-	39.6	[28.5,50.7]	39.6	[28.5,50.7]	224
	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-
	Total	(4.2)	[2.0,6.4]	12.7	[8.3,17.1]	9.0	[6.3,11.7]	507
	Urban	*	*	12.2	[7.2,17.2]	10.9	[6.7,15.1]	296
Namibia DHS 2006	Rural	(3.6)	[1.7,5.6]	(15.3)	[6.4,24.1]	6.2	[3.6,8.9]	211
	Total	*	*	33.3	[26.8,39.8]	33.2	[26.7,39.7]	709
	Urban	-	-	38.3	[30.3,46.3]	38.3	[30.3,46.3]	548
Nigeria MIS 2010	Rural	*	*	16.1	[9.5,22.7]	15.9	[9.4,22.4]	161
	Total	72.2	[68.7,75.6]	72.4	[66.4,78.5]	72.2	[69.2,75.2]	932
	Urban	70.1	[66.1,74.2]	72.2	[65.9,78.4]	70.8	[67.4,74.1]	784
Rwanda DHS 2011	Rural	80.1	[73.7,86.4]	*	*	80.0	[73.9,86.0]	148
	Total	29.4	[22.5,36.2]	41.8	[36.9,46.7]	36.1	[31.8,40.4]	1,148
	Urban	39.2	[30.9,47.6]	38.1	[32.5,43.6]	38.4	[33.9,42.9]	712
Senegal DHS 2010	Rural	23.5	[14.6,32.5]	60.3	[51.5,69.1]	32.3	[24.1,40.5]	436
	Total	-	-	27.7	[23.2,32.1]	27.7	[23.2,32.1]	589
	Urban	-	-	29.7	[24.0,35.3]	29.7	[24.0,35.3]	425
Sierra Leone DHS 2008	Rural	-	-	22.5	[16.3,28.7]	22.5	[16.3,28.7]	164
	Total	46.2	[35.7,56.7]	59.8	[54.5,65.1]	57.1	[52.4,61.8]	894
	Urban	46.2	[33.2,59.1]	62.4	[56.8,67.9]	59.6	[54.5,64.8]	719
Tanzania DHS 2010	Rural	(46.2)	[28.1,64.3]	46.9	[33.7,60.2]	46.7	[36.0,57.4]	174
	Total	*	*	45.3	[38.5,52.1]	43.5	[36.1,50.9]	395
	Urban	*	*	45.4	[37.8,53.0]	43.4	[35.2,51.6]	352
Uganda MIS 2008	Rural	-	-	*	*	*	*	43
	Total	(19.3)	[8.2,30.4]	35.0	[30.8,39.2]	32.8	[28.9,36.8]	725
	Urban	*	*	35.5	[30.7,40.2]	35.1	[30.4,39.8]	500
Zambia DHS 2007	Rural	(20.4)	[8.7,32.1]	33.1	[24.2,42.1]	27.8	[20.5,35.1]	225
	Total	4.9	[2.5,7.3]	14.4	[10.2,18.5]	9.1	[6.7,11.6]	705
	Urban	*	*	14.4	[10.0,18.8]	10.0	[6.9,13.1]	471
Zimbabwe DHS 2010	Rural	(7.0)	[3.2,10.7]	*	*	(7.4)	[3.8,11.0]	234

Table B25. Percent of individual use of ITN previous night by MAP 2010 endemicity categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	50.1	[42.9,57.2]	52.9	[50.9,54.8]	52.7	[50.8,54.6]	12,919
	Urban	57.2	[55.0,59.4]	54.5	[51.9,57.1]	54.6	[52.2,57.1]	7,182
Angola MIS 2011	Rural	42.9	[31.7,54.1]	50.9	[47.8,53.9]	50.3	[47.3,53.3]	5,736
	Total	37.5	[23.8,51.2]	44.5	[40.5,48.6]	44.4	[40.4,48.4]	4,295
	Urban	56.0	[40.1,71.8]	41.2	[34.7,47.8]	41.4	[34.9,47.8]	1,969
DRC DHS 2007	Rural	29.0	[13.1,44.9]	47.3	[42.4,52.3]	47.0	[42.1,51.9]	2,326
	Total	41.2	[13.5,69.0]	43.2	[41.6,44.8]	43.2	[41.6,44.8]	19,756
	Urban	-	-	47.6	[45.5,49.8]	47.6	[45.5,49.8]	12,477
Ghana DHS 2008	Rural	41.2	[13.4,69.1]	35.4	[33.3,37.6]	35.5	[33.3,37.6]	7,279
	Total	59.0	[56.1,61.9]	58.2	[55.1,61.3]	58.7	[56.6,60.9]	21,695
	Urban	54.2	[50.7,57.6]	55.7	[52.4,59.0]	54.7	[52.3,57.2]	17,050
Kenya DHS 2008	Rural	72.9	[69.1,76.7]	75.5	[71.7,79.3]	73.4	[70.2,76.6]	4,645
	Total	63.6	[54.8,72.3]	61.3	[58.8,63.8]	61.4	[59.0,63.8]	9,086
	Urban	75.5	[75.5,75.5]	60.2	[56.9,63.4]	60.3	[57.0,63.5]	4,511
Liberia MIS 2011	Rural	62.8	[53.4,72.2]	62.5	[58.7,66.3]	62.5	[59.0,66.0]	4,575
	Total	63.0	[52.7,73.3]	63.2	[61.8,64.6]	63.2	[61.8,64.5]	44,896
	Urban	61.6	[46.6,76.6]	61.8	[60.3,63.4]	61.8	[60.3,63.4]	38,143
Madagascar DHS 2008	Rural	66.3	[56.8,75.8]	70.9	[68.7,73.0]	70.7	[68.5,72.9]	6,753
	Total	-	-	48.5	[47.4,49.7]	48.5	[47.4,49.7]	62,996
	Urban	-	-	46.8	[45.5,48.0]	46.8	[45.5,48.0]	52,000
Malawi DHS 2011	Rural	-	-	56.8	[53.9,59.8]	56.8	[53.9,59.8]	10,996
	Total	60.0	[53.2,66.9]	63.8	[61.3,66.3]	63.7	[61.3,66.2]	7,844
	Urban	59.2	[51.4,67.0]	64.4	[61.4,67.4]	64.2	[61.3,67.1]	6,090
Mali AMP 2010	Rural	64.5	[59.1,69.8]	62.0	[57.6,66.3]	62.0	[57.8,66.3]	1,755
	Total	26.6	[20.8,32.4]	22.2	[19.9,24.5]	23.1	[21.1,25.0]	9,188
	Urban	16.7	[6.8,26.6]	21.4	[18.9,23.9]	20.8	[18.6,23.1]	7,312
Namibia DHS 2006	Rural	36.5	[30.7,42.3]	27.3	[21.9,32.6]	31.7	[28.0,35.5]	1,877
	Total	32.4	[32.4,32.4]	49.9	[47.0,52.8]	49.9	[47.0,52.8]	13,027
	Urban	-	-	51.9	[48.5,55.2]	51.9	[48.5,55.2]	10,190
Nigeria MIS 2010	Rural	32.4	[32.4,32.4]	42.9	[36.9,48.9]	42.7	[36.8,48.5]	2,838
	Total	67.2	[66.0,68.5]	68.3	[66.2,70.4]	67.5	[66.5,68.5]	45,234
	Urban	66.5	[65.1,67.8]	68.1	[65.9,70.2]	66.9	[65.8,68.0]	38,897
Rwanda DHS 2011	Rural	71.0	[68.1,73.9]	73.7	[66.3,81.2]	71.2	[68.5,73.9]	6,337
	Total	41.7	[37.9,45.6]	44.9	[42.4,47.4]	43.6	[41.4,45.7]	44,229
	Urban	44.4	[40.2,48.5]	42.7	[39.7,45.6]	43.1	[40.7,45.6]	27,135
Senegal DHS 2010	Rural	39.9	[34.1,45.7]	52.2	[48.4,56.0]	44.2	[40.1,48.4]	17,094
	Total	-	-	51.3	[49.7,52.8]	51.3	[49.7,52.8]	14,663
	Urban	-	-	53.4	[51.5,55.4]	53.4	[51.5,55.4]	9,810
Sierra Leone DHS 2008	Rural	-	-	46.9	[44.5,49.2]	46.9	[44.5,49.2]	4,853
	Total	56.2	[52.6,59.9]	65.6	[63.4,67.8]	63.7	[61.8,65.5]	30,270
	Urban	50.6	[46.6,54.6]	63.4	[61.0,65.8]	61.2	[59.2,63.2]	23,572
Tanzania DHS 2010	Rural	66.9	[60.5,73.4]	74.9	[71.5,78.4]	72.3	[69.0,75.7]	6,698
	Total	30.0	[17.9,42.0]	51.2	[48.4,54.0]	50.3	[47.2,53.4]	9,807
	Urban	30.0	[17.9,42.1]	50.2	[47.4,53.0]	49.3	[46.1,52.4]	8,425
Uganda MIS 2008	Rural	-	-	56.7	[44.9,68.4]	56.7	[44.9,68.4]	1,383
	Total	33.3	[29.2,37.4]	43.3	[40.9,45.6]	41.8	[39.7,43.9]	17,524
	Urban	32.6	[28.5,36.8]	45.3	[41.2,49.4]	40.4	[37.3,43.4]	6,217
Zambia DHS 2007	Rural	40.8	[23.6,58.1]	42.6	[39.8,45.4]	42.6	[39.8,45.4]	11,308
	Total	29.0	[25.5,32.5]	27.9	[24.4,31.4]	28.3	[25.7,30.8]	11,340
	Urban	31.8	[27.7,35.8]	30.6	[24.9,36.3]	31.5	[28.1,35.0]	2,687
Zimbabwe DHS 2010	Rural	25.0	[18.6,31.3]	27.7	[24.0,31.4]	27.2	[24.0,30.5]	8,653

Table B26. Percent of children under 5 years use of ITN previous night by MAP 2010 endemicity categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	60.0	[46.0,74.0]	62.6	[60.1,65.1]	62.4	[59.9,65.0]	3,208
	Urban	68.8	[52.2,85.3]	62.9	[59.7,66.1]	63.3	[60.1,66.5]	1,995
Angola MIS 2011	Rural	46.2	[38.1,54.4]	62.1	[57.9,66.3]	61.1	[56.9,65.2]	1,213
	Total	45.9	[22.2,69.7]	54.9	[48.4,61.3]	54.7	[48.4,61.1]	882
	Urban	*	*	50.6	[40.2,61.0]	50.6	[40.2,60.9]	439
DRC DHS 2007	Rural	(44.6)	[15.6,73.6]	59.2	[52.1,66.3]	58.9	[51.8,65.9]	442
	Total	*	*	58.2	[55.8,60.7]	58.3	[55.9,60.7]	3,649
	Urban	-	-	60.8	[57.7,64.0]	60.8	[57.7,64.0]	2,366
Ghana DHS 2008	Rural	*	*	53.4	[49.3,57.4]	53.6	[49.6,57.6]	1,283
	Total	70.0	[66.4,73.7]	67.6	[63.6,71.6]	69.2	[66.5,71.9]	3,793
	Urban	65.7	[61.3,70.0]	65.7	[61.3,70.1]	65.7	[62.5,68.8]	3,059
Kenya DHS 2008	Rural	84.4	[80.5,88.4]	81.5	[77.6,85.4]	83.8	[80.6,87.0]	734
	Total	76.6	[63.2,90.0]	68.7	[65.4,72.0]	69.1	[65.9,72.3]	1,742
	Urban	*	*	67.3	[63.1,71.6]	67.3	[63.1,71.5]	991
Liberia MIS 2011	Rural	77.3	[62.9,91.8]	70.7	[65.5,76.0]	71.4	[66.4,76.5]	752
	Total	78.8	[70.5,87.2]	71.7	[69.9,73.6]	71.8	[70.0,73.7]	7,658
	Urban	(78.8)	[67.8,89.7]	70.4	[68.3,72.4]	70.5	[68.5,72.5]	6,754
Madagascar DHS 2008	Rural	(79.0)	[70.3,87.7]	82.0	[79.5,84.5]	81.9	[79.4,84.4]	904
	Total	-	-	59.1	[57.6,60.7]	59.1	[57.6,60.7]	12,071
	Urban	-	-	57.6	[56.0,59.2]	57.6	[56.0,59.2]	10,344
Malawi DHS 2011	Rural	-	-	68.4	[64.1,72.7]	68.4	[64.1,72.7]	1,726
	Total	76.3	[66.1,86.5]	78.3	[74.4,82.2]	78.2	[74.5,82.0]	1,724
	Urban	75.2	[63.9,86.5]	79.1	[74.5,83.8]	79.0	[74.5,83.4]	1,402
Mali AMP 2010	Rural	(85.9)	[71.8,100.1]	74.9	[69.1,80.7]	75.1	[69.4,80.9]	322
	Total	36.5	[27.9,45.1]	33.8	[30.0,37.6]	34.3	[30.9,37.6]	1,546
	Urban	24.8	[11.0,38.6]	32.7	[28.6,36.8]	31.9	[28.0,35.7]	1,272
Namibia DHS 2006	Rural	49.2	[40.5,57.9]	42.0	[32.6,51.5]	45.4	[39.2,51.6]	274
	Total	*	*	58.6	[54.8,62.5]	58.7	[54.8,62.5]	2,859
	Urban	-	-	60.0	[55.6,64.4]	60.0	[55.6,64.4]	2,307
Nigeria MIS 2010	Rural	*	*	53.0	[45.3,60.6]	53.1	[45.5,60.7]	553
	Total	76.0	[74.5,77.4]	73.4	[70.7,76.2]	75.3	[74.0,76.6]	7,978
	Urban	75.2	[73.6,76.8]	73.4	[70.6,76.2]	74.7	[73.3,76.1]	7,005
Rwanda DHS 2011	Rural	80.3	[77.0,83.5]	75.1	[68.6,81.7]	79.9	[76.8,83.0]	974
	Total	47.2	[42.2,52.2]	49.9	[46.9,52.9]	48.8	[46.1,51.5]	7,987
	Urban	50.5	[44.7,56.3]	47.4	[43.9,50.8]	48.2	[45.2,51.2]	5,317
Senegal DHS 2010	Rural	44.5	[37.0,52.0]	60.5	[55.7,65.3]	50.0	[44.4,55.6]	2,670
	Total	-	-	61.9	[59.0,64.8]	61.9	[59.0,64.8]	2,571
	Urban	-	-	60.0	[56.5,63.4]	60.0	[56.5,63.4]	1,839
Sierra Leone DHS 2008	Rural	-	-	66.6	[61.5,71.7]	66.6	[61.5,71.7]	732
	Total	70.7	[66.5,75.0]	78.1	[75.3,81.0]	76.8	[74.4,79.2]	6,093
	Urban	68.4	[63.6,73.3]	76.9	[73.7,80.2]	75.6	[72.9,78.4]	4,981
Tanzania DHS 2010	Rural	75.6	[67.1,84.2]	84.8	[81.7,87.9]	81.9	[78.0,85.7]	1,112
	Total	*	*	59.6	[55.9,63.2]	59.1	[55.4,62.8]	2,052
	Urban	*	*	59.9	[56.0,63.7]	59.4	[55.4,63.3]	1,773
Uganda MIS 2008	Rural	-	-	57.8	[47.2,68.3]	57.8	[47.2,68.3]	280
	Total	47.5	[39.6,55.3]	49.6	[46.5,52.8]	49.4	[46.5,52.3]	3,425
	Urban	61.9	[44.8,78.9]	48.5	[44.9,52.1]	48.7	[45.1,52.3]	2,440
Zambia DHS 2007	Rural	45.9	[37.6,54.2]	54.0	[48.0,60.0]	51.0	[46.1,55.9]	985
	Total	34.0	[28.0,40.0]	28.7	[24.4,32.9]	30.2	[26.9,33.6]	1,757
	Urban	23.0	[14.3,31.7]	28.4	[24.0,32.9]	27.6	[23.6,31.6]	1,371
Zimbabwe DHS 2010	Rural	41.8	[34.0,49.6]	31.6	[20.7,42.6]	39.7	[33.0,46.3]	387

Table B27. Percent of pregnant women use of ITN previous night by MAP 2010 endemicity categories (2) and by Urban-Rural residence (Only households with at least 1 ITN)

		Endemicity						
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	(79.9)	[69.5,90.3]	68.6	[63.7,73.4]	69.3	[64.7,74.0]	479
	Urban	*	*	70.3	[64.5,76.1]	70.7	[65.2,76.1]	311
Angola MIS 2011	Rural	*	*	65.4	[56.7,74.1]	66.8	[58.3,75.4]	168
	Total	*	*	65.2	[52.2,78.2]	65.0	[52.0,78.0]	120
	Urban	*	*	63.0	[46.1,79.8]	62.4	[45.6,79.2]	64
DRC DHS 2007	Rural	*	*	67.8	[48.3,87.4]	68.0	[48.6,87.4]	55
	Total	*	*	52.3	[44.6,60.1]	52.3	[44.6,59.9]	175
	Urban	-	-	57.9	[48.9,66.8]	57.9	[48.9,66.8]	117
Ghana DHS 2008	Rural	*	*	40.6	[25.7,55.4]	41.0	[26.7,55.2]	58
	Total	74.0	[67.3,80.7]	80.2	[71.3,89.0]	76.3	[70.8,81.8]	366
	Urban	68.1	[60.0,76.3]	81.4	[72.0,90.9]	74.0	[67.2,80.7]	277
Kenya DHS 2008	Rural	86.3	[77.6,95.0]	(69.9)	[52.1,87.7]	83.5	[75.2,91.8]	88
	Total	*	*	76.8	[69.4,84.2]	77.3	[70.2,84.5]	181
	Urban	*	*	70.6	[61.4,79.8]	70.7	[61.5,79.8]	110
Liberia MIS 2011	Rural	*	*	87.1	[77.5,96.6]	87.7	[78.9,96.5]	71
	Total	*	*	77.2	[73.5,80.8]	76.9	[73.2,80.5]	825
	Urban	*	*	76.8	[72.8,80.8]	76.6	[72.6,80.6]	727
Madagascar DHS 2008	Rural	*	*	80.2	[72.6,87.8]	78.5	[70.1,87.0]	99
	Total	-	-	56.3	[52.6,59.9]	56.3	[52.6,59.9]	1,207
	Urban	-	-	54.9	[51.0,58.7]	54.9	[51.0,58.7]	1,076
Malawi DHS 2011	Rural	-	-	67.6	[55.7,79.6]	67.6	[55.7,79.6]	131
	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-
	Total	(29.1)	[13.4,44.8]	32.4	[22.7,42.1]	31.7	[23.3,40.0]	144
	Urban	*	*	30.9	[20.0,41.9]	29.5	[19.5,39.5]	110
Namibia DHS 2006	Rural	(37.4)	[16.6,58.2]	(39.9)	[19.7,60.2]	(38.7)	[24.3,53.2]	34
	Total	*	*	65.2	[58.1,72.3]	64.9	[57.8,72.0]	363
	Urban	-	-	70.6	[63.1,78.0]	70.6	[63.1,78.0]	297
Nigeria MIS 2010	Rural	*	*	40.2	[27.4,53.0]	39.1	[26.6,51.7]	65
	Total	81.2	[77.9,84.5]	80.4	[74.9,85.9]	81.0	[78.2,83.8]	831
	Urban	79.8	[76.0,83.7]	80.1	[74.4,85.8]	79.9	[76.7,83.1]	695
Rwanda DHS 2011	Rural	86.5	[81.2,91.7]	*	*	86.6	[81.5,91.6]	136
	Total	50.9	[41.8,59.9]	51.7	[46.7,56.7]	51.4	[46.8,56.0]	806
	Urban	54.9	[45.6,64.1]	47.1	[41.4,52.8]	49.1	[44.3,53.9]	557
Senegal DHS 2010	Rural	47.4	[32.9,61.9]	74.7	[65.6,83.9]	56.6	[45.8,67.5]	248
	Total	-	-	71.0	[64.6,77.5]	71.0	[64.6,77.5]	230
	Urban	-	-	73.0	[65.4,80.7]	73.0	[65.4,80.7]	173
Sierra Leone DHS 2008	Rural	-	-	65.0	[53.3,76.7]	65.0	[53.3,76.7]	57
	Total	72.3	[62.2,82.3]	74.5	[69.9,79.0]	74.1	[70.0,78.2]	689
	Urban	69.4	[57.1,81.7]	75.6	[70.8,80.5]	74.8	[70.3,79.3]	574
Tanzania DHS 2010	Rural	79.5	[63.5,95.6]	67.5	[54.7,80.3]	70.8	[60.3,81.3]	115
	Total	*	*	79.3	[72.3,86.2]	77.6	[69.9,85.3]	222
	Urban	*	*	78.0	[70.5,85.5]	76.1	[67.9,84.4]	201
Uganda MIS 2008	Rural	-	-	*	*	*	*	21
	Total	(50.0)	[32.4,67.5]	58.8	[52.9,64.8]	58.0	[52.4,63.6]	410
	Urban	*	*	59.2	[52.5,65.9]	58.8	[52.2,65.5]	298
Zambia DHS 2007	Rural	(52.3)	[34.4,70.3]	57.5	[44.3,70.7]	55.8	[45.2,66.4]	112
	Total	29.6	[15.0,44.3]	30.1	[21.9,38.3]	30.0	[22.7,37.2]	215
	Urban	*	*	30.4	[21.6,39.1]	28.9	[20.8,37.1]	163
Zimbabwe DHS 2010	Rural	(34.6)	[15.0,54.3]	*	*	33.2	[17.0,49.4]	52

Table B28. Percent of individual use of ITN previous night by MARA suitability categories and by Urban-Rural residence (All households included)

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	15.2	[9.9,20.5]	19.9	[17.4,22.3]	18.4	[15.9,20.8]	19.2	[17.5,21.0]	35,431
	Urban	-	-	20.9	[15.5,26.3]	17.3	[15.0,19.6]	18.7	[16.1,21.3]	20,977
Angola MIS 2011	Rural	15.2	[9.9,20.6]	19.2	[17.1,21.2]	26.4	[15.1,37.6]	20.0	[17.7,22.2]	14,454
	Total	0.5	[-0.2,1.3]	3.3	[1.7,4.8]	4.8	[3.9,5.6]	4.5	[3.7,5.3]	42,337
	Urban	0.5	[-0.2,1.3]	1.5	[-0.1,3.1]	3.7	[2.6,4.9]	3.4	[2.4,4.3]	24,148
DRC DHS 2007	Rural	1.8	[1.8,1.8]	5.8	[3.2,8.4]	6.0	[4.8,7.3]	6.0	[4.8,7.2]	18,189
	Total	-	-	10.0	[6.1,13.9]	21.2	[20.0,22.3]	20.9	[19.7,22.0]	40,883
	Urban	-	-	10.8	[10.8,10.8]	26.0	[24.2,27.7]	25.9	[24.2,27.6]	22,951
Ghana DHS 2008	Rural	-	-	9.9	[5.6,14.2]	14.7	[13.4,15.9]	14.4	[13.2,15.6]	17,932
	Total	20.9	[15.1,26.7]	37.6	[34.8,40.4]	46.8	[42.4,51.2]	35.6	[33.3,37.9]	35,772
	Urban	17.3	[10.3,24.3]	35.2	[32.1,38.3]	44.0	[39.0,48.9]	32.8	[30.1,35.4]	28,491
Kenya DHS 2008	Rural	34.4	[27.2,41.6]	48.6	[43.9,53.2]	54.4	[42.9,65.8]	46.8	[42.1,51.5]	7,282
	Total	-	-	-	-	32.3	[29.6,35.1]	32.3	[29.6,35.1]	17,255
	Urban	-	-	-	-	30.5	[27.0,34.1]	30.5	[27.0,34.1]	8,903
Liberia MIS 2011	Rural	-	-	-	-	34.2	[30.0,38.5]	34.2	[30.0,38.5]	8,352
	Total	32.0	[18.1,46.0]	17.1	[14.6,19.7]	48.9	[47.0,50.8]	37.3	[35.9,38.6]	76,131
	Urban	15.5	[0.0,30.9]	14.5	[11.4,17.6]	47.7	[45.7,49.8]	36.1	[34.6,37.7]	65,276
Madagascar DHS 2008	Rural	62.5	[56.2,68.7]	27.0	[23.7,30.2]	60.6	[56.7,64.4]	44.0	[41.2,46.8]	10,855
	Total	26.7	[14.9,38.5]	30.7	[28.3,33.0]	28.5	[27.3,29.7]	29.0	[28.0,30.1]	105,251
	Urban	25.8	[13.9,37.7]	27.8	[25.3,30.3]	27.2	[26.0,28.5]	27.4	[26.2,28.5]	88,862
Malawi DHS 2011	Rural	71.4	[71.4,71.4]	44.0	[39.9,48.1]	35.8	[32.0,39.6]	38.1	[35.0,41.3]	16,389
	Total	-	-	53.6	[43.7,63.4]	57.4	[54.3,60.4]	57.1	[54.2,60.1]	8,749
	Urban	-	-	55.0	[44.1,65.8]	57.8	[54.0,61.5]	57.6	[54.0,61.2]	6,787
Mali AMP 2010	Rural	-	-	47.4	[25.2,69.7]	55.9	[50.9,60.9]	55.5	[50.6,60.4]	1,962
	Total	1.3	[0.4,2.2]	5.0	[4.2,5.8]	12.9	[10.2,15.6]	5.6	[5.0,6.2]	37,957
	Urban	1.5	[0.5,2.5]	5.5	[4.3,6.7]	16.8	[13.3,20.4]	6.8	[5.9,7.8]	22,251
Namibia DHS 2006	Rural	1.1	[-0.2,2.5]	4.3	[3.4,5.2]	5.7	[3.2,8.1]	3.8	[3.1,4.5]	15,707
	Total	-	-	11.6	[4.3,18.8]	23.1	[20.1,26.0]	23.0	[20.0,25.9]	28,284
	Urban	-	-	9.2	[0.9,17.4]	25.7	[21.9,29.4]	25.5	[21.8,29.2]	20,726
Nigeria MIS 2010	Rural	-	-	17.7	[17.6,17.8]	16.0	[12.0,20.0]	16.0	[12.0,20.0]	7,559
	Total	46.8	[44.1,49.4]	62.8	[61.4,64.3]	60.9	[56.5,65.3]	57.8	[56.6,58.9]	52,877
	Urban	46.5	[43.8,49.2]	62.5	[60.9,64.2]	58.5	[53.2,63.8]	56.9	[55.6,58.2]	45,761
Rwanda DHS 2011	Rural	52.3	[40.0,64.5]	64.7	[61.1,68.3]	65.6	[58.9,72.4]	63.4	[60.1,66.8]	7,116

(Continued...)

Table B28. – *Continued*

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	-	-	42.6	[36.9,48.3]	28.2	[26.0,30.3]	28.7	[26.7,30.8]	67,087
	Urban	-	-	45.9	[39.8,52.1]	31.5	[29.0,34.0]	31.9	[29.5,34.3]	36,722
Senegal DHS 2010	Rural	-	-	40.7	[32.1,49.2]	24.0	[20.5,27.5]	24.9	[21.6,28.2]	30,365
	Total	25.8	[24.0,27.6]	-	-	19.6	[18.0,21.1]	19.6	[18.1,21.1]	38,348
	Urban	25.8	[24.0,27.6]	-	-	20.3	[18.4,22.2]	20.3	[18.4,22.2]	25,805
Sierra Leone DHS 2008	Rural	-	-	-	-	18.1	[15.6,20.7]	18.1	[15.6,20.7]	12,543
	Total	26.9	[20.7,33.0]	37.8	[33.8,41.8]	48.3	[46.0,50.5]	45.3	[43.5,47.1]	42,557
	Urban	27.0	[20.1,33.9]	35.4	[31.2,39.6]	47.3	[44.7,49.8]	43.8	[41.8,45.8]	32,920
Tanzania DHS 2010	Rural	26.1	[17.0,35.3]	48.1	[36.8,59.3]	51.4	[47.0,55.7]	50.3	[46.2,54.3]	9,638
	Total	14.5	[8.2,20.9]	22.5	[15.5,29.4]	27.2	[23.9,30.6]	25.8	[22.8,28.7]	19,160
	Urban	14.5	[8.2,20.9]	22.2	[14.7,29.6]	26.7	[22.7,30.7]	25.1	[21.7,28.5]	16,543
Uganda MIS 2008	Rural	-	-	27.1	[27.1,27.1]	30.2	[24.2,36.1]	29.9	[24.5,35.3]	2,618
	Total	17.2	[16.5,17.9]	23.2	[18.2,28.2]	23.5	[21.8,25.2]	23.4	[21.7,25.0]	31,332
	Urban	16.7	[16.7,16.7]	19.8	[12.0,27.5]	24.7	[22.4,27.0]	23.9	[21.7,26.1]	20,129
Zambia DHS 2007	Rural	17.8	[17.8,17.8]	27.1	[21.0,33.1]	21.2	[18.7,23.6]	22.4	[20.1,24.7]	11,203
	Total	4.2	[2.7,5.7]	6.7	[5.1,8.2]	10.3	[8.3,12.3]	8.6	[7.3,9.8]	37,475
	Urban	4.2	[2.7,5.7]	7.6	[4.7,10.4]	10.1	[7.8,12.4]	9.1	[7.4,10.9]	25,846
Zimbabwe DHS 2010	Rural	-	-	5.8	[4.5,7.0]	11.7	[9.2,14.2]	7.3	[6.1,8.5]	11,629

Table B29. Percent of children under 5 years use of ITN previous night by MARA suitability categories and by Urban-Rural residence (All households included)

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	24.6	[11.2,37.9]	28.0	[24.2,31.8]	24.7	[21.4,28.0]	26.4	[23.9,29.0]	7,584
	Urban	-	-	27.3	[20.0,34.5]	23.5	[20.1,26.9]	24.9	[21.4,28.4]	5,071
Angola MIS 2011	Rural	24.6	[11.1,38.0]	28.6	[25.5,31.7]	34.8	[22.0,47.7]	29.5	[26.3,32.6]	2,514
	Total	0.3	[-0.2,0.8]	4.2	[2.0,6.4]	6.4	[4.9,7.8]	6.0	[4.7,7.3]	8,035
	Urban	0.3	[-0.2,0.7]	1.9	[-0.4,4.2]	5.2	[3.3,7.0]	4.6	[3.1,6.2]	4,798
DRC DHS 2007	Rural	(3.0)	[3.0,3.0]	7.7	[4.0,11.3]	8.1	[5.8,10.3]	8.0	[6.0,10.1]	3,237
	Total	-	-	33.1	[21.0,45.2]	39.2	[37.2,41.2]	39.1	[37.1,41.1]	5,443
	Urban	-	-	*	*	43.2	[40.5,45.9]	43.2	[40.5,45.9]	3,333
Ghana DHS 2008	Rural	-	-	33.3	[20.2,46.5]	32.6	[29.5,35.7]	32.6	[29.6,35.6]	2,110
	Total	28.9	[19.8,38.1]	50.1	[46.1,54.1]	58.6	[54.4,62.8]	47.1	[43.7,50.6]	5,569
	Urban	24.1	[14.5,33.7]	47.7	[43.2,52.2]	56.2	[51.4,61.0]	43.8	[39.9,47.8]	4,583
Kenya DHS 2008	Rural	58.4	[47.1,69.7]	62.1	[55.6,68.6]	65.5	[55.5,75.4]	62.4	[57.6,67.2]	986
	Total	-	-	-	-	37.8	[34.5,41.1]	37.8	[34.5,41.1]	3,185
	Urban	-	-	-	-	35.2	[31.0,39.3]	35.2	[31.0,39.3]	1,895
Liberia MIS 2011	Rural	-	-	-	-	41.7	[36.3,47.0]	41.7	[36.3,47.0]	1,290
	Total	34.3	[17.9,50.8]	23.4	[19.6,27.2]	59.1	[56.7,61.6]	46.3	[44.3,48.3]	11,871
	Urban	20.6	[1.4,39.9]	19.6	[15.2,24.0]	58.3	[55.7,60.8]	45.0	[42.8,47.2]	10,575
Madagascar DHS 2008	Rural	68.0	[59.1,77.0]	43.3	[37.9,48.7]	70.7	[65.1,76.2]	57.1	[53.2,61.0]	1,296
	Total	41.9	[32.3,51.6]	42.9	[39.9,45.8]	38.4	[36.7,40.1]	39.5	[38.0,41.0]	18,074
	Urban	40.9	[31.2,50.7]	40.2	[37.0,43.5]	37.4	[35.7,39.1]	38.1	[36.6,39.6]	15,634
Malawi DHS 2011	Rural	*	*	57.7	[52.4,63.0]	44.8	[38.5,51.1]	48.4	[43.3,53.5]	2,440
	Total	-	-	63.7	[52.7,74.7]	72.9	[68.7,77.2]	72.2	[68.2,76.3]	1,867
	Urban	-	-	65.5	[53.7,77.2]	74.1	[69.0,79.2]	73.4	[68.6,78.2]	1,508
Mali AMP 2010	Rural	-	-	54.5	[24.8,84.3]	68.2	[61.4,74.9]	67.3	[60.6,74.1]	359
	Total	3.8	[1.6,6.1]	9.8	[8.1,11.5]	21.1	[16.9,25.3]	10.6	[9.3,12.0]	4,977
	Urban	4.1	[1.1,7.1]	10.9	[8.6,13.1]	25.2	[19.9,30.5]	12.4	[10.6,14.2]	3,265
Namibia DHS 2006	Rural	3.6	[0.2,6.9]	7.5	[5.3,9.6]	11.8	[6.4,17.2]	7.3	[5.6,8.9]	1,712
	Total	-	-	12.0	[0.8,23.3]	29.0	[25.1,33.0]	28.9	[24.9,32.8]	5,810
	Urban	-	-	(8.2)	[-1.7,18.1]	31.0	[26.1,36.0]	30.8	[25.9,35.7]	4,490
Nigeria MIS 2010	Rural	-	-	(25.5)	[24.3,26.7]	22.2	[16.8,27.6]	22.2	[16.9,27.6]	1,320
	Total	64.1	[61.2,66.9]	72.3	[70.6,74.1]	70.8	[65.5,76.1]	69.8	[68.4,71.2]	8,611
	Urban	63.6	[60.7,66.5]	71.7	[69.8,73.7]	68.1	[62.7,73.5]	68.9	[67.4,70.5]	7,588
Rwanda DHS 2011	Rural	74.5	[61.1,87.9]	76.2	[72.7,79.7]	76.7	[66.2,87.2]	76.1	[72.6,79.6]	1,023

(Continued...)

Table B29. – *Continued*

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	-	-	50.5	[42.6,58.3]	33.7	[31.1,36.3]	34.3	[31.8,36.9]	11,364
	Urban	-	-	48.3	[35.4,61.1]	36.1	[33.0,39.1]	36.4	[33.4,39.4]	7,047
Senegal DHS 2010	Rural	-	-	52.1	[42.5,61.7]	29.7	[25.1,34.2]	30.9	[26.5,35.3]	4,317
	Total	*	*	-	-	26.5	[24.0,29.0]	26.5	[24.0,29.0]	6,000
	Urban	*	*	-	-	25.1	[22.2,28.0]	25.1	[22.3,28.0]	4,388
Sierra Leone DHS 2008	Rural	-	-	-	-	30.3	[25.4,35.2]	30.3	[25.4,35.2]	1,611
	Total	61.1	[48.8,73.4]	60.3	[54.5,66.2]	65.1	[61.9,68.2]	64.1	[61.4,66.7]	7,302
	Urban	62.6	[49.0,76.2]	58.8	[52.3,65.3]	65.4	[61.6,69.1]	64.0	[61.0,67.1]	5,884
Tanzania DHS 2010	Rural	(51.0)	[27.7,74.2]	67.1	[54.3,80.0]	63.9	[58.8,69.0]	64.2	[59.5,68.9]	1,418
	Total	21.4	[13.2,29.6]	28.8	[19.1,38.5]	34.1	[29.6,38.6]	32.8	[28.9,36.7]	3,699
	Urban	21.4	[13.2,29.6]	27.9	[18.0,37.7]	34.5	[29.3,39.7]	32.8	[28.4,37.3]	3,205
Uganda MIS 2008	Rural	-	-	57.1	[57.1,57.1]	31.8	[23.9,39.8]	32.7	[24.3,41.1]	494
	Total	(23.5)	[21.0,25.9]	27.9	[21.2,34.7]	29.3	[26.9,31.7]	29.0	[26.7,31.3]	5,827
	Urban	(24.9)	[22.7,27.0]	22.8	[13.2,32.4]	29.5	[26.6,32.5]	28.5	[25.7,31.3]	4,171
Zambia DHS 2007	Rural	*	*	36.6	[29.6,43.6]	28.7	[24.5,32.9]	30.3	[26.6,34.1]	1,656
	Total	(2.2)	[-2.4,6.8]	7.9	[5.9,9.9]	11.1	[8.8,13.4]	9.6	[8.0,11.2]	5,539
	Urban	(2.2)	[-2.4,6.8]	7.5	[4.3,10.6]	10.6	[8.0,13.1]	9.4	[7.4,11.4]	4,017
Zimbabwe DHS 2010	Rural	-	-	8.4	[6.0,10.9]	14.8	[10.5,19.0]	10.1	[7.9,12.3]	1,522

Table B30. Percent of pregnant women use of ITN previous night by MARA suitability categories and by Urban-Rural residence (All households included)

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	*	*	27.8	[21.8,33.8]	23.8	[19.5,28.2]	25.9	[22.2,29.7]	1,281
	Urban	-	-	27.2	[17.3,37.2]	23.5	[18.7,28.3]	24.9	[20.0,29.8]	883
Angola MIS 2011	Rural	*	*	28.5	[21.7,35.2]	26.5	[17.8,35.1]	28.2	[22.5,34.0]	398
	Total	(0.0)	[0.0,0.0]	4.6	[-0.8,10.0]	8.1	[4.6,11.5]	7.5	[4.4,10.5]	1,038
	Urban	(0.0)	[0.0,0.0]	4.9	[-3.5,13.3]	6.8	[3.0,10.5]	6.3	[3.0,9.6]	638
DRC DHS 2007	Rural	*	*	4.2	[-1.0,9.4]	10.1	[3.8,16.4]	9.4	[3.7,15.0]	400
	Total	-	-	*	*	27.7	[22.6,32.8]	27.0	[21.9,32.0]	340
	Urban	-	-	*	*	34.1	[27.3,41.0]	34.0	[27.2,40.8]	200
Ghana DHS 2008	Rural	-	-	*	*	18.0	[10.6,25.3]	16.9	[9.9,24.0]	140
	Total	24.2	[8.1,40.3]	51.0	[44.7,57.3]	64.2	[49.8,78.7]	48.6	[41.6,55.7]	574
	Urban	20.3	[6.5,34.1]	50.0	[42.8,57.2]	68.6	[49.6,87.7]	47.9	[39.6,56.2]	429
Kenya DHS 2008	Rural	*	*	54.1	[41.4,66.9]	54.7	[47.8,61.6]	50.9	[37.6,64.2]	145
	Total	-	-	-	-	39.8	[33.5,46.0]	39.8	[33.5,46.0]	352
	Urban	-	-	-	-	39.0	[31.5,46.4]	39.0	[31.5,46.4]	199
Liberia MIS 2011	Rural	-	-	-	-	40.8	[30.1,51.6]	40.8	[30.1,51.6]	152
	Total	27.3	[11.3,43.3]	25.2	[18.6,31.7]	57.6	[53.2,62.0]	46.8	[43.2,50.4]	1,355
	Urban	(19.0)	[-0.0,38.1]	23.4	[15.9,30.8]	56.7	[52.1,61.4]	46.3	[42.4,50.2]	1,203
Madagascar DHS 2008	Rural	(47.0)	[26.9,67.2]	34.0	[19.9,48.2]	68.4	[58.2,78.6]	51.0	[41.9,60.0]	152
	Total	*	*	35.9	[30.0,41.8]	34.1	[31.1,37.1]	34.6	[31.9,37.2]	1,963
	Urban	-	-	34.4	[28.2,40.7]	33.8	[30.8,36.7]	33.9	[31.3,36.6]	1,739
Malawi DHS 2011	Rural	*	*	43.2	[28.0,58.5]	37.5	[22.9,52.1]	39.6	[28.5,50.7]	224
	Total	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-	-	-
	Total	*	*	7.0	[4.0,10.1]	26.4	[16.3,36.5]	9.0	[6.3,11.7]	507
	Urban	-	-	7.1	[2.4,11.9]	30.4	[18.4,42.4]	10.9	[6.7,15.1]	296
Namibia DHS 2006	Rural	*	*	6.8	[3.7,10.0]	14.0	[-1.0,29.1]	6.2	[3.6,8.9]	211
	Total	*	*	-	-	33.4	[26.9,40.0]	33.2	[26.7,39.7]	709
	Urban	*	*	-	-	38.7	[30.6,46.7]	38.3	[30.3,46.3]	548
Nigeria MIS 2010	Rural	-	-	-	-	15.9	[9.4,22.4]	15.9	[9.4,22.4]	161
	Total	63.4	[57.6,69.1]	75.7	[71.9,79.4]	77.8	[67.1,88.6]	72.2	[69.2,75.2]	932
	Urban	62.3	[56.2,68.3]	74.3	[70.1,78.5]	(80.3)	[65.9,94.8]	70.8	[67.4,74.1]	784
Rwanda DHS 2011	Rural	*	*	82.2	[75.1,89.3]	73.3	[57.8,88.7]	80.0	[73.9,86.0]	148

(Continued...)

Table B30. – *Continued*

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	-	-	56.0	[40.5,71.5]	35.2	[30.8,39.7]	36.1	[31.8,40.4]	1,148
	Urban	-	-	55.9	[47.2,64.6]	37.8	[33.2,42.5]	38.4	[33.9,42.9]	712
Senegal DHS 2010	Rural	-	-	*	*	30.9	[22.5,39.3]	32.3	[24.1,40.5]	436
	Total	*	*	-	-	27.6	[23.2,32.1]	27.7	[23.2,32.1]	589
	Urban	*	*	-	-	29.6	[23.9,35.3]	29.7	[24.0,35.3]	425
Sierra Leone DHS 2008	Rural	-	-	-	-	22.5	[16.3,28.7]	22.5	[16.3,28.7]	164
	Total	(36.6)	[13.3,59.9]	53.9	[42.7,65.0]	58.5	[53.1,63.9]	57.1	[52.4,61.8]	894
	Urban	(40.8)	[11.8,69.8]	54.7	[41.7,67.7]	61.4	[55.8,67.1]	59.6	[54.5,64.8]	719
Tanzania DHS 2010	Rural	*	*	*	*	46.9	[34.0,59.7]	46.7	[36.0,57.4]	174
	Total	*	*	35.0	[20.4,49.7]	46.6	[39.1,54.2]	43.5	[36.1,50.9]	395
	Urban	*	*	35.0	[20.4,49.7]	47.0	[38.4,55.5]	43.4	[35.2,51.6]	352
Uganda MIS 2008	Rural	-	-	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
	Total	*	*	29.4	[18.9,39.8]	33.3	[29.1,37.6]	32.8	[28.9,36.8]	725
	Urban	*	*	27.5	[14.0,41.0]	36.1	[31.1,41.2]	35.1	[30.4,39.8]	500
Zambia DHS 2007	Rural	-	-	32.1	[16.2,48.1]	26.7	[18.6,34.8]	27.8	[20.5,35.1]	225
	Total	*	*	7.8	[4.4,11.1]	10.6	[7.1,14.1]	9.1	[6.7,11.6]	705
	Urban	-	-	10.5	[5.1,15.9]	9.9	[6.1,13.7]	10.0	[6.9,13.1]	471
Zimbabwe DHS 2010	Rural	-	-	5.4	[1.7,9.0]	15.1	[5.5,24.6]	7.4	[3.8,11.0]	234

Table B31. Percent of individual use of ITN previous night by MARA suitability categories and by Urban-Rural residence (Only households with at least 1 ITN)

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	30.6	[19.2,42.0]	53.5	[51.0,55.9]	52.1	[49.2,54.9]	52.7	[50.8,54.6]	12,919
	Urban	-	-	61.1	[57.5,64.8]	50.6	[47.9,53.2]	54.6	[52.2,57.1]	7,182
Angola MIS 2011	Rural	30.6	[19.1,42.1]	49.1	[46.2,52.0]	61.0	[51.4,70.5]	50.3	[47.3,53.3]	5,736
	Total	(43.6)	[31.6,55.7]	51.2	[40.4,62.1]	44.0	[39.7,48.2]	44.4	[40.4,48.4]	4,295
	Urban	(43.4)	[31.0,55.9]	47.2	[30.4,64.0]	41.1	[34.3,47.9]	41.4	[34.9,47.8]	1,969
DRC DHS 2007	Rural	*	*	52.9	[40.2,65.6]	46.5	[41.2,51.7]	47.0	[42.1,51.9]	2,326
	Total	-	-	26.2	[18.7,33.7]	43.5	[41.9,45.2]	43.2	[41.6,44.8]	19,756
	Urban	-	-	19.0	[19.0,19.0]	47.8	[45.6,49.9]	47.6	[45.5,49.8]	12,477
Ghana DHS 2008	Rural	-	-	27.2	[18.9,35.6]	35.9	[33.7,38.1]	35.5	[33.3,37.6]	7,279
	Total	56.2	[48.9,63.6]	58.4	[55.5,61.3]	61.2	[57.9,64.5]	58.7	[56.6,60.9]	21,695
	Urban	51.0	[41.7,60.3]	54.8	[51.6,58.0]	56.7	[52.8,60.7]	54.7	[52.3,57.2]	17,050
Kenya DHS 2008	Rural	69.9	[59.8,80.1]	74.4	[70.8,77.9]	73.5	[67.1,80.0]	73.4	[70.2,76.6]	4,645
	Total	-	-	-	-	61.4	[59.0,63.8]	61.4	[59.0,63.8]	9,086
	Urban	-	-	-	-	60.3	[57.0,63.5]	60.3	[57.0,63.5]	4,511
Liberia MIS 2011	Rural	-	-	-	-	62.5	[59.0,66.0]	62.5	[59.0,66.0]	4,575
	Total	72.7	[66.8,78.5]	52.4	[48.6,56.3]	65.4	[63.8,67.0]	63.2	[61.8,64.5]	44,896
	Urban	67.2	[52.0,82.3]	48.3	[43.2,53.3]	64.4	[62.8,66.1]	61.8	[60.3,63.4]	38,143
Madagascar DHS 2008	Rural	75.5	[70.9,80.1]	63.8	[59.9,67.7]	73.9	[70.5,77.4]	70.7	[68.5,72.9]	6,753
	Total	47.0	[35.3,58.6]	50.9	[48.5,53.2]	47.7	[46.4,49.1]	48.5	[47.4,49.7]	62,996
	Urban	45.9	[33.9,57.9]	48.4	[45.7,51.1]	46.3	[44.8,47.7]	46.8	[45.5,48.0]	52,000
Malawi DHS 2011	Rural	79.4	[79.4,79.4]	59.7	[55.3,64.1]	55.5	[51.8,59.2]	56.8	[53.9,59.8]	10,996
	Total	-	-	65.6	[58.2,72.9]	63.6	[61.1,66.2]	63.7	[61.3,66.2]	7,844
	Urban	-	-	65.8	[57.1,74.4]	64.1	[61.0,67.2]	64.2	[61.3,67.1]	6,090
Mali AMP 2010	Rural	-	-	64.5	[54.3,74.6]	61.9	[57.5,66.3]	62.0	[57.8,66.3]	1,755
	Total	13.1	[5.9,20.4]	20.2	[17.6,22.7]	36.1	[31.9,40.3]	23.1	[21.1,25.0]	9,188
	Urban	9.2	[3.1,15.3]	16.5	[13.5,19.5]	40.0	[34.9,45.1]	20.8	[18.6,23.1]	7,312
Namibia DHS 2006	Rural	21.7	[10.7,32.8]	36.1	[31.0,41.2]	23.6	[18.0,29.2]	31.7	[28.0,35.5]	1,877
	Total	-	-	43.0	[20.5,65.5]	49.9	[47.0,52.8]	49.9	[47.0,52.8]	13,027
	Urban	-	-	(43.0)	[3.7,82.3]	51.9	[48.6,55.2]	51.9	[48.5,55.2]	10,190
Nigeria MIS 2010	Rural	-	-	43.0	[42.5,43.6]	42.6	[36.7,48.6]	42.7	[36.8,48.5]	2,838
	Total	62.0	[59.8,64.2]	69.8	[68.5,71.1]	67.6	[64.0,71.1]	67.5	[66.5,68.5]	45,234
	Urban	61.7	[59.4,64.0]	69.5	[68.1,70.9]	65.3	[61.3,69.2]	66.9	[65.8,68.0]	38,897
Rwanda DHS 2011	Rural	66.5	[56.5,76.5]	71.7	[68.5,74.8]	72.2	[66.6,77.7]	71.2	[68.5,73.9]	6,337

(Continued...)

Table B31. – *Continued*

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	-	-	55.9	[51.7,60.0]	43.0	[40.7,45.3]	43.6	[41.4,45.7]	44,229
	Urban	-	-	57.5	[48.6,66.4]	42.7	[40.2,45.2]	43.1	[40.7,45.6]	27,135
Senegal DHS 2010	Rural	-	-	54.8	[50.8,58.8]	43.4	[39.0,47.9]	44.2	[40.1,48.4]	17,094
	Total	58.8	[55.4,62.3]	-	-	51.2	[49.7,52.8]	51.3	[49.7,52.8]	14,663
	Urban	58.8	[55.4,62.3]	-	-	53.4	[51.4,55.4]	53.4	[51.5,55.4]	9,810
Sierra Leone DHS 2008	Rural	-	-	-	-	46.9	[44.5,49.2]	46.9	[44.5,49.2]	4,853
	Total	43.7	[35.1,52.3]	58.0	[54.2,61.8]	65.9	[63.6,68.1]	63.7	[61.8,65.5]	30,270
	Urban	44.1	[34.7,53.5]	55.5	[51.7,59.2]	63.4	[60.9,66.0]	61.2	[59.2,63.2]	23,572
Tanzania DHS 2010	Rural	40.9	[21.4,60.4]	67.9	[56.9,78.9]	74.0	[70.9,77.2]	72.3	[69.0,75.7]	6,698
	Total	29.0	[19.8,38.2]	53.7	[46.5,60.8]	51.1	[48.0,54.2]	50.3	[47.2,53.4]	9,807
	Urban	29.0	[19.8,38.2]	52.0	[45.1,58.8]	50.3	[47.2,53.4]	49.3	[46.1,52.4]	8,425
Uganda MIS 2008	Rural	-	-	(88.5)	[88.5,88.5]	55.2	[43.7,66.6]	56.7	[44.9,68.4]	1,383
	Total	36.1	[16.6,55.6]	44.8	[39.3,50.3]	41.3	[39.0,43.6]	41.8	[39.7,43.9]	17,524
	Urban	(59.0)	[55.2,62.8]	39.9	[30.0,49.8]	42.8	[39.9,45.8]	42.6	[39.8,45.4]	11,308
Zambia DHS 2007	Rural	25.3	[25.3,25.3]	49.9	[45.2,54.7]	38.1	[34.8,41.4]	40.4	[37.3,43.4]	6,217
	Total	(26.8)	[25.6,27.9]	29.6	[25.4,33.8]	27.5	[24.2,30.9]	28.3	[25.7,30.8]	11,340
	Urban	(26.8)	[25.6,27.9]	30.6	[24.1,37.1]	26.1	[22.3,29.8]	27.2	[24.0,30.5]	8,653
Zimbabwe DHS 2010	Rural	-	-	28.3	[23.8,32.8]	37.7	[33.2,42.2]	31.5	[28.1,35.0]	2,687

Table B32. Percent of children under 5 years use of ITN previous night by MARA suitability categories and by Urban-Rural residence (Only households with at least 1 ITN)

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	(46.7)	[26.7,66.6]	63.7	[60.3,67.1]	61.1	[57.4,64.8]	62.4	[59.9,65.0]	3,208
	Urban	-	-	69.0	[64.2,73.7]	59.9	[55.9,63.8]	63.3	[60.1,66.5]	1,995
Angola MIS 2011	Rural	(46.7)	[26.6,66.7]	59.8	[55.3,64.3]	69.5	[59.5,79.4]	61.1	[56.9,65.2]	1,213
	Total	*	*	62.7	[49.9,75.4]	54.2	[47.4,61.0]	54.7	[48.4,61.1]	882
	Urban	*	*	71.9	[57.4,86.3]	49.9	[39.3,60.6]	50.6	[40.2,60.9]	439
DRC DHS 2007	Rural	*	*	59.7	[44.0,75.5]	58.8	[51.1,66.4]	58.9	[51.8,65.9]	442
	Total	-	-	58.3	[41.5,75.1]	58.3	[55.8,60.8]	58.3	[55.9,60.7]	3,649
	Urban	-	-	*	*	60.9	[57.7,64.0]	60.8	[57.7,64.0]	2,366
Ghana DHS 2008	Rural	-	-	59.0	[40.9,77.2]	53.3	[49.2,57.5]	53.6	[49.6,57.6]	1,283
	Total	65.4	[58.0,72.7]	69.7	[66.0,73.4]	70.0	[65.7,74.4]	69.2	[66.5,71.9]	3,793
	Urban	59.5	[51.0,68.1]	66.8	[62.6,71.1]	66.1	[61.0,71.3]	65.7	[62.5,68.8]	3,059
Kenya DHS 2008	Rural	86.8	[77.3,96.3]	83.8	[79.1,88.5]	82.1	[78.8,85.5]	83.8	[80.6,87.0]	734
	Total	-	-	-	-	69.1	[65.9,72.3]	69.1	[65.9,72.3]	1,742
	Urban	-	-	-	-	67.3	[63.1,71.5]	67.3	[63.1,71.5]	991
Liberia MIS 2011	Rural	-	-	-	-	71.4	[66.4,76.5]	71.4	[66.4,76.5]	752
	Total	79.6	[74.9,84.4]	61.2	[56.2,66.3]	74.2	[72.3,76.2]	71.8	[70.0,73.7]	7,658
	Urban	78.6	[70.3,86.9]	55.3	[49.3,61.3]	73.6	[71.5,75.6]	70.5	[68.5,72.5]	6,754
Madagascar DHS 2008	Rural	80.4	[74.7,86.1]	82.1	[78.3,85.8]	82.2	[78.0,86.5]	81.9	[79.4,84.4]	904
	Total	60.5	[52.1,68.9]	62.8	[59.9,65.7]	57.9	[56.1,59.7]	59.1	[57.6,60.7]	12,071
	Urban	59.7	[51.2,68.3]	60.3	[57.0,63.6]	56.7	[54.8,58.6]	57.6	[56.0,59.2]	10,344
Malawi DHS 2011	Rural	*	*	74.7	[68.6,80.7]	65.7	[60.2,71.2]	68.4	[64.1,72.7]	1,726
	Total	-	-	79.4	[72.2,86.5]	78.2	[74.2,82.1]	78.2	[74.5,82.0]	1,724
	Urban	-	-	79.7	[71.6,87.8]	78.9	[74.1,83.7]	79.0	[74.5,83.4]	1,402
Mali AMP 2010	Rural	-	-	77.3	[65.6,89.0]	75.0	[69.1,81.0]	75.1	[69.4,80.9]	322
	Total	23.5	[12.5,34.5]	30.6	[26.2,34.9]	50.5	[43.8,57.2]	34.3	[30.9,37.6]	1,546
	Urban	18.0	[5.7,30.3]	27.4	[22.5,32.3]	52.4	[44.6,60.3]	31.9	[28.0,35.7]	1,272
Namibia DHS 2006	Rural	(38.8)	[29.3,48.2]	47.7	[39.4,56.0]	42.9	[30.8,55.0]	45.4	[39.2,51.6]	274
	Total	-	-	*	*	58.7	[54.9,62.6]	58.7	[54.8,62.5]	2,859
	Urban	-	-	*	*	60.1	[55.6,64.5]	60.0	[55.6,64.4]	2,307
Nigeria MIS 2010	Rural	-	-	*	*	53.0	[45.3,60.7]	53.1	[45.5,60.7]	553
	Total	72.3	[69.7,74.8]	76.7	[75.2,78.3]	74.5	[70.0,78.9]	75.3	[74.0,76.6]	7,978
	Urban	71.9	[69.2,74.6]	76.2	[74.4,77.9]	72.5	[68.4,76.6]	74.7	[73.3,76.1]	7,005
Rwanda DHS 2011	Rural	79.7	[67.8,91.5]	80.3	[77.2,83.4]	78.7	[69.1,88.2]	79.9	[76.8,83.0]	974

(Continued...)

Table B32. – *Continued*

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	-	-	64.7	[57.7,71.7]	48.1	[45.3,50.9]	48.8	[46.1,51.5]	7,987
	Urban	-	-	61.0	[47.0,74.9]	47.9	[44.8,50.9]	48.2	[45.2,51.2]	5,317
Senegal DHS 2010	Rural	-	-	67.6	[61.1,74.1]	48.7	[42.8,54.6]	50.0	[44.4,55.6]	2,670
	Total	*	*	-	-	61.8	[58.9,64.8]	61.9	[59.0,64.8]	2,571
	Urban	*	*	-	-	59.9	[56.5,63.4]	60.0	[56.5,63.4]	1,839
Sierra Leone DHS 2008	Rural	-	-	-	-	66.6	[61.5,71.7]	66.6	[61.5,71.7]	732
	Total	70.1	[56.0,84.1]	72.5	[68.5,76.5]	78.1	[75.1,81.0]	76.8	[74.4,79.2]	6,093
	Urban	70.8	[55.5,86.2]	71.6	[67.7,75.4]	76.8	[73.3,80.3]	75.6	[72.9,78.4]	4,981
Tanzania DHS 2010	Rural	(64.1)	[33.1,95.2]	76.3	[62.3,90.3]	83.7	[80.7,86.8]	81.9	[78.0,85.7]	1,112
	Total	(39.7)	[27.6,51.9]	62.0	[53.9,70.2]	59.6	[55.5,63.7]	59.1	[55.4,62.8]	2,052
	Urban	(39.7)	[27.5,51.9]	60.5	[52.5,68.5]	60.2	[55.9,64.6]	59.4	[55.4,63.3]	1,773
Uganda MIS 2008	Rural	-	-	*	*	56.3	[46.5,66.0]	57.8	[47.2,68.3]	280
	Total	*	*	51.7	[43.8,59.5]	49.0	[45.9,52.1]	49.4	[46.5,52.3]	3,425
	Urban	*	*	44.1	[32.1,56.0]	49.3	[45.5,53.1]	48.7	[45.1,52.3]	2,440
Zambia DHS 2007	Rural	*	*	63.2	[56.8,69.6]	48.2	[42.7,53.6]	51.0	[46.1,55.9]	985
	Total	*	*	33.0	[26.9,39.1]	29.0	[24.9,33.2]	30.2	[26.9,33.6]	1,757
	Urban	*	*	30.1	[21.4,38.9]	27.0	[22.5,31.4]	27.6	[23.6,31.6]	1,371
Zimbabwe DHS 2010	Rural	-	-	36.6	[28.4,44.9]	45.9	[34.9,56.9]	39.7	[33.0,46.3]	387

Table B33. Percent of pregnant women use of ITN previous night by MARA suitability categories and by Urban-Rural residence (Only households with at least 1 ITN)

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	*	*	71.3	[64.4,78.2]	66.9	[61.2,72.6]	69.3	[64.7,74.0]	479
	Urban	-	-	77.3	[68.7,85.9]	66.6	[60.3,72.9]	70.7	[65.2,76.1]	311
Angola MIS 2011	Rural	*	*	66.3	[56.3,76.2]	(69.1)	[56.8,81.3]	66.8	[58.3,75.4]	168
	Total	*	*	*	*	66.1	[52.5,79.7]	65.0	[52.0,78.0]	120
	Urban	*	*	*	*	60.9	[43.5,78.3]	62.4	[45.6,79.2]	64
DRC DHS 2007	Rural	-	-	*	*	72.5	[53.2,91.8]	68.0	[48.6,87.4]	55
	Total	-	-	*	*	52.3	[44.6,59.9]	52.3	[44.6,59.9]	175
	Urban	-	-	-	-	57.9	[48.9,66.8]	57.9	[48.9,66.8]	117
Ghana DHS 2008	Rural	-	-	-	-	41.0	[26.7,55.2]	41.0	[26.7,55.2]	58
	Total	(67.4)	[48.8,86.0]	74.5	[68.3,80.8]	84.4	[74.6,94.3]	76.3	[70.8,81.8]	366
	Urban	*	*	71.7	[64.7,78.7]	87.9	[76.4,99.4]	74.0	[67.2,80.7]	277
Kenya DHS 2008	Rural	*	*	84.8	[73.2,96.5]	(76.3)	[62.4,90.1]	83.5	[75.2,91.8]	88
	Total	-	-	-	-	77.3	[70.2,84.5]	77.3	[70.2,84.5]	181
	Urban	-	-	-	-	70.7	[61.5,79.8]	70.7	[61.5,79.8]	110
Liberia MIS 2011	Rural	-	-	-	-	87.7	[78.9,96.5]	87.7	[78.9,96.5]	71
	Total	71.7	[57.1,86.4]	69.1	[58.0,80.3]	78.7	[74.9,82.6]	76.9	[73.2,80.5]	825
	Urban	*	*	67.5	[54.1,80.9]	78.2	[74.0,82.3]	76.6	[72.6,80.6]	727
Madagascar DHS 2008	Rural	(62.0)	[39.0,85.0]	(75.3)	[57.3,93.3]	84.9	[74.9,94.8]	78.5	[70.1,87.0]	99
	Total	*	*	57.9	[49.1,66.7]	55.6	[51.6,59.5]	56.3	[52.6,59.9]	1,207
	Urban	-	-	55.3	[45.7,64.8]	54.6	[50.5,58.6]	54.9	[51.0,58.7]	1,076
Malawi DHS 2011	Rural	*	*	71.0	[51.0,91.1]	65.7	[50.9,80.5]	67.6	[55.7,79.6]	131
	Total	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-
Mali AMP 2010	Rural	-	-	-	-	-	-	-	-	-
	Total	*	*	25.2	[15.4,35.1]	(55.0)	[39.5,70.5]	31.7	[23.3,40.0]	144
	Urban	-	-	19.3	[7.5,31.1]	(61.3)	[44.5,78.1]	29.5	[19.5,39.5]	110
Namibia DHS 2006	Rural	*	*	(44.4)	[27.5,61.4]	*	*	38.7	[24.3,53.2]	34
	Total	-	-	*	*	65.0	[58.0,72.1]	64.9	[57.8,72.0]	363
	Urban	-	-	*	*	70.8	[63.4,78.2]	70.6	[63.1,78.0]	297
Nigeria MIS 2010	Rural	-	-	-	-	39.1	[26.6,51.7]	39.1	[26.6,51.7]	65
	Total	75.8	[69.6,81.9]	82.3	[78.9,85.6]	88.5	[81.6,95.5]	81.0	[78.2,83.8]	831
	Urban	74.4	[68.0,80.9]	81.3	[77.5,85.1]	(92.5)	[84.9,100.0]	79.9	[76.7,83.1]	695
Rwanda DHS 2011	Rural	*	*	86.7	[80.6,92.9]	*	*	86.6	[81.5,91.6]	136

(Continued...)

Table B33. – *Continued*

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
	Total	-	-	(71.1)	[54.8,87.3]	50.5	[45.7,55.2]	51.4	[46.8,56.0]	806
	Urban	-	-	*	*	48.3	[43.4,53.3]	49.1	[44.3,53.9]	557
Senegal DHS 2010	Rural	-	-	*	*	55.6	[44.1,67.0]	56.6	[45.8,67.5]	248
	Total	*	*	-	-	70.9	[64.4,77.4]	71.0	[64.6,77.5]	230
	Urban	*	*	-	-	72.9	[65.2,80.5]	73.0	[65.4,80.7]	173
Sierra Leone DHS 2008	Rural	-	-	-	-	65.0	[53.3,76.7]	65.0	[53.3,76.7]	57
	Total	*	*	72.0	[62.2,81.8]	74.8	[70.2,79.5]	74.1	[70.0,78.2]	689
	Urban	*	*	71.1	[59.9,82.3]	75.7	[70.7,80.7]	74.8	[70.3,79.3]	574
Tanzania DHS 2010	Rural	*	*	77.2	[59.6,94.7]	70.6	[58.4,82.7]	70.8	[60.3,81.3]	115
	Total	*	*	(66.9)	[48.2,85.5]	80.8	[73.4,88.2]	77.6	[69.9,85.3]	222
	Urban	*	*	(66.9)	[48.2,85.5]	79.5	[71.4,87.6]	76.1	[67.9,84.4]	201
Uganda MIS 2008	Rural	-	-	-	-	*	*	*	*	21
	Total	*	*	60.0	[44.7,75.3]	57.5	[51.5,63.5]	58.0	[52.4,63.6]	410
	Urban	*	*	(59.1)	[38.4,79.7]	58.6	[51.4,65.7]	58.8	[52.2,65.5]	298
Zambia DHS 2007	Rural	-	-	(61.1)	[38.4,83.8]	54.3	[42.7,66.0]	55.8	[45.2,66.4]	112
	Total	*	*	29.6	[18.2,41.0]	31.0	[21.5,40.5]	30.0	[22.7,37.2]	215
	Urban	*	*	(32.7)	[18.2,47.1]	28.0	[18.0,38.0]	28.9	[20.8,37.1]	163
Zimbabwe DHS 2010	Rural	-	-	(25.5)	[8.1,43.0]	*	*	33.2	[17.0,49.4]	52

Table B34. Logistic regression for all countries with seasonality and MAP 2007 (Outcome all individual use of ITN previous night)

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Angola MIS 2011												
In season	0.93	0.74,1.17			0.89	0.70,1.13	0.96	0.80,1.15	0.94	0.79,1.12	0.89	0.76,1.05
Intermediate/high endemicity			1.23	0.97,1.55	1.28	0.99,1.65	1.65***	1.35,2.02	1.57***	1.29,1.91	1.30*	1.05,1.61
Total ITN in household							10.77***	9.37,12.39	11.01***	9.56,12.67	11.07***	9.58,12.80
Total household members							0.66***	0.63,0.69	0.66***	0.63,0.69	0.66***	0.63,0.69
Pregnant									2.11***	1.77,2.51	2.08***	1.75,2.47
Child < 5									2.13***	1.93,2.35	2.10***	1.90,2.32
Rural											0.70***	0.58,0.84
Poorer											1.40*	1.08,1.81
Middle											1.36*	1.02,1.82
Richer											1.53**	1.15,2.05
Richest											1.35*	1.01,1.81
DRC DHS 2007												
In season	1.72*	1.03,2.86			1.36	0.81,2.27	1.31	0.72,2.40	1.29	0.68,2.44	1.3	0.71,2.40
Intermediate/high endemicity			6.11***	2.39,15.62	4.95**	1.91,12.82	3.41***	1.75,6.61	3.34***	1.66,6.70	3.02**	1.47,6.21
Total ITN in household							44.08***	30.68,63.34	46.13***	32.25,65.98	45.30***	31.15,65.88
Total household members							0.74***	0.69,0.79	0.74***	0.69,0.79	0.74***	0.69,0.78
Pregnant									2.76***	1.79,4.25	2.80***	1.83,4.29
Child < 5									2.37***	2.01,2.80	2.39***	2.03,2.83
Rural											1	0.73,1.37
Poorer											1.47	0.98,2.21
Middle											1.67*	1.09,2.56
Richer											1.16	0.71,1.89
Richest											1.55	0.93,2.57
Ghana DHS 2008												
In season	1.96**	1.28,3.00			1.98**	1.29,3.04	3.60***	2.12,6.11	3.58***	2.10,6.11	2.10***	1.47,3.00
Intermediate/high endemicity			1.70**	1.15,2.52	1.72**	1.16,2.54	1.74*	1.12,2.69	1.81**	1.17,2.80	1.25	0.85,1.84
Total ITN in household							5.21***	4.79,5.66	5.22***	4.79,5.68	5.36***	4.92,5.83
Total household members							0.77***	0.76,0.79	0.77***	0.75,0.78	0.74***	0.72,0.76
Pregnant									1.83***	1.34,2.50	1.79***	1.31,2.46
Child < 5									2.94***	2.71,3.19	2.91***	2.67,3.16
Rural											0.9	0.78,1.04
Poorer											0.87	0.74,1.03
Middle											0.71***	0.59,0.86
Richer											0.60***	0.50,0.74
Richest											0.34***	0.27,0.44

(Continued...)

Table B34. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Kenya DHS 2008												
In season	1.62***	1.34,1.97			1.37**	1.09,1.73	1.16	0.97,1.40	1.17	0.98,1.40	1.18	0.99,1.41
Intermediate/high endemicity			1.60***	1.28,1.99	1.39*	1.08,1.78	1.14	0.95,1.37	1.12	0.93,1.35	1.11	0.92,1.33
Total ITN in household							4.63***	4.18,5.12	4.73***	4.27,5.23	4.81***	4.34,5.32
Total household members							0.73***	0.71,0.75	0.72***	0.70,0.75	0.73***	0.71,0.76
Pregnant									2.54***	1.98,3.26	2.49***	1.94,3.19
Child < 5									2.36***	2.12,2.63	2.35***	2.11,2.62
Rural											1.70***	1.35,2.14
Poorer											0.76**	0.63,0.90
Middle											0.95	0.79,1.15
Richer											0.66***	0.53,0.81
Richest											0.71*	0.55,0.93
Liberia MIS 2011												
In season	1.09	0.88,1.36			1.09	0.88,1.36	0.9	0.73,1.12	0.91	0.74,1.12	0.93	0.75,1.16
Intermediate/high endemicity			1.03	0.62,1.71	1.04	0.62,1.72	1.23	0.77,1.95	1.20	0.76,1.92	1.12	0.70,1.81
Total ITN in household							6.57***	5.48,7.89	6.76***	5.61,8.14	6.83***	5.66,8.24
Total household members							0.73***	0.70,0.75	0.72***	0.69,0.75	0.72***	0.70,0.75
Pregnant									1.77***	1.39,2.27	1.75***	1.37,2.24
Child < 5									1.90***	1.70,2.13	1.87***	1.67,2.09
Rural											1.16	0.89,1.52
Poorer											1.04	0.82,1.32
Middle											0.92	0.69,1.24
Richer											1.02	0.74,1.40
Richest											0.58**	0.40,0.85
Madagascar DHS 2008												
In season	3.77***	3.14,4.52			3.48***	2.88,4.20	1.99***	1.72,2.30	1.99***	1.71,2.30	1.88***	1.59,2.22
Intermediate/high endemicity			3.25***	2.01,5.26	1.77**	1.16,2.69	1.39*	1.07,1.81	1.37*	1.05,1.79	1.48**	1.14,1.92
Total ITN in household							7.44***	6.80,8.15	7.60***	6.93,8.32	7.67***	6.99,8.40
Total household members							0.69***	0.67,0.70	0.68***	0.67,0.70	0.68***	0.67,0.70
Pregnant									1.73***	1.49,2.02	1.71***	1.47,2.00
Child < 5									2.09***	1.94,2.24	2.06***	1.92,2.21
Rural											1.47***	1.21,1.77
Poorer											1.11	0.99,1.25
Middle											0.97	0.86,1.10
Richer											0.87	0.74,1.01
Richest											0.71**	0.57,0.90

(Continued...)

Table B34. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Malawi DHS 2010												
In season	1.42***	1.27,1.60			1.42***	1.27,1.60	1.25***	1.13,1.39	1.25***	1.13,1.39	1.27***	1.15,1.41
Intermediate/high endemicity			-	-	-	-	-	-	-	-	-	-
Total ITN in household							4.03***	3.83,4.24	4.09***	3.89,4.31	4.08***	3.87,4.31
Total household members							0.76***	0.75,0.78	0.76***	0.74,0.78	0.76***	0.74,0.78
Pregnant									1.55***	1.34,1.79	1.55***	1.34,1.80
Child < 5									2.15***	2.05,2.25	2.15***	2.05,2.26
Rural											1.30***	1.14,1.49
Poorer											1.15**	1.04,1.28
Middle											1.20***	1.08,1.34
Richer											1.13*	1.01,1.27
Richest											0.98	0.86,1.12
Mali AMP 2010												
In season	1.29	0.86,1.93			0.99	0.66,1.49	0.98	0.61,1.57	1.01	0.62,1.65	1.01	0.61,1.66
Intermediate/high endemicity			2.03**	1.26,3.28	2.05*	1.17,3.60	1.21	0.78,1.86	1.28	0.83,1.99	1.31	0.84,2.03
Total ITN in household							2.44***	2.23,2.68	2.50***	2.27,2.75	2.50***	2.28,2.75
Total household members							0.77***	0.74,0.80	0.76***	0.74,0.79	0.76***	0.74,0.79
Pregnant									-	-	-	-
Child < 5									2.82***	2.39,3.33	2.81***	2.38,3.33
Rural											0.87	0.73,1.05
Poorer											-	-
Middle											-	-
Richer											-	-
Richest											-	-
Namibia DHS 2006												
In season	2.31***	1.68,3.17			0.96	0.62,1.48	0.87	0.61,1.25	0.87	0.61,1.25	0.85	0.60,1.23
Intermediate/high endemicity			5.35***	3.75,7.64	5.51***	3.31,9.18	2.98***	1.85,4.80	2.94***	1.84,4.69	2.83***	1.65,4.85
Total ITN in household							3.90***	3.44,4.43	3.97***	3.50,4.51	4.22***	3.70,4.82
Total household members							0.78***	0.75,0.82	0.77***	0.74,0.81	0.77***	0.74,0.81
Pregnant									2.00***	1.33,3.00	1.92**	1.27,2.90
Child < 5									2.91***	2.52,3.35	2.88***	2.50,3.31
Rural											2.23***	1.62,3.07
Poorer											0.70*	0.52,0.96
Middle											0.58**	0.40,0.84
Richer											0.62*	0.41,0.95
Richest											0.22***	0.13,0.36

(Continued...)

Table B34. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Nigeria MIS 2010												
In season	5.79***	3.14,10.65			5.81***	3.15,10.69	1.75*	1.13,2.71	1.79*	1.13,2.81	2.04**	1.21,3.46
Intermediate/high endemicity			1.59	0.45,5.63	1.60	0.45,5.66	1.36	0.94,1.98	1.44	1.00,2.07	1.69***	1.35,2.11
Total ITN in household							4.83***	4.25,5.49	4.90***	4.31,5.58	4.81***	4.23,5.47
Total household members							0.77***	0.74,0.79	0.76***	0.74,0.79	0.76***	0.73,0.78
Pregnant									1.88***	1.47,2.41	1.89***	1.48,2.41
Child < 5									1.95***	1.75,2.18	1.93***	1.73,2.15
Rural											0.95	0.74,1.22
Poorer											0.9	0.70,1.15
Middle											0.82	0.63,1.06
Richer											0.60**	0.44,0.81
Richest											0.41***	0.29,0.58
Rwanda DHS 2011												
In season	1.59***	1.41,1.79			1.23**	1.07,1.41	0.99	0.88,1.11	0.99	0.88,1.12	1.00	0.88,1.13
Intermediate/high endemicity			1.87***	1.67,2.08	1.73***	1.53,1.95	1.14**	1.04,1.26	1.14**	1.03,1.26	1.15**	1.04,1.27
Total ITN in household							3.14***	2.97,3.33	3.14***	2.97,3.32	3.14***	2.96,3.32
Total household members							0.77***	0.75,0.79	0.77***	0.75,0.79	0.77***	0.75,0.79
Pregnant									2.11***	1.80,2.46	2.10***	1.80,2.46
Child < 5									1.90***	1.79,2.01	1.90***	1.80,2.01
Rural											1.01	0.88,1.17
Poorer											1.11*	1.00,1.23
Middle											1.17**	1.04,1.30
Richer											1.16*	1.03,1.31
Richest											1.00	0.87,1.14
Senegal DHS 2010												
In season	0.63***	0.51,0.77			0.69***	0.56,0.86	1.54***	1.31,1.82	1.55***	1.31,1.83	1.59***	1.35,1.86
Intermediate/high endemicity			4.55***	2.30,9.00	3.99***	2.00,7.98	2.22**	1.28,3.87	2.19**	1.26,3.79	2.28**	1.32,3.94
Total ITN in household							2.01***	1.93,2.08	2.01***	1.93,2.08	2.02***	1.94,2.09
Total household members							0.87***	0.86,0.88	0.87***	0.86,0.88	0.87***	0.86,0.88
Pregnant									1.41***	1.19,1.69	1.45***	1.21,1.72
Child < 5									1.47***	1.38,1.56	1.49***	1.40,1.58
Rural											1.58***	1.33,1.88
Poorer											1.08	0.91,1.27
Middle											1.07	0.88,1.29
Richer											0.82	0.67,1.01
Richest											0.60***	0.47,0.76

(Continued...)

Table B34. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sierra Leone DHS 2008												
In season	0.75**	0.61,0.93			0.75**	0.61,0.93	0.78**	0.67,0.92	0.80**	0.68,0.93	0.76***	0.65,0.89
Intermediate/high endemicity			0.82	0.50,1.33	0.80	0.52,1.23	1.05	0.86,1.29	1.01	0.83,1.23	0.95	0.73,1.25
Total ITN in household							7.36***	6.51,8.32	7.50***	6.63,8.48	7.53***	6.65,8.53
Total household members							0.75***	0.73,0.77	0.75***	0.73,0.77	0.75***	0.73,0.76
Pregnant									2.40***	1.89,3.04	2.34***	1.84,2.97
Child < 5									2.02***	1.82,2.26	1.99***	1.78,2.21
Rural											0.92	0.74,1.14
Poorer											0.98	0.82,1.18
Middle											1.11	0.93,1.31
Richer											1.13	0.91,1.40
Richest											0.75*	0.57,0.99
Tanzania DHS 2010												
In season	1.79***	1.43,2.25			1.68***	1.34,2.12	1.54***	1.21,1.96	1.56***	1.22,1.99	1.58***	1.23,2.03
Intermediate/high endemicity			1.70***	1.39,2.07	1.53***	1.26,1.85	1.43***	1.19,1.73	1.40***	1.15,1.70	1.44***	1.20,1.72
Total ITN in household							4.63***	4.22,5.09	4.64***	4.22,5.10	4.65***	4.22,5.13
Total household members							0.74***	0.73,0.76	0.74***	0.72,0.76	0.74***	0.72,0.76
Pregnant									2.03***	1.67,2.47	2.05***	1.68,2.49
Child < 5									2.80***	2.56,3.06	2.81***	2.58,3.06
Rural											1.38**	1.13,1.69
Poorer											0.95	0.83,1.08
Middle											0.86*	0.75,0.99
Richer											0.95	0.80,1.12
Richest											0.87	0.69,1.09
Uganda MIS 2009												
In season	1.40	0.97,2.03			1.28	0.86,1.91	1.22	0.97,1.54	1.20	0.95,1.52	1.18	0.91,1.53
Intermediate/high endemicity			1.74	0.97,3.12	1.42	0.73,2.76	1.56	0.61,3.98	1.57	0.59,4.18	1.59	0.59,4.30
Total ITN in household							4.63***	3.90,5.50	4.68***	3.95,5.54	4.70***	3.97,5.57
Total household members							0.76***	0.73,0.78	0.76***	0.73,0.78	0.76***	0.73,0.78
Pregnant									2.93***	2.14,4.02	2.89***	2.10,3.98
Child < 5									1.86***	1.61,2.16	1.84***	1.58,2.14
Rural											1.01	0.71,1.42
Poorer											0.82	0.66,1.02
Middle											0.90	0.65,1.24
Richer											0.74*	0.57,0.96
Richest											0.74*	0.56,0.97

(Continued...)

Table B34. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Zambia DHS 2007												
In season	1.33**	1.08,1.65			1.33**	1.08,1.65	1.52***	1.27,1.82	1.52***	1.27,1.83	1.44***	1.20,1.72
Intermediate/high endemicity			1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Total ITN in household							3.90***	3.49,4.36	3.96***	3.54,4.43	4.04***	3.62,4.51
Total household members							0.77***	0.74,0.79	0.76***	0.74,0.79	0.77***	0.75,0.79
Pregnant									2.24***	1.80,2.78	2.23***	1.80,2.78
Child < 5									1.77***	1.63,1.92	1.75***	1.61,1.89
Rural											1.25	0.97,1.62
Poorer											1.43***	1.17,1.74
Middle											1.56***	1.26,1.93
Richer											1.08	0.81,1.45
Richest											0.78	0.55,1.12
Zimbabwe DHS 2010												
In season	2.09***	1.50,2.91			1.83***	1.31,2.55	1.41*	1.06,1.88	1.41*	1.06,1.88	1.60**	1.18,2.18
Intermediate/high endemicity			3.06***	2.11,4.43	2.76***	1.88,4.05	0.95	0.66,1.36	0.94	0.65,1.35	1.08	0.74,1.57
Total ITN in household							3.53***	3.12,3.99	3.54***	3.13,4.01	3.57***	3.16,4.03
Total household members							0.77***	0.73,0.81	0.77***	0.73,0.81	0.77***	0.74,0.81
Pregnant									1.07	0.78,1.47	1.07	0.78,1.47
Child < 5									1.32***	1.17,1.50	1.34***	1.18,1.53
Rural											1.31	0.96,1.80
Poorer											1.08	0.79,1.47
Middle											1.22	0.87,1.70
Richer											1.42*	1.00,2.01
Richest											1.24	0.80,1.90

OR = Odds ratio, CI = Confidence interval, * p<0.05, ** p<0.01, *** p<0.001

Reference categories:

In season (includes transition season) (Ref: Out/No malaria season)
Intermediate/High endemicity (Ref: No\Low endemicity)
Pregnant (Ref: Individual not pregnant on day of survey)
Child < 5 (Ref: Individual not under the age of 5 on day of survey)

Rural household (Ref: Urban household)

Wealth (Poorer, Middle, Richer, Richest) (Ref: Poorest)

Table B35. Logistic regression for all countries with seasonality and MAP 2007 (Outcome all individual use of ITN previous night in household with at least 1 ITN)

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Angola MIS 2011												
In season	0.94	0.80,1.10			0.88	0.75,1.02	0.89	0.78,1.01	0.87*	0.77,1.00	0.81**	0.71,0.93
Intermediate/high endemicity			1.43***	1.17,1.75	1.50***	1.24,1.82	1.57***	1.32,1.87	1.51***	1.27,1.80	1.35**	1.11,1.64
Total ITN in household							2.59***	2.31,2.91	2.66***	2.37,2.99	2.74***	2.43,3.09
Total household members							0.71***	0.69,0.74	0.72***	0.69,0.74	0.72***	0.69,0.74
Pregnant									2.20***	1.75,2.78	2.18***	1.73,2.75
Child < 5									1.84***	1.65,2.06	1.83***	1.63,2.04
Rural											0.84*	0.72,0.98
Poorer											1.04	0.81,1.33
Middle											0.93	0.72,1.19
Richer											0.91	0.71,1.16
Richest											0.88	0.69,1.13
DRC DHS 2007												
In season	0.77	0.49,1.19			0.79	0.49,1.25	0.94	0.61,1.46	0.93	0.60,1.44	1.02	0.66,1.58
Intermediate/high endemicity			0.56	0.22,1.44	0.68	0.24,1.94	1.16	0.48,2.81	1.13	0.46,2.80	0.89	0.36,2.25
Total ITN in household							3.46***	2.62,4.57	3.66***	2.78,4.82	3.59***	2.73,4.71
Total household members							0.81***	0.78,0.84	0.81***	0.77,0.84	0.81***	0.77,0.84
Pregnant									2.83***	1.55,5.15	2.90***	1.58,5.32
Child < 5									2.10***	1.73,2.53	2.12***	1.76,2.55
Rural											1.18	0.86,1.60
Poorer											1.12	0.72,1.75
Middle											1.01	0.60,1.71
Richer											0.91	0.56,1.48
Richest											1.07	0.64,1.78
Ghana DHS 2008												
In season	2.40***	1.65,3.50			2.43***	1.67,3.53	3.13***	2.07,4.71	3.12***	2.06,4.72	1.90***	1.38,2.62
Intermediate/high endemicity			1.50*	1.02,2.20	1.52*	1.03,2.23	1.70**	1.15,2.49	1.76**	1.20,2.58	1.21	0.85,1.73
Total ITN in household							2.19***	2.01,2.38	2.24***	2.06,2.44	2.30***	2.12,2.49
Total household members							0.81***	0.79,0.83	0.81***	0.79,0.83	0.78***	0.76,0.80
Pregnant									1.67**	1.19,2.34	1.62**	1.15,2.27
Child < 5									2.34***	2.14,2.55	2.32***	2.13,2.53
Rural											0.92	0.79,1.06
Poorer											0.81**	0.69,0.95
Middle											0.66***	0.55,0.79
Richer											0.56***	0.46,0.68
Richest											0.35***	0.28,0.44

(Continued...)

Table B35. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Kenya DHS 2008												
In season	1.10	0.93,1.30			1.15	0.95,1.39	1.08	0.91,1.27	1.08	0.92,1.27	1.09	0.92,1.28
Intermediate/high endemicity			0.98	0.81,1.18	0.92	0.74,1.13	1.03	0.87,1.23	1.02	0.86,1.22	1.05	0.88,1.25
Total ITN in household							2.22***	2.05,2.41	2.28***	2.10,2.47	2.27***	2.09,2.47
Total household members							0.75***	0.73,0.77	0.75***	0.73,0.77	0.76***	0.74,0.78
Pregnant									2.66***	1.95,3.63	2.65***	1.94,3.62
Child < 5									2.13***	1.90,2.39	2.14***	1.91,2.39
Rural											1.56***	1.26,1.93
Poorer											0.82*	0.68,0.97
Middle											0.99	0.82,1.19
Richer											0.86	0.70,1.05
Richest											0.96	0.74,1.24
Liberia MIS 2011												
In season	1.01	0.80,1.28			1.01	0.79,1.28	0.97	0.81,1.17	0.98	0.82,1.18	0.98	0.80,1.19
Intermediate/high endemicity			0.99	0.72,1.36	0.99	0.72,1.36	1.14	0.85,1.53	1.12	0.84,1.49	1.08	0.79,1.47
Total ITN in household							2.09***	1.83,2.40	2.15***	1.88,2.46	2.15***	1.89,2.44
Total household members							0.80***	0.78,0.82	0.79***	0.77,0.81	0.80***	0.77,0.82
Pregnant									2.53***	1.66,3.84	2.49***	1.64,3.78
Child < 5									1.80***	1.57,2.08	1.77***	1.54,2.04
Rural											1.26	0.96,1.66
Poorer											0.92	0.73,1.16
Middle											0.91	0.69,1.20
Richer											1.04	0.73,1.50
Richest											0.56**	0.39,0.80
Madagascar DHS 2008												
In season	1.45***	1.23,1.70			1.48***	1.26,1.75	1.52***	1.31,1.76	1.52***	1.31,1.76	1.50***	1.27,1.78
Intermediate/high endemicity			0.80	0.62,1.04	0.69*	0.52,0.92	0.86	0.67,1.11	0.84	0.66,1.08	0.93	0.73,1.19
Total ITN in household							2.66***	2.49,2.84	2.72***	2.54,2.91	2.73***	2.54,2.93
Total household members							0.72***	0.71,0.74	0.72***	0.71,0.74	0.72***	0.71,0.74
Pregnant									1.96***	1.59,2.42	1.96***	1.59,2.42
Child < 5									1.91***	1.77,2.07	1.91***	1.77,2.07
Rural											1.40***	1.16,1.69
Poorer											1.16*	1.03,1.31
Middle											1.10	0.96,1.24
Richer											0.99	0.84,1.15
Richest											0.86	0.68,1.07

(Continued...)

Table B35. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Malawi DHS 2010												
In season	1.27***	1.15,1.41			1.27***	1.15,1.41	1.25***	1.13,1.37	1.24***	1.13,1.37	1.27***	1.16,1.40
Intermediate/high endemicity			-	-	-	-	-	-	-	-	-	-
Total ITN in household							2.06***	1.97,2.16	2.11***	2.01,2.21	2.07***	1.97,2.17
Total household members							0.78***	0.77,0.80	0.78***	0.77,0.80	0.79***	0.77,0.80
Pregnant									1.45***	1.23,1.71	1.48***	1.26,1.74
Child < 5									1.92***	1.83,2.02	1.95***	1.85,2.05
Rural											1.28***	1.14,1.45
Poorer											1.09	0.98,1.23
Middle											1.14*	1.02,1.27
Richer											1.12	1.00,1.26
Richest											1.11	0.97,1.26
Mali AMP 2010												
In season	0.98	0.71,1.36			0.94	0.62,1.43	1.04	0.61,1.75	1.05	0.62,1.78	1.05	0.61,1.79
Intermediate/high endemicity			1.12	0.79,1.58	1.17	0.72,1.91	0.88	0.54,1.43	0.93	0.58,1.49	0.95	0.59,1.54
Total ITN in household							1.95***	1.80,2.12	2.00***	1.84,2.17	2.00***	1.85,2.17
Total household members							0.79***	0.76,0.81	0.78***	0.76,0.81	0.78***	0.76,0.81
Pregnant									-	-	-	-
Child < 5									2.81***	2.33,3.40	2.80***	2.32,3.39
Rural											0.88	0.74,1.04
Poorer											-	-
Middle											-	-
Richer											-	-
Richest											-	-
Namibia DHS 2006												
In season	0.67**	0.49,0.90			0.62**	0.44,0.87	0.66**	0.49,0.90	0.66**	0.49,0.90	0.65**	0.47,0.90
Intermediate/high endemicity			1.08	0.78,1.49	1.32	0.90,1.94	1.48*	1.01,2.18	1.50*	1.02,2.22	1.59*	1.01,2.48
Total ITN in household							1.82***	1.62,2.03	1.86***	1.66,2.08	1.94***	1.73,2.18
Total household members							0.82***	0.79,0.85	0.81***	0.78,0.84	0.82***	0.79,0.85
Pregnant									1.67*	1.09,2.55	1.61*	1.04,2.48
Child < 5									2.33***	2.03,2.67	2.35***	2.05,2.69
Rural											2.39***	1.77,3.22
Poorer											0.65**	0.49,0.87
Middle											0.61**	0.44,0.84
Richer											0.68*	0.46,0.99
Richest											0.26***	0.17,0.41

(Continued...)

Table B35. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Nigeria MIS 2010												
In season	3.69***	2.24,6.08			3.70***	2.25,6.10	2.34***	1.51,3.63	2.40***	1.51,3.81	2.72***	1.62,4.57
Intermediate/high endemicity			1.42	0.75,2.68	1.43	0.76,2.69	1.40*	1.05,1.85	1.45**	1.11,1.88	1.72***	1.46,2.03
Total ITN in household							2.08***	1.90,2.28	2.12***	1.93,2.32	2.06***	1.90,2.23
Total household members							0.82***	0.80,0.84	0.82***	0.79,0.84	0.81***	0.79,0.84
Pregnant									1.92***	1.41,2.63	1.93***	1.42,2.63
Child < 5									1.85***	1.64,2.09	1.85***	1.64,2.08
Rural											1.04	0.81,1.33
Poorer											0.85	0.66,1.08
Middle											0.78	0.60,1.01
Richer											0.54***	0.40,0.73
Richest											0.37***	0.27,0.51
Rwanda DHS 2011												
In season	1.27***	1.14,1.42			1.11	0.98,1.26	1.00	0.89,1.13	1.01	0.89,1.14	1.00	0.88,1.13
Intermediate/high endemicity			1.42***	1.29,1.57	1.37***	1.23,1.52	1.12*	1.01,1.24	1.12*	1.01,1.25	1.11*	1.00,1.24
Total ITN in household							1.94***	1.84,2.04	1.95***	1.85,2.06	1.93***	1.83,2.04
Total household members							0.78***	0.77,0.80	0.78***	0.77,0.80	0.78***	0.77,0.80
Pregnant									2.04***	1.69,2.46	2.04***	1.69,2.46
Child < 5									1.69***	1.59,1.79	1.70***	1.60,1.80
Rural											1.00	0.87,1.16
Poorer											1.10	0.99,1.24
Middle											1.17**	1.04,1.31
Richer											1.19**	1.06,1.35
Richest											1.17*	1.02,1.36
Senegal DHS 2010												
In season	0.91	0.76,1.08			0.96	0.80,1.15	1.47***	1.25,1.73	1.48***	1.26,1.74	1.49***	1.28,1.73
Intermediate/high endemicity			2.63***	1.58,4.36	2.58***	1.54,4.33	1.65**	1.20,2.27	1.63**	1.18,2.25	1.74**	1.24,2.44
Total ITN in household							1.57***	1.51,1.63	1.57***	1.52,1.63	1.59***	1.53,1.65
Total household members							0.89***	0.88,0.90	0.89***	0.88,0.90	0.89***	0.88,0.90
Pregnant									1.40***	1.18,1.68	1.44***	1.21,1.72
Child < 5									1.41***	1.33,1.49	1.43***	1.35,1.52
Rural											1.54***	1.31,1.82
Poorer											1.07	0.91,1.25
Middle											1.06	0.88,1.28
Richer											0.87	0.71,1.06
Richest											0.68***	0.54,0.85

(Continued...)

Table B35. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sierra Leone DHS 2008												
In season	0.81***	0.72,0.92			0.81***	0.72,0.91	0.91	0.81,1.02	0.93	0.82,1.04	0.90	0.79,1.01
Intermediate/high endemicity			0.58*	0.36,0.93	0.58*	0.36,0.92	0.8	0.61,1.06	0.78	0.58,1.04	0.72*	0.53,0.97
Total ITN in household							2.31***	2.12,2.51	2.35***	2.16,2.55	2.36***	2.17,2.58
Total household members							0.81***	0.79,0.83	0.81***	0.79,0.82	0.81***	0.79,0.83
Pregnant									2.79***	1.98,3.95	2.71***	1.92,3.83
Child < 5									1.92***	1.69,2.18	1.88***	1.66,2.13
Rural											0.94	0.82,1.08
Poorer											0.92	0.79,1.06
Middle											0.95	0.83,1.08
Richer											0.99	0.86,1.15
Richest											0.68***	0.57,0.81
Tanzania DHS 2010												
In season	1.59***	1.22,2.07			1.54**	1.17,2.03	1.54***	1.25,1.91	1.57***	1.26,1.95	1.62***	1.30,2.00
Intermediate/high endemicity			1.37**	1.12,1.69	1.28*	1.04,1.57	1.42***	1.17,1.72	1.38**	1.14,1.68	1.47***	1.23,1.76
Total ITN in household							2.53***	2.34,2.73	2.56***	2.37,2.77	2.54***	2.33,2.76
Total household members							0.79***	0.77,0.81	0.79***	0.77,0.81	0.79***	0.78,0.81
Pregnant									2.04***	1.63,2.55	2.08***	1.66,2.61
Child < 5									2.50***	2.27,2.76	2.54***	2.31,2.79
Rural											1.47***	1.20,1.80
Poorer											0.94	0.82,1.07
Middle											0.88	0.76,1.03
Richer											0.99	0.85,1.17
Richest											0.95	0.75,1.19
Uganda MIS 2009												
In season	1.20	0.83,1.73			0.96	0.70,1.33	1.07	0.84,1.37	1.06	0.83,1.35	1.03	0.80,1.33
Intermediate/high endemicity			2.02*	1.14,3.58	2.08*	1.10,3.94	1.86	0.81,4.27	1.85	0.78,4.37	1.85	0.80,4.29
Total ITN in household							2.09***	1.83,2.37	2.11***	1.85,2.41	2.11***	1.85,2.42
Total household members							0.77***	0.75,0.80	0.77***	0.75,0.80	0.77***	0.75,0.80
Pregnant									3.66***	2.32,5.77	3.67***	2.33,5.78
Child < 5									1.76***	1.52,2.02	1.75***	1.52,2.01
Rural											1.00	0.68,1.48
Poorer											0.82	0.64,1.05
Middle											0.84	0.63,1.10
Richer											0.73**	0.58,0.92
Richest											0.86	0.65,1.12

(Continued...)

Table B35. – *Continued*

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Zambia DHS 2007												
In season	1.48***	1.23,1.77			1.48***	1.23,1.77	1.54***	1.30,1.84	1.55***	1.30,1.85	1.48***	1.24,1.76
Intermediate/high endemicity			1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00	1.00	1.00,1.00
Total ITN in household							2.00***	1.79,2.24	2.04***	1.82,2.29	2.08***	1.86,2.33
Total household members							0.80***	0.77,0.82	0.80***	0.77,0.82	0.80***	0.78,0.82
Pregnant									2.17***	1.69,2.78	2.18***	1.70,2.79
Child < 5									1.66***	1.52,1.80	1.65***	1.51,1.79
Rural											1.25	0.98,1.59
Poorer											1.43***	1.17,1.74
Middle											1.53***	1.24,1.90
Richer											1.12	0.85,1.48
Richest											0.89	0.63,1.24
Zimbabwe DHS 2010												
In season	1.21	0.93,1.57			1.21	0.93,1.56	1.21	0.94,1.56	1.21	0.94,1.56	1.36*	1.03,1.80
Intermediate/high endemicity			1.18	0.87,1.59	1.18	0.87,1.58	0.92	0.69,1.25	0.92	0.68,1.24	1.05	0.76,1.46
Total ITN in household							1.64***	1.50,1.78	1.64***	1.51,1.79	1.65***	1.52,1.80
Total household members							0.84***	0.80,0.87	0.84***	0.80,0.87	0.84***	0.81,0.88
Pregnant									1.07	0.77,1.49	1.08	0.78,1.51
Child < 5									1.20**	1.07,1.36	1.21**	1.07,1.37
Rural											1.35	1.00,1.84
Poorer											1.05	0.79,1.39
Middle											1.16	0.86,1.57
Richer											1.38	0.97,1.95
Richest											1.11	0.74,1.66

OR = Odds ratio, CI = Confidence interval, * p<0.05, ** p<0.01, *** p<0.001
Reference categories:
In season (includes transition season) (Ref: Out/No malaria season)
Intermediate/High endemicity (Ref: No\Low endemicity)
Pregnant (Ref: Individual not pregnant on day of survey)
Child < 5 (Ref: Individual not under the age of 5 on day of survey)
Rural household (Ref: Urban household)
Wealth (Poorer, Middle, Richer, Richest) (Ref: Poorest)

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