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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 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 (PfPR₂₋₁₀) 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 PfPR₂₋₁₀ 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

* PfPR₂₋₁₀ = *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

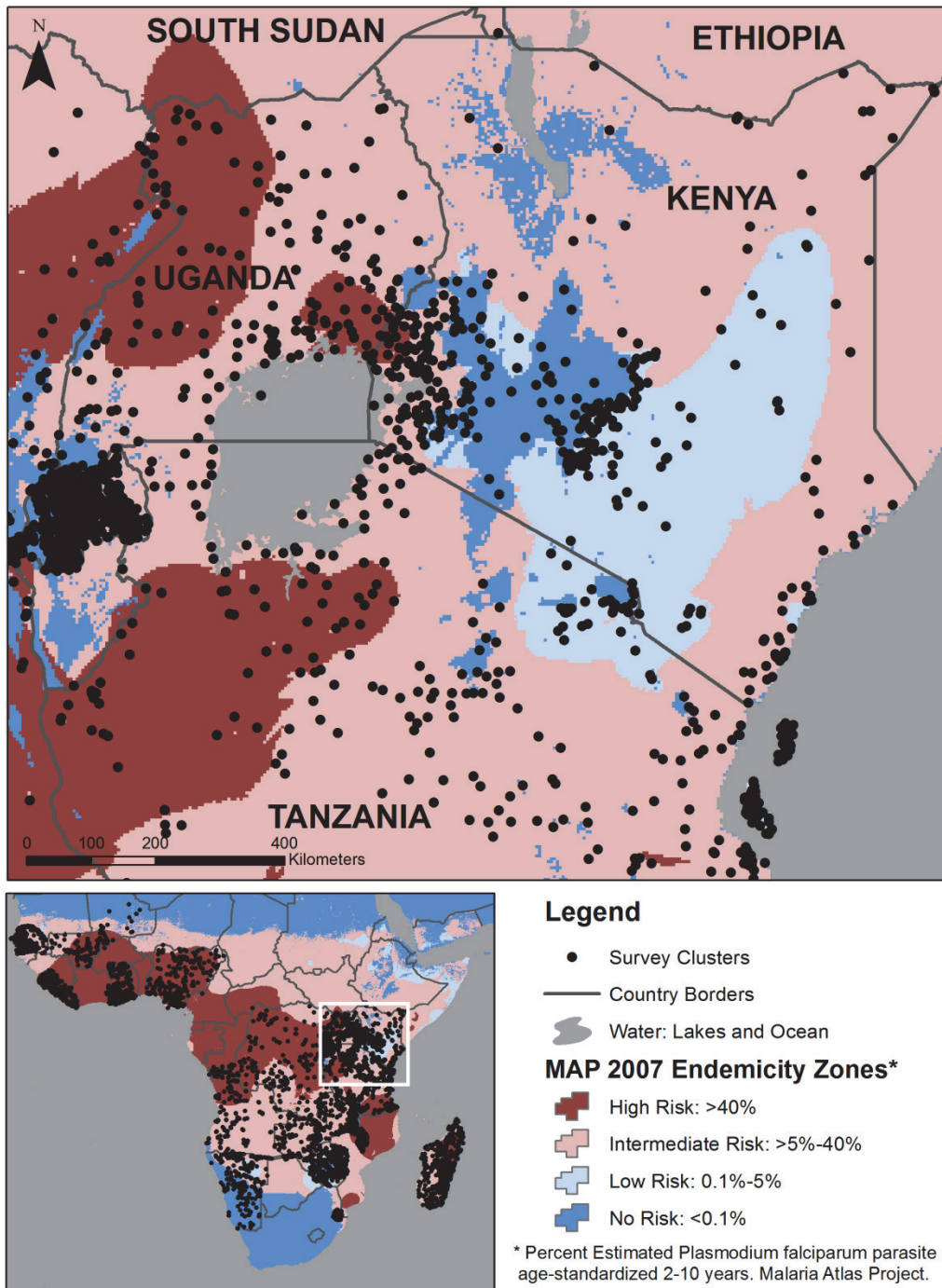
Raster data from the MAP and MARA data layers were extracted to each survey GPS location using the “Extract Multi Values to Points” function in ArcMAP version 10.0 with Spatial Analyst toolbox (ESRI, Redlands, CA). Since the MAP rasters do not always extend to the country’s coastal boundary, some locations 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: PfPR₂₋₁₀ = (1) No Risk <0.1%, (2) Low Risk 0.1-5%, (3) Intermediate Risk ≥5%-40%, and (4) High Risk >40%
- MAP 2 categories: PfPR₂₋₁₀ = (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 household¹
- 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

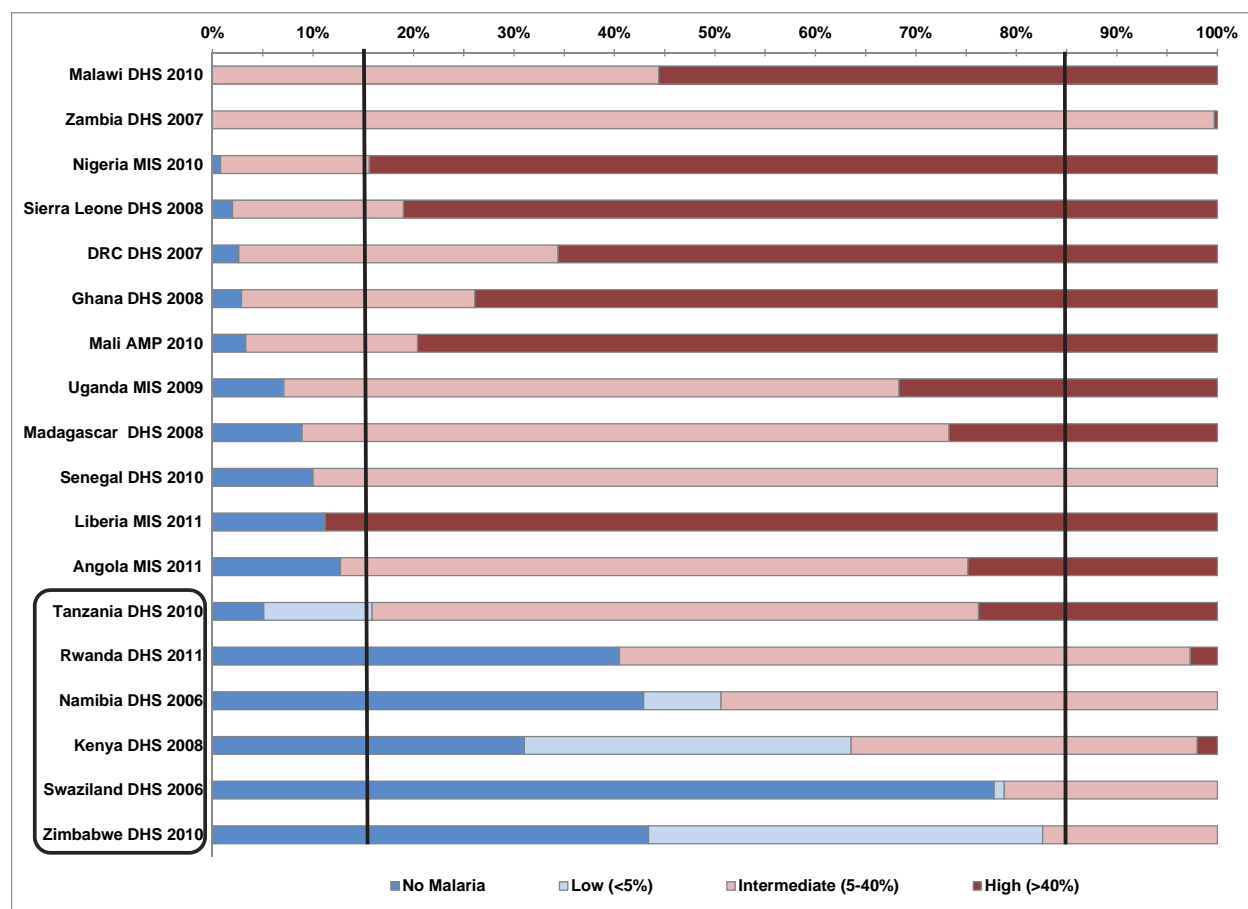
3.1 Malaria Endemicity and Ownership of ITNs

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.

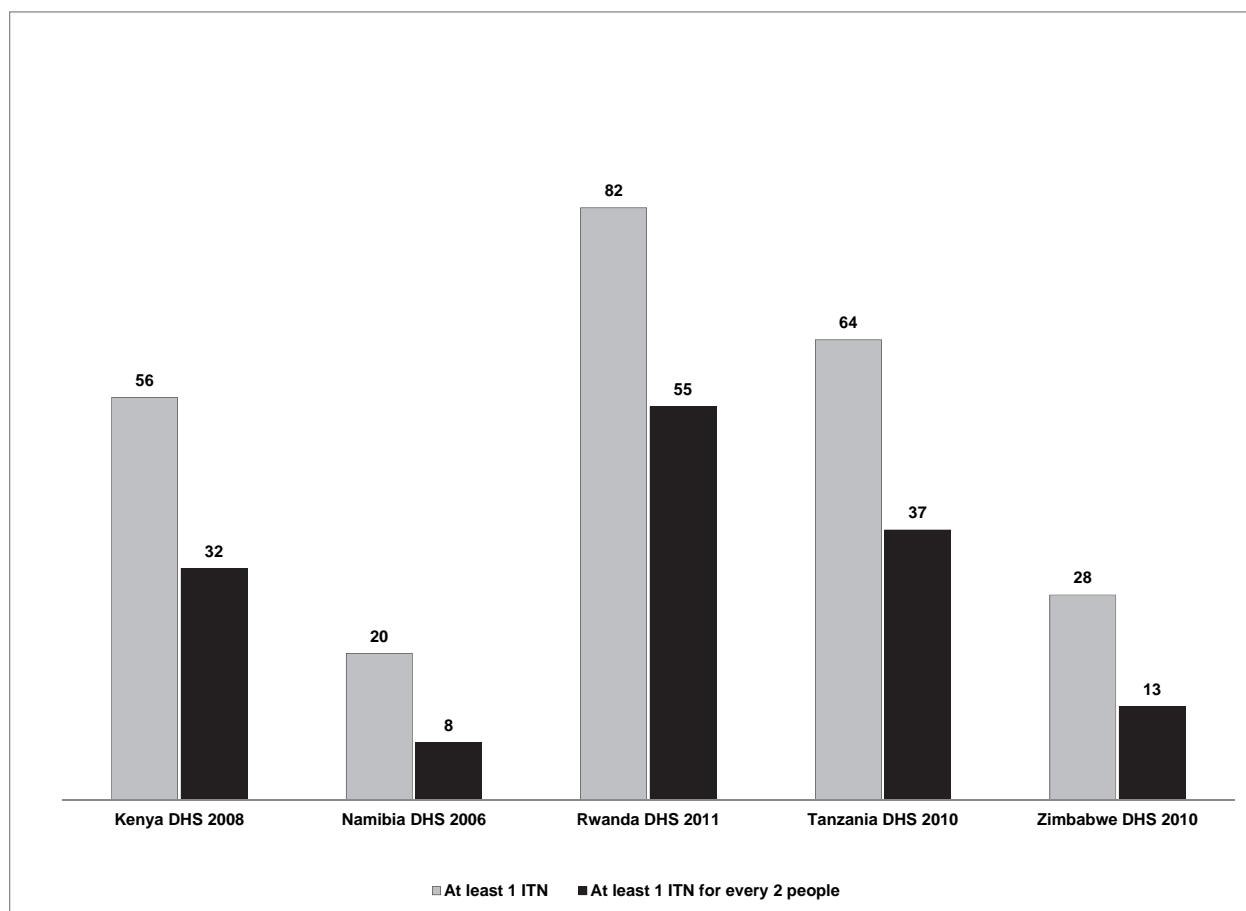
The complete data for all 18 surveys for all three data layers can be found in the appendix of this paper. Although Swaziland falls into the heterogeneous country categorization, the ownership of ITNs in 2006 was very low and the sample sizes for estimates were not robust below the national level, and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

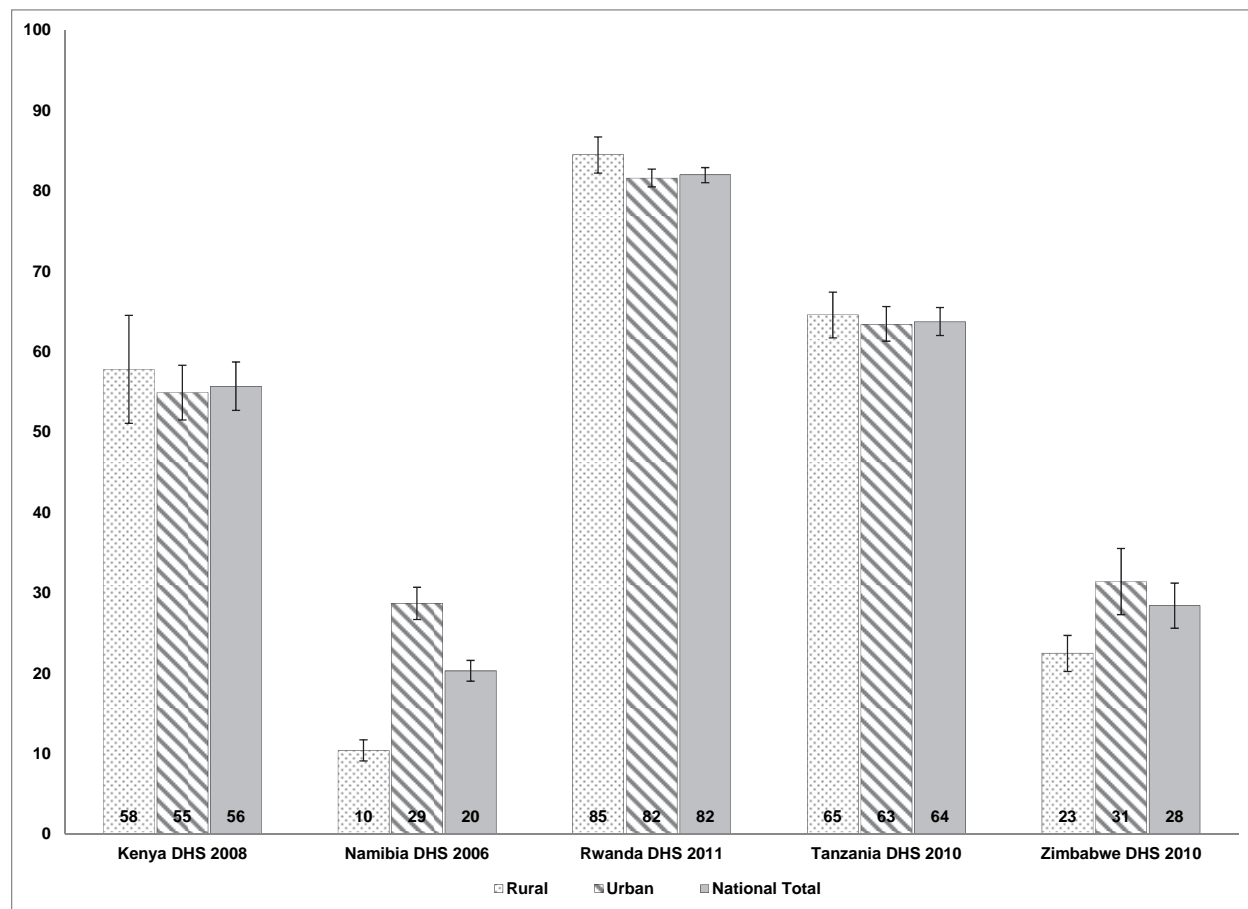
National coverage indicators for ITN ownership vary widely among the countries with heterogeneous malaria zones. The percentage of households owning at least one ITN ranged from 20% in Namibia to 82% in Rwanda. Households with at least one ITN for every two persons who stayed in the household the night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

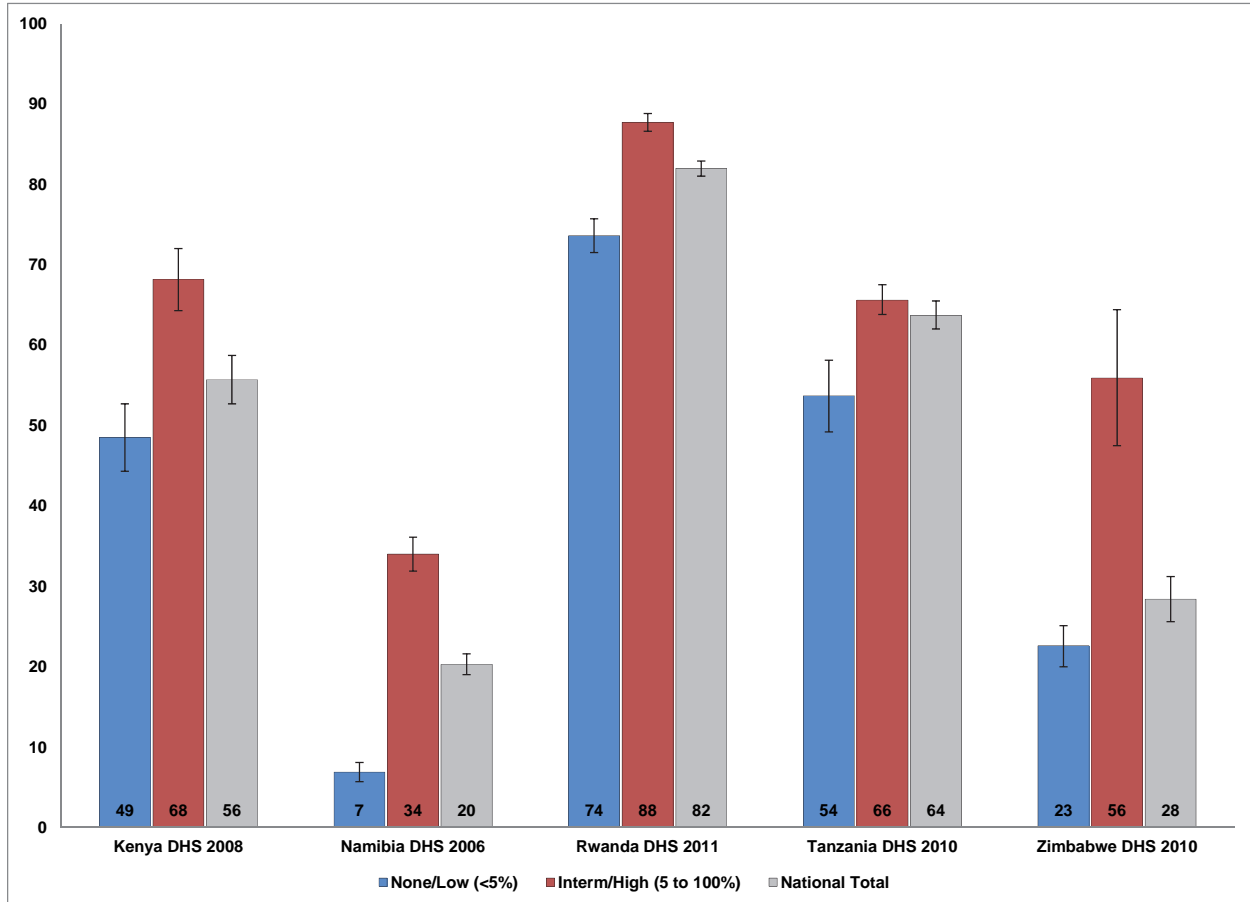


Stratification of households by endemicity zones (MAP 2007) shows that in heterogeneous countries households in the high or intermediate endemicity zones are significantly more likely to own at least one ITN household at the national level than households in the no/low malaria zones (Figure 5). For Kenya, 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

Countries/Factors	Model 0	Model 4
	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).

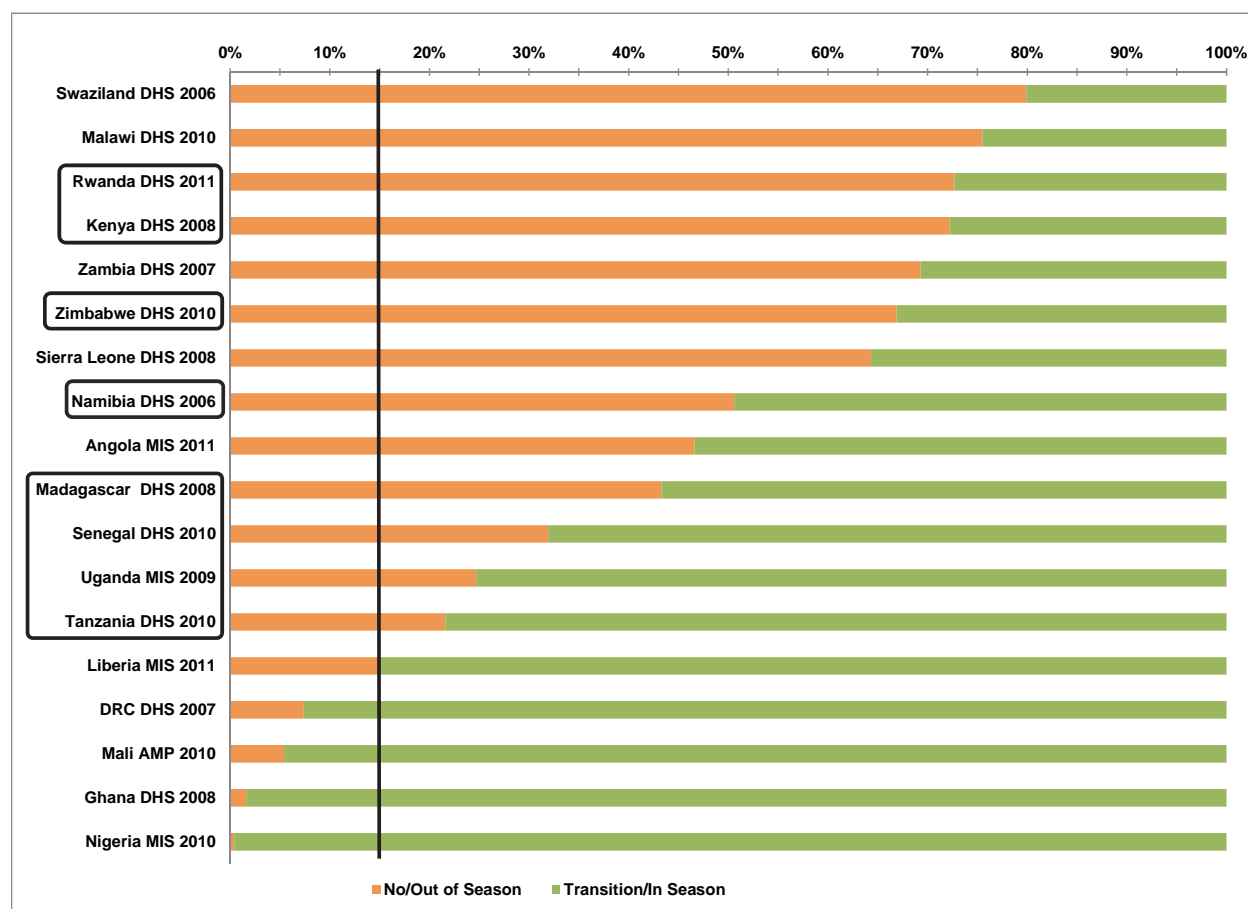
3.2 Malaria Seasonality and Use of ITNs

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

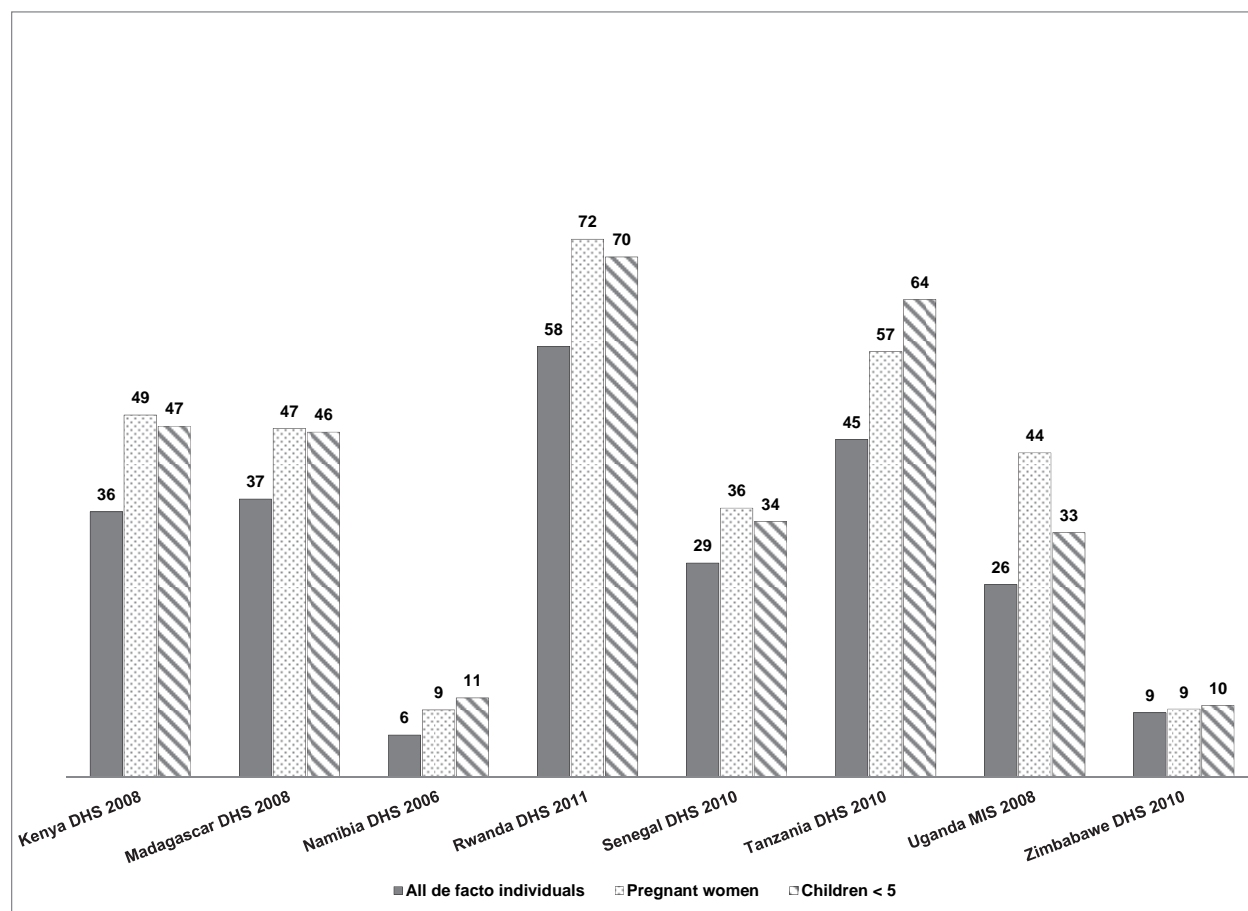


3.2.2 Use of ITNs

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.

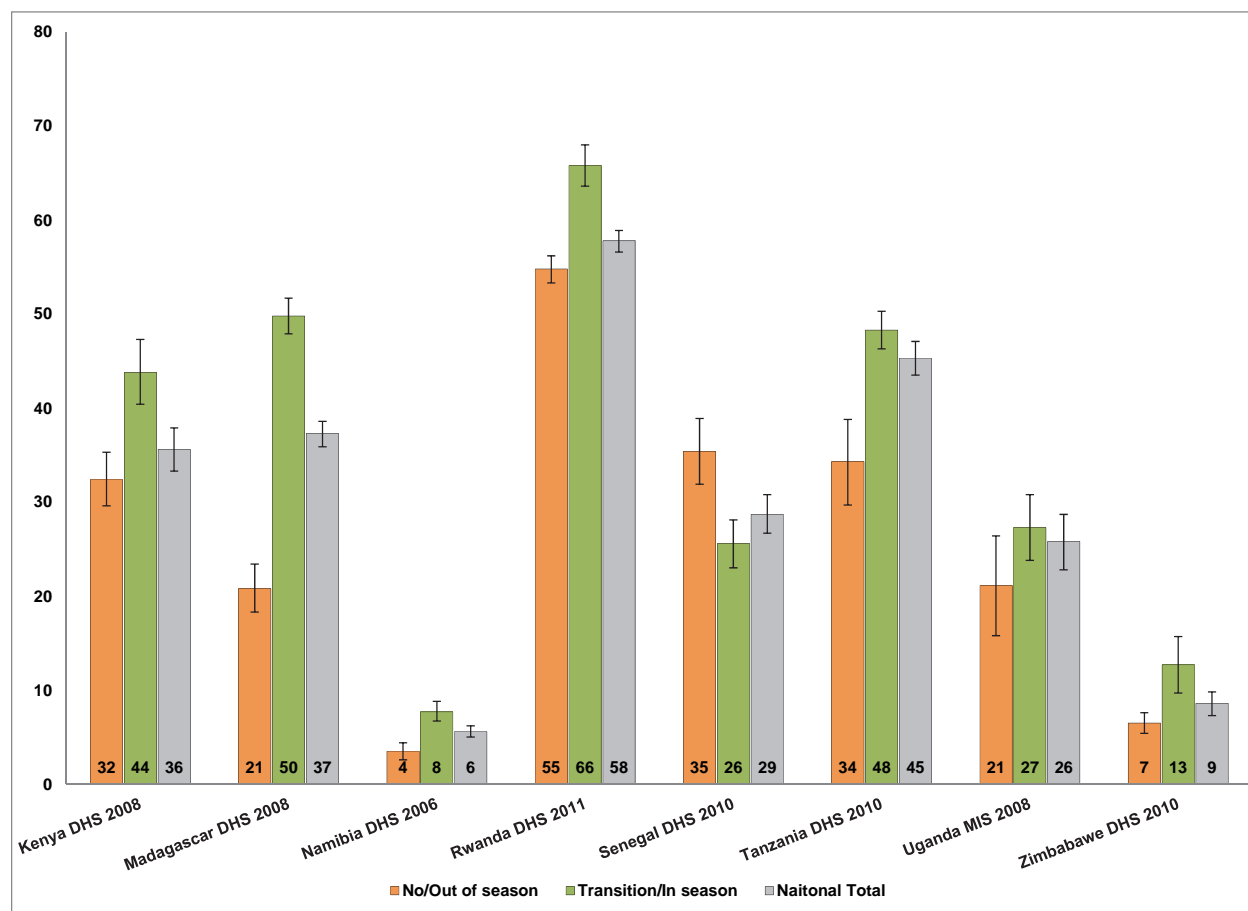
In most countries studied, differences in ITN use are fairly low between urban and rural areas compared with the national totals (Table B10). In Madagascar and Rwanda, people in rural areas were significantly more likely to use ITNs than their urban counterparts or the total population, in all areas 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

Countries/Factors	Model 0	Model 1	Model 5
	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	Model 1	Model 5
	OR (95% CI)	OR (95% CI)	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

Countries/Factors	Model 0	Model 1	Model 5
	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				Total	N
		No Malaria	Low (<5%)	Intermediate (5-<40%)	High (>40%)		
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			Total	N
		None (0%)	Low (<0 to <75%)	High (<=75%)		
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 for every		N
	At least 1 ITN	2 people	
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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	
Total	36.9	[32.2,41.6]	7,699	-	-	-	33.2	[29.4,37.1]	36.8	[32.0,41.5]	34.6	[31.8,37.3]	7,699
Urban	*	*	4,759	-	-	-	30.2	[25.0,35.4]	36.6	[30.9,42.3]	32.1	[28.0,36.2]	4,759
Rural	37.1	[32.3,41.8]	2,939	-	-	-	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]	8,758	-	-	-	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]	5,243	-	-	-	6.4	[3.1,9.7]	7.9	[5.8,10.0]	7.2	[5.5,8.9]	5,243
Rural	-	-	3,515	-	-	-	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]	11,603	-	-	-	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]	6,081	-	-	-	35.3	[27.4,43.1]	49.0	[46.5,51.4]	48.0	[45.6,50.4]	6,081
Rural	32.5	[23.1,42.0]	5,521	-	-	-	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]	9,033	58.3	[54.4,62.2]	9,033	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]	6,682	58.6	[53.4,63.8]	6,682	66.9	[62.7,71.1]	73.4	[66.9,79.9]	54.9	[51.5,58.3]	6,682
Rural	44.9	[31.9,58.0]	2,350	57.8	[52.5,63.1]	2,350	71.5	[59.4,83.7]	*	*	57.8	[51.1,64.5]	2,350
Total	46.6	[34.5,58.8]	4,162	-	-	-	-	-	50.0	[46.3,53.8]	49.7	[46.1,53.3]	4,162
Urban	(76.7)	[76.7,76.7]	2,104	-	-	-	-	-	47.1	[41.9,52.3]	47.2	[42.0,52.4]	2,104
Rural	46.0	[33.5,58.5]	2,058	-	-	-	-	-	53.9	[49.0,58.9]	52.2	[47.2,57.1]	2,058
Total	26.1	[17.3,34.9]	17,644	-	-	-	52.3	[49.7,54.9]	79.5	[77.1,81.8]	57.2	[55.5,58.9]	17,644
Urban	10.4	[3.4,17.4]	14,974	-	-	-	52.5	[49.5,55.5]	79.3	[76.7,81.9]	56.6	[54.6,58.6]	14,974
Rural	82.9	[78.2,87.6]	2,669	-	-	-	51.1	[47.8,54.5]	81.0	[77.3,84.8]	60.8	[58.1,63.5]	2,669
Total	-	-	24,202	-	-	-	59.2	[57.5,61.0]	55.0	[53.2,56.7]	56.9	[55.6,58.1]	24,202
Urban	-	-	20,275	-	-	-	57.0	[54.9,59.0]	54.6	[52.8,56.4]	55.4	[54.1,56.8]	20,275
Rural	-	-	3,927	-	-	-	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]	1,586	-	-	-	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]	1,244	-	-	-	88.5	[82.3,94.8]	86.7	[82.9,90.5]	86.2	[82.8,89.5]	1,244
Rural	33.3	[33.3,33.3]	341	-	-	-	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]	9,031	19.5	[14.8,24.3]	9,031	34.0	[31.9,36.1]	-	-	20.3	[19.0,21.6]	9,031
Urban	7.6	[5.1,10.0]	4,870	19.6	[9.8,29.4]	4,870	-	-	34.0	[31.6,36.3]	28.7	[26.7,30.7]	4,870
Rural	3.8	[2.6,5.1]	4,161	19.5	[15.8,23.2]	4,161	34.1	[30.2,38.0]	-	-	10.4	[9.1,11.7]	4,161
Total	32.9	[5.1,60.6]	5,895	-	-	-	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]	4,175	-	-	-	53.0	[34.5,71.5]	44.1	[38.2,50.1]	45.0	[39.4,50.6]	4,175
Rural	(15.4)	[15.4,15.4]	1,720	-	-	-	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]	12,540	-	-	-	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]	10,781	-	-	-	87.8	[86.4,89.1]	91.5	[89.8,93.1]	81.6	[80.5,82.7]	10,781
Rural	76.5	[70.3,82.7]	1,759	-	-	-	86.6	[84.5,88.7]	(88.5)	[88.5,88.5]	84.5	[82.2,86.7]	1,759

(Continued...)

Table A4. – Continued

	Endermicity															
	No Malaria			Low (<5%)			Intermediate (5-<40%)			High (>40%)			Total			
	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	
Total	29.2	[15.5,43.0]	7,793	-	-	66.6	[63.6,69.6]	6,938	-	-	62.9	[59.7,66.0]	7,793	62.9	[59.7,66.0]	7,793
Urban	-	-	3,929	-	-	73.4	[70.5,76.3]	3,929	-	-	73.4	[70.5,76.3]	3,929	73.4	[70.5,76.3]	3,929
Rural	29.2	[15.4,43.1]	3,864	-	-	57.9	[52.8,63.1]	3,864	-	-	52.2	[46.9,57.4]	3,864	52.2	[46.9,57.4]	3,864
Senegal DHS 2010	31.6	[23.1,40.0]	7,230	-	-	31.9	[26.9,36.8]	7,230	37.5	[34.9,40.2]	36.4	[34.1,38.7]	7,230	36.4	[34.1,38.7]	7,230
Urban	35.1	[20.8,49.5]	4,794	-	-	28.4	[20.0,36.8]	4,794	36.8	[33.8,39.9]	36.6	[33.7,39.6]	4,794	36.6	[33.7,39.6]	4,794
Rural	26.8	[21.8,31.8]	2,436	-	-	32.2	[26.8,37.5]	2,436	40.0	[34.9,45.1]	36.1	[32.4,39.7]	2,436	36.1	[32.4,39.7]	2,436
Tanzania DHS 2010	51.2	[42.2,60.2]	9,352	54.8	[49.4,60.2]	64.3	[61.8,66.7]	9,352	69.1	[66.1,72.1]	63.7	[62.0,65.5]	9,352	63.7	[62.0,65.5]	9,352
Urban	47.4	[37.4,57.3]	6,938	53.2	[45.2,61.1]	63.8	[60.7,66.9]	6,938	69.0	[65.7,72.3]	63.4	[61.3,65.6]	6,938	63.4	[61.3,65.6]	6,938
Rural	64.2	[55.1,73.2]	2,414	57.2	[50.6,63.8]	65.5	[61.8,69.1]	2,414	69.8	[62.0,77.5]	64.6	[61.7,67.4]	2,414	64.6	[61.7,67.4]	2,414
Uganda MIS 2008	42.3	[34.0,50.5]	4,421	-	-	50.8	[45.4,56.2]	4,421	39.6	[33.8,45.5]	46.7	[42.7,50.6]	4,421	46.7	[42.7,50.6]	4,421
Urban	42.3	[34.0,50.5]	3,711	-	-	51.2	[45.0,57.5]	3,711	38.5	[31.1,45.8]	46.7	[42.2,51.2]	3,711	46.7	[42.2,51.2]	3,711
Rural	-	-	710	-	-	48.4	[41.4,55.3]	710	43.8	[33.5,54.1]	46.4	[39.3,53.4]	710	46.4	[39.3,53.4]	710
Zambia DHS 2007	-	-	7,164	-	-	53.2	[50.7,55.7]	7,164	*	*	53.3	[50.8,55.8]	7,164	53.3	[50.8,55.8]	7,164
Urban	-	-	4,685	-	-	53.6	[50.2,56.9]	4,685	*	*	53.7	[50.4,57.1]	4,685	53.7	[50.4,57.1]	4,685
Rural	-	-	2,479	-	-	52.6	[49.2,55.9]	2,479	-	-	52.6	[49.2,55.9]	2,479	52.6	[49.2,55.9]	2,479
Zimbabwe DHS 2010	17.3	[14.7,19.8]	9,467	28.5	[24.0,32.9]	55.9	[47.5,64.4]	9,467	-	-	28.4	[25.6,31.2]	9,467	28.4	[25.6,31.2]	9,467
Urban	13.8	[8.3,19.2]	6,249	27.8	[22.6,33.0]	56.9	[48.0,65.8]	6,249	-	-	31.4	[27.3,35.5]	6,249	31.4	[27.3,35.5]	6,249
Rural	19.5	[17.3,21.8]	3,217	31.6	[25.0,38.1]	38.7	[19.4,58.0]	3,217	-	-	22.5	[20.2,24.7]	3,217	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	37.1	[32.3,41.8]	39.4	[35.7,43.1]	38.6	[35.8,41.5]	2,939
DRC DHS 2007	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
	Rural	-	-	12.3	[10.3,14.3]	12.3	[10.3,14.3]	3,515
Ghana DHS 2008	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
	Rural	32.5	[23.1,42.0]	34.8	[32.7,36.9]	34.7	[32.6,36.7]	5,521
Kenya DHS 2008	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
	Rural	52.5	[44.9,60.1]	71.6	[59.5,83.7]	57.8	[51.1,64.5]	2,350
Liberia MIS 2011	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
	Rural	46.0	[33.5,58.5]	53.9	[49.0,58.9]	52.2	[47.2,57.1]	2,058
Madagascar DHS 2008	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
	Rural	82.9	[78.2,87.6]	57.5	[54.4,60.7]	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	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
	Rural	*	*	87.5	[84.6,90.5]	86.8	[83.6,90.1]	341
Namibia DHS 2006	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
	Rural	5.6	[4.4,6.8]	34.1	[30.2,38.0]	10.4	[9.1,11.7]	4,161
Nigeria MIS 2010	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
	Rural	(15.4)	[15.4,15.4]	33.3	[26.6,40.0]	33.1	[26.5,39.6]	1,720
Rwanda DHS 2011	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
	Rural	76.5	[70.3,82.7]	86.6	[84.6,88.7]	84.5	[82.2,86.7]	1,759
Senegal DHS 2010	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
	Rural	29.2	[15.4,43.1]	57.9	[52.8,63.1]	52.2	[46.9,57.4]	3,864
Sierra Leone DHS 2008	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
	Rural	26.8	[21.8,31.8]	36.3	[32.5,40.1]	36.1	[32.4,39.7]	2,436
Tanzania DHS 2010	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
	Rural	58.6	[52.7,64.6]	66.2	[63.0,69.5]	64.6	[61.7,67.4]	2,414
Uganda MIS 2008	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
	Rural	-	-	46.4	[39.3,53.4]	46.4	[39.3,53.4]	710
Zambia DHS 2007	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
	Rural	-	-	52.6	[49.2,55.9]	52.6	[49.2,55.9]	2,479
Zimbabwe DHS 2010	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
	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI
Angola MIS 2011	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		
	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		
DRC DHS 2007	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		
	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		
Ghana DHS 2008	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		
	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		
Kenya DHS 2008	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		
	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		
Liberia MIS 2011	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		
	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		
Madagascar DHS 2008	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		
	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		
Malawi DHS 2011	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		
	Rural	-	-	-	-	62.8	[59.3,66.4]	73.8	[69.5,78.0]	64.2	[61.0,67.4]	3,927		
Mali AMP 2010	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		
	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		
Namibia DHS 2006	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		
	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		
Nigeria MIS 2010	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		
	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		
Rwanda DHS 2011	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		
	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
Senegal DHS 2010	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			
	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			
Sierra Leone DHS 2008	Total	-	-	-	-	33.5	[30.2,36.8]	38.8	[35.6,42.0]	36.4	[34.1,38.7]	7,230			
	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			
Tanzania DHS 2010	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			
	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			
Uganda MIS 2008	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			
	Rural	-	-	-	-	46.6	[39.7,53.6]	46.1	[34.3,58.0]	46.4	[39.3,53.4]	710			
Zambia DHS 2007	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			
	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			
Zimbabwe DHS 2010	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			
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
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								N
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI
Angola MIS 2011	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	
	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	
DRC DHS 2007	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	
	Rural	-		-	-	-	2.1	[0.7,3.6]	2.1	[1.1,3.1]	2.1	[1.3,2.9]	3,515	
Ghana DHS 2008	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	
	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	
Kenya DHS 2008	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]	34.0	[21.3,46.8]	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		
	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		
Liberia MIS 2011	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	
	Rural	17.1	[9.5,24.8]	-	-	-	-	-	20.8	[17.1,24.4]	20.0	[16.6,23.4]	2,058	
Madagascar DHS 2008	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	
	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	
Malawi DHS 2011	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	
	Rural	-		-	-	-	30.0	[26.7,33.4]	31.3	[24.2,38.5]	30.2	[27.2,33.3]	3,927	
Mali AMP 2010	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	
	Rural	*		-	-	-	45.9	[26.7,65.2]	39.7	[32.2,47.1]	39.9	[33.0,46.8]	341	
Namibia DHS 2006	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		
	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		
Nigeria MIS 2010	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	
	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	
Rwanda DHS 2011	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	
	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI
Senegal DHS 2010	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
	Rural	4.5	[1.7,7.4]	-	-	-	16.0	[13.6,18.4]	-	-	-	13.7	[11.7,15.7]	3,864
Sierra Leone DHS 2008	Total	10.1	[5.0,15.2]	-	-	-	6.9	[4.9,9.0]	6.4	[5.5,7.3]	6.4	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	6.4	[5.4,7.4]	4,794
	Rural	4.3	[-0.6,9.3]	-	-	-	7.4	[5.2,9.5]	6.5	[4.7,8.3]	6.5	6.8	[5.5,8.2]	2,436
Tanzania DHS 2010	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]	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]	19.8	[18.4,21.3]	6,938
	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]	31.3	[28.4,34.3]	2,414
Uganda MIS 2008	Total	11.4	[8.9,13.8]	-	-	-	19.7	[16.8,22.6]	11.1	[8.2,14.1]	11.1	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]	10.4	15.2	[12.8,17.5]	3,711
	Rural	-	-	-	-	-	29.5	[24.8,34.1]	13.6	[4.7,22.5]	13.6	22.6	[13.3,31.8]	710
Zambia DHS 2007	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
	Rural	-	-	-	-	-	18.6	[16.0,21.2]	-	-	-	18.6	[16.0,21.2]	2,479
Zimbabwe DHS 2010	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	
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	7.9	[5.7,10.1]	8.0	[6.5,9.6]	8.0	[6.7,9.3]	2,939
DRC DHS 2007	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
	Rural	-	-	2.1	[1.3,2.9]	2.1	[1.3,2.9]	3,515
Ghana DHS 2008	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
	Rural	13.5	[6.8,20.2]	15.1	[13.6,16.6]	15.0	[13.5,16.5]	5,521
Kenya DHS 2008	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
	Rural	35.4	[31.6,39.3]	46.4	[31.9,60.9]	38.4	[33.9,43.0]	2,350
Liberia MIS 2011	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
	Rural	17.1	[9.5,24.8]	20.8	[17.1,24.4]	20.0	[16.6,23.4]	2,058
Madagascar DHS 2008	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
	Rural	48.6	[41.8,55.4]	24.9	[22.0,27.7]	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	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
	Rural	*	*	40.4	[33.4,47.3]	39.9	[33.0,46.8]	341
Namibia DHS 2006	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
	Rural	2.0	[1.4,2.6]	15.5	[12.6,18.4]	4.3	[3.6,5.1]	4,161
Nigeria MIS 2010	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
	Rural	(3.8)	[3.8,3.8]	11.6	[8.1,15.0]	11.4	[8.1,14.8]	1,720
Rwanda DHS 2011	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
	Rural	35.8	[25.0,46.7]	55.2	[51.8,58.7]	51.1	[47.1,55.0]	1,759
Senegal DHS 2010	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
	Rural	4.5	[1.7,7.4]	16.0	[13.6,18.4]	13.7	[11.7,15.7]	3,864
Sierra Leone DHS 2008	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
	Rural	4.3	[-0.6,9.3]	6.9	[5.5,8.3]	6.8	[5.5,8.2]	2,436
Tanzania DHS 2010	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
	Rural	25.3	[20.4,30.2]	33.0	[29.5,36.5]	31.3	[28.4,34.3]	2,414
Uganda MIS 2008	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
	Rural	-	-	22.6	[13.3,31.8]	22.6	[13.3,31.8]	710
Zambia DHS 2007	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
	Rural	-	-	18.6	[16.0,21.2]	18.6	[16.0,21.2]	2,479
Zimbabwe DHS 2010	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
	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	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
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
Angola MIS 2011															
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
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
DRC DHS 2007															
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
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
Ghana DHS 2008															
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
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
Kenya DHS 2008															
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
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
Liberia MIS 2011															
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
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
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
Madagascar DHS 2008															
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
Rural	-	-		-	-		29.3	[25.9,32.7]		36.6	[31.7,41.4]		30.2	[27.2,33.3]	3,927
Malawi DHS 2011															
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
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
Mali AMP 2010															
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
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
Namibia DHS 2006															
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
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
Nigeria MIS 2010															
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
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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Total	21.6	[14.6,28.7]	7,793	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	17.1	[15.7,18.5]	7,793
Urban	-	-	3,929	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	20.6	[18.7,22.4]	3,929
Rural	21.6	[14.6,28.7]	3,864	9.1	[6.8,11.4]	27.5	[24.2,30.7]	-	-	13.7	[11.7,15.7]	3,864	13.7	[11.7,15.7]	3,864
Total	-	-	7,230	-	-	6.2	[5.0,7.3]	6.9	[5.7,8.0]	6.6	[5.7,7.4]	7,230	6.6	[5.7,7.4]	7,230
Urban	-	-	4,794	-	-	5.2	[3.8,6.7]	6.9	[5.6,8.3]	6.4	[5.4,7.4]	4,794	6.4	[5.4,7.4]	4,794
Rural	-	-	2,436	-	-	6.9	[5.2,8.7]	6.6	[4.7,8.5]	6.8	[5.5,8.2]	2,436	6.8	[5.5,8.2]	2,436
Total	13.9	[10.3,17.4]	9,352	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	22.8	[21.5,24.1]	9,352
Urban	14.3	[10.3,18.3]	6,938	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	19.8	[18.4,21.3]	6,938
Rural	*	*	2,414	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	31.3	[28.4,34.3]	2,414
Total	10.3	[8.3,12.4]	4,421	-	-	22.7	[18.9,26.5]	12.6	[10.1,15.0]	16.4	[14.2,18.5]	4,421	16.4	[14.2,18.5]	4,421
Urban	10.3	[8.3,12.4]	3,711	-	-	20.5	[15.9,25.1]	12.2	[9.6,14.9]	15.2	[12.8,17.5]	3,711	15.2	[12.8,17.5]	3,711
Rural	-	-	710	-	-	31.2	[26.9,35.5]	14.4	[6.0,22.7]	22.6	[13.3,31.8]	710	22.6	[13.3,31.8]	710
Total	-	-	7,164	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	18.1	[16.5,19.7]	7,164
Urban	-	-	4,685	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	17.8	[15.8,19.8]	4,685
Rural	-	-	2,479	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	18.6	[16.0,21.2]	2,479
Total	11.6	[10.1,13.2]	9,467	5.5	[4.7,6.4]	21.5	[17.7,25.4]	*	*	12.1	[10.3,13.9]	9,467	12.1	[10.3,13.9]	9,467
Urban	11.6	[10.1,13.2]	6,249	3.2	[2.0,4.4]	21.4	[17.3,25.6]	*	*	13.6	[11.0,16.2]	6,249	13.6	[11.0,16.2]	6,249
Rural	-	-	3,217	7.6	[6.5,8.7]	22.2	[14.2,30.1]	-	-	9.2	[7.8,10.6]	3,217	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
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								N
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
	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
Angola MIS 2011	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
	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
DRC DHS 2007	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
	Total	-	-	11.9	[7.8,16.1]	17.3	[16.1,18.5]	17.1	[16.0,18.3]	11,603
Ghana DHS 2008	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
	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
Kenya DHS 2008	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
	Total	-	-	-	-	17.1	[15.0,19.3]	17.1	[15.0,19.3]	4,162
Liberia MIS 2011	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
	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
Madagascar DHS 2008	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
	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
Malawi DHS 2011	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
	Total	-	-	31.3	[20.8,41.9]	33.1	[29.3,36.9]	33.0	[29.4,36.6]	1,586
Mali AMP 2010	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
	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
Namibia DHS 2006	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
	Total	-	-	16.3	[0.8,31.8]	14.2	[12.0,16.3]	14.2	[12.0,16.3]	5,895
Nigeria MIS 2010	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
	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
Rwanda DHS 2011	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
	Total	-	-	21.0	[16.3,25.7]	17.0	[15.5,18.4]	17.1	[15.7,18.5]	7,793
Senegal DHS 2010	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
	Total	(16.2)	[10.6,21.8]	-	-	6.5	[5.7,7.3]	6.6	[5.7,7.4]	7,230
Sierra Leone DHS 2008	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
	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
Tanzania DHS 2010	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
	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
Uganda MIS 2008	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
	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
Zambia DHS 2007	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
	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
Zimbabwe DHS 2010	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			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			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			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			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				Total	N
	No season	Out season	Transition season	In season		
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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Angola MIS 2011	21.9	[17.7,26.0]	35,431	16.5	[13.5,19.5]	19,5	15.0	[9.1,20.9]	19.5	17.3	[17.3,21.8]	18.7	19.2	[17.5,21.0]	35,431
Urban	20.3	[14.1,26.4]	20,977	8.6	[4.5,12.6]	14.2	14.2	[1.4,27.1]	18.7	16.4	[16.4,21.0]	18.7	18.7	[16.1,21.3]	20,977
Rural	24.5	[20.2,28.7]	14,454	17.0	[13.9,20.1]	15.5	15.5	[12.5,18.5]	23.3	15.7	[15.7,30.8]	20.0	20.0	[17.7,22.2]	14,454
DRC DHS 2007	2.7	[1.4,4.1]	42,337	3.0	[0.4,5.6]	4.3	4.3	[1.3,7.4]	4.7	3.8	[3.8,5.6]	4.5	4.5	[3.7,5.3]	42,337
Urban	0.7	[0.0,1.4]	24,148	-	-	1.6	1.6	[-0.1,3.3]	3.8	2.6	[2.6,4.9]	3.4	3.4	[2.4,4.3]	24,148
Rural	4.6	[2.1,7.2]	18,189	3.0	[0.4,5.6]	7.9	7.9	[2.8,12.9]	6.0	4.7	[4.7,7.2]	6.0	6.0	[4.8,7.2]	18,189
Ghana DHS 2008	-	-	40,883	12.0	[7.5,16.4]	11.3	11.3	[8.8,13.9]	22.1	20.9	[20.9,23.3]	20.9	20.9	[19.7,22.0]	40,883
Urban	-	-	22,951	11.6	[10.4,12.8]	12.0	12.0	[3.7,20.4]	26.3	26.3	[24.6,28.1]	25.9	25.9	[24.2,27.6]	22,951
Rural	-	-	17,932	12.1	[6.1,18.1]	11.2	11.2	[8.5,14.0]	15.3	13.9	[13.9,16.7]	14.4	14.4	[13.2,15.6]	17,932
Kenya DHS 2008	28.0	[24.5,31.4]	35,772	42.1	[37.2,47.1]	42.7	42.7	[33.5,51.9]	43.9	40.3	[40.3,47.5]	35.6	35.6	[33.3,37.9]	35,772
Urban	24.0	[19.9,28.1]	28,491	39.0	[33.8,44.3]	38.8	38.8	[31.4,46.2]	42.5	38.4	[38.4,46.5]	32.8	32.8	[30.1,35.4]	28,491
Rural	41.2	[35.3,47.0]	7,282	62.2	[55.8,68.6]	58.0	58.0	[38.4,77.5]	49.2	40.2	[40.2,58.3]	46.8	46.8	[42.1,51.5]	7,282
Liberia MIS 2011	-	-	17,255	30.7	[27.4,34.0]	-	-	-	32.6	29.4	[29.4,35.9]	32.3	32.3	[29.6,35.1]	17,255
Urban	-	-	8,903	30.1	[26.5,33.6]	-	-	-	30.7	26.2	[26.2,35.2]	30.5	30.5	[27.0,34.1]	8,903
Rural	-	-	8,352	32.7	[25.2,40.3]	-	-	-	34.4	29.8	[29.8,38.9]	34.2	34.2	[30.0,38.5]	8,352
Madagascar DHS 2008	17.3	[14.8,19.7]	76,131	45.9	[38.8,53.0]	45.7	45.7	[36.5,54.9]	50.1	48.2	[48.2,52.0]	37.3	37.3	[35.9,38.6]	76,131
Urban	12.6	[9.6,15.5]	65,276	45.7	[38.1,53.3]	45.0	45.0	[35.6,54.3]	48.9	46.8	[46.8,50.9]	36.1	36.1	[34.6,37.7]	65,276
Rural	33.2	[29.5,36.8]	10,855	47.8	[36.7,58.9]	63.7	63.7	[63.7,63.7]	61.7	57.7	[57.7,65.7]	44.0	44.0	[41.2,46.8]	10,855
Malawi DHS 2011	26.7	[24.0,29.4]	105,251	27.3	[25.9,28.7]	34.7	34.7	[32.6,36.9]	34.6	28.0	[28.0,41.1]	29.0	29.0	[28.0,30.1]	105,251
Urban	23.4	[20.6,26.2]	88,862	25.5	[24.1,27.0]	34.6	34.6	[32.5,36.8]	27.7	21.9	[21.9,33.5]	27.4	27.4	[26.2,28.5]	88,862
Rural	41.5	[36.8,46.2]	16,389	36.0	[32.1,39.8]	36.2	36.2	[21.9,50.5]	50.9	43.8	[43.8,57.9]	38.1	38.1	[35.0,41.3]	16,389
Mali AMP 2010	51.2	[41.6,60.9]	8,749	-	-	77.8	77.8	[77.8,77.8]	57.4	54.3	[54.3,60.4]	57.1	57.1	[54.2,60.1]	8,749
Urban	52.2	[41.6,62.8]	6,787	-	-	77.8	77.8	[77.8,77.8]	57.8	54.0	[54.0,61.5]	57.6	57.6	[54.0,61.2]	6,787
Rural	47.4	[25.2,69.7]	1,962	-	-	-	-	-	55.9	50.9	[50.9,60.9]	55.5	55.5	[50.6,60.4]	1,962
Namibia DHS 2006	2.7	[1.9,3.5]	37,957	9.6	[4.9,14.3]	5.2	5.2	[3.2,7.2]	8.3	7.1	[7.1,9.5]	5.6	5.6	[5.0,6.2]	37,957
Urban	3.3	[1.1,5.5]	22,251	10.6	[5.5,15.6]	4.3	4.3	[2.3,6.3]	8.3	6.9	[6.9,9.7]	6.8	6.8	[5.9,7.8]	22,251
Rural	2.4	[1.8,3.0]	15,707	4.3	[1.9,10.4]	8.5	8.5	[2.7,14.3]	8.3	6.2	[6.2,10.4]	3.8	3.8	[3.1,4.5]	15,707
Nigeria MIS 2010	-	-	28,284	4.9	[2.2,7.7]	42.8	42.8	[35.9,49.7]	18.2	15.1	[15.1,21.4]	23.0	23.0	[20.0,25.9]	28,284
Urban	-	-	20,726	3.8	[3.8,3.8]	44.3	44.3	[36.4,52.3]	20.1	16.0	[16.0,24.2]	25.5	25.5	[21.8,29.2]	20,726
Rural	-	-	7,559	17.4	[17.4,17.4]	34.0	34.0	[25.3,42.7]	13.8	9.6	[9.6,18.0]	16.0	16.0	[12.0,20.0]	7,559
Rwanda DHS 2011	51.8	[49.9,53.7]	52,877	61.9	[59.4,64.3]	65.3	65.3	[60.7,69.9]	66.0	63.4	[63.4,68.6]	57.8	57.8	[56.6,58.9]	52,877
Urban	51.2	[49.2,53.2]	45,761	62.2	[59.5,64.8]	63.6	63.6	[58.4,68.8]	65.7	62.7	[62.7,68.7]	56.9	56.9	[55.6,58.2]	45,761
Rural	58.7	[52.8,64.7]	7,116	59.3	[52.3,66.3]	71.8	71.8	[63.7,79.8]	66.8	62.0	[62.0,71.7]	63.4	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Total	58.0	[58.0,58.0]	67,087	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	28.7	[26.7,30.8]	67,087
Urban	-	-	36,722	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	31.9	[29.5,34.3]	36,722
Rural	58.0	[58.0,58.0]	30,365	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	24.9	[21.6,28.2]	30,365
Total	25.8	[24.0,27.6]	38,348	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	19.6	[18.1,21.1]	38,348
Urban	25.8	[24.0,27.6]	25,805	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	20.3	[18.4,22.2]	25,805
Rural	-	-	12,543	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	18.1	[15.6,20.7]	12,543
Total	28.4	[23.6,33.3]	42,557	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	45.3	[43.5,47.1]	42,557
Urban	27.0	[22.0,32.1]	32,920	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	43.8	[41.8,45.8]	32,920
Rural	37.2	[20.6,53.8]	9,638	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	50.3	[46.2,54.3]	9,638
Total	18.7	[10.7,26.7]	19,160	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	25.8	[22.8,28.7]	19,160
Urban	18.7	[10.7,26.7]	16,543	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	25.1	[21.7,28.5]	16,543
Rural	-	-	2,618	27.1	[27.1,27.1]	-	-	30.2	[24.2,36.1]	29.9	[24.5,35.3]	2,618	29.9	[24.5,35.3]	2,618
Total	20.8	[16.3,25.4]	31,332	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	23.4	[21.7,25.0]	31,332
Urban	18.6	[13.9,23.4]	20,129	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	23.9	[21.7,26.1]	20,129
Rural	23.1	[15.3,30.8]	11,203	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	22.4	[20.1,24.7]	11,203
Total	6.1	[4.7,7.4]	37,475	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	8.6	[7.3,9.8]	37,475
Urban	5.9	[3.4,8.4]	25,846	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	9.1	[7.4,10.9]	25,846
Rural	6.2	[5.1,7.4]	11,629	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	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
Angola MIS 2011	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
	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
DRC DHS 2007	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
	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
Ghana DHS 2008	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
	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
Kenya DHS 2008	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
	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
Liberia MIS 2011	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
	Rural	-	-	38.8	[26.3,51.3]		-	-		41.9	[36.1,47.6]		41.7	[36.3,47.0]	1,290
Madagascar DHS 2008	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
	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
Malawi DHS 2011	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
	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
Mali AMP 2010	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
	Rural	54.5	[24.8,84.3]	-	-		-	-		68.2	[61.4,74.9]		67.3	[60.6,74.1]	359
Namibia DHS 2006	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
	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
Nigeria MIS 2010	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
	Rural	-	-	*	*		43.7	[36.3,51.1]		19.3	[13.4,25.2]		22.2	[16.9,27.6]	1,320
Rwanda DHS 2011	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
	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Senegal DHS 2010	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	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	36.4	[33.4,39.4]	7,047
	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	30.9	[26.5,35.3]	4,317
Sierra Leone DHS 2008	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	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	25.1	[22.3,28.0]	4,388
	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	30.3	[25.4,35.2]	1,611
Tanzania DHS 2010	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	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	64.0	[61.0,67.1]	5,884
	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	64.2	[59.5,68.9]	1,418
Uganda MIS 2008	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	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	32.8	[28.4,37.3]	3,205
	Rural	-	-	57.1	[57.1,57.1]	31.8	[23.9,39.8]	32.7	[24.3,41.1]	-	-	494.0	-	-	494.0
Zambia DHS 2007	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	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	28.5	[25.7,31.3]	4,171
	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	30.3	[26.6,34.1]	1,656
Zimbabwe DHS 2010	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	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	9.4	[7.4,11.4]	4,017
	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	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Angola MIS 2011	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	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	24.9	[20.0,29.8]	883
	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	28.2	[22.5,34.0]	398
DRC DHS 2007	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	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	6.3	[3.0,9.6]	638
	Rural	*	*	*	*	(0.0)	[0.0,0.0]	11.0	[4.3,17.7]	9.4	[3.7,15.0]	400	9.4	[3.7,15.0]	400
Ghana DHS 2008	Total	-	-	*	*	*	*	28.0	[22.7,33.4]	27.0	[21.9,32.0]	340	27.0	[21.9,32.0]	340
	Urban	-	-	*	*	*	*	34.5	[27.6,41.5]	34.0	[27.2,40.8]	200	34.0	[27.2,40.8]	200
	Rural	-	-	*	*	*	*	16.4	[8.6,24.3]	16.9	[9.9,24.0]	140	16.9	[9.9,24.0]	140
Kenya DHS 2008	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	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	47.9	[39.6,56.2]	429
	Rural	47.7	[25.5,69.9]	*	*	*	*	(53.2)	[46.0,60.4]	50.9	[37.6,64.2]	145	50.9	[37.6,64.2]	145
Liberia MIS 2011	Total	-	-	38.5	[27.3,49.7]	-	-	40.0	[32.9,47.1]	39.8	[33.5,46.0]	352	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	39.0	[31.5,46.4]	199
	Rural	-	-	*	*	-	-	42.3	[31.2,53.4]	40.8	[30.1,51.6]	152	40.8	[30.1,51.6]	152
Madagascar DHS 2008	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	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	46.3	[42.4,50.2]	1,203
	Rural	35.7	[23.1,48.4]	*	*	*	*	69.8	[58.8,80.8]	51.0	[41.9,60.0]	152	51.0	[41.9,60.0]	152
Malawi DHS 2011	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	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	33.9	[31.3,36.6]	1,739
	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	39.6	[28.5,50.7]	224
Mali AMP 2010	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namibia DHS 2006	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	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	10.9	[6.7,15.1]	296
	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	6.2	[3.6,8.9]	211
Nigeria MIS 2010	Total	-	-	*	*	61.9	[48.3,75.5]	23.5	[18.0,29.1]	33.2	[26.7,39.7]	709	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	38.3	[30.3,46.3]	548
	Rural	-	-	*	*	*	*	12.8	[6.6,19.0]	15.9	[9.4,22.4]	161	15.9	[9.4,22.4]	161
Rwanda DHS 2011	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	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	70.8	[67.4,74.1]	784
	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	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	
Senegal DHS 2010	Total	*	*	40.6	[34.2,47.0]	40.6	[35.1,46.1]	40.6	[35.1,46.1]	18.2	[8.1,28.2]	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]	39.6	[33.6,45.6]	*	*	*	*	38.4	[33.9,42.9]	712
	Rural	*	*	57.4	[43.2,71.6]	43.3	[30.2,56.5]	43.3	[30.2,56.5]	16.9	[6.8,27.1]	16.9	[6.8,27.1]	32.3	[24.1,40.5]	436
Sierra Leone DHS 2008	Total	*	*	25.3	[20.2,30.4]	(35.7)	[18.9,52.4]	(35.7)	[18.9,52.4]	32.7	[22.6,42.8]	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]	34.4	[21.9,46.8]	29.7	[24.0,35.3]	425
	Rural	-	-	19.4	[12.8,25.9]	*	*	*	*	(28.4)	[12.9,44.0]	(28.4)	[12.9,44.0]	22.5	[16.3,28.7]	164
Tanzania DHS 2010	Total	42.1	[25.4,58.8]	52.5	[32.8,72.2]	*	*	*	*	59.7	[54.6,64.7]	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]	61.5	[56.0,67.0]	59.6	[54.5,64.8]	719
	Rural	*	*	(41.4)	[15.2,67.6]	*	*	*	*	50.0	[37.2,62.8]	50.0	[37.2,62.8]	46.7	[36.0,57.4]	174
Uganda MIS 2008	Total	*	*	29.5	[14.2,44.9]	*	*	*	*	47.1	[39.1,55.1]	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]	47.6	[38.4,56.7]	43.4	[35.2,51.6]	352
	Rural	-	-	-	-	-	-	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
Zambia DHS 2007	Total	32.0	[17.7,46.3]	30.1	[25.1,35.1]	40.3	[30.1,50.5]	40.3	[30.1,50.5]	37.3	[24.4,50.2]	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]	41.0	[30.1,51.8]	36.9	[19.9,53.9]	36.9	[19.9,53.9]	35.1	[30.4,39.8]	500
	Rural	(30.0)	[5.5,54.6]	25.3	[16.4,34.3]	*	*	*	*	(38.3)	[23.2,53.4]	(38.3)	[23.2,53.4]	27.8	[20.5,35.1]	225
Zimbabwe DHS 2010	Total	7.0	[3.6,10.3]	5.3	[1.8,8.9]	8.3	[1.9,14.6]	8.3	[1.9,14.6]	19.2	[13.1,25.2]	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]	7.6	[0.9,14.3]	18.6	[12.2,25.0]	18.6	[12.2,25.0]	10.0	[6.9,13.1]	471
	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Angola MIS 2011	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	54.6	[52.2,57.1]	7,182
	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	50.3	[47.3,53.3]	5,736
	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]	44.4	[40.4,48.4]	4,295	41.4	[34.9,47.8]	1,969
DRC DHS 2007	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]	2,326	41.4	[34.9,47.8]	1,969
	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	47.0	[42.1,51.9]	2,326
	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]	44.4	[42.8,46.1]	19,756	47.6	[45.5,49.8]	12,477
Ghana DHS 2008	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	35.5	[33.3,37.6]	7,279
	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	58.7	[56.6,60.9]	21,695
	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	54.7	[52.3,57.2]	17,050
Kenya DHS 2008	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	73.4	[70.2,76.6]	4,645
	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	61.4	[59.0,63.8]	9,086
	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	60.3	[57.0,63.5]	4,511
Liberia MIS 2011	Total	-	-	61.2	[56.3,66.1]	-	-	61.4	[58.7,64.1]	61.4	[59.0,63.8]	9,086	62.5	[59.0,66.0]	4,575
	Urban	-	-	63.4	[57.8,69.0]	-	-	59.5	[55.7,63.3]	60.3	[57.0,63.5]	4,511	63.2	[61.8,64.5]	44,896
	Rural	-	-	55.5	[46.3,64.6]	-	-	63.1	[59.4,66.8]	62.5	[59.0,66.0]	4,575	61.8	[60.3,63.4]	38,143
Madagascar DHS 2008	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	70.7	[68.5,72.9]	6,753
	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	48.5	[47.4,49.7]	62,996
	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	46.8	[45.5,48.0]	52,000
Malawi DHS 2011	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	56.8	[53.9,59.8]	10,996
	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	63.6	[61.3,66.2]	7,844
	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	64.2	[61.3,67.1]	6,090
Mali AMP 2010	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	62.0	[57.8,66.3]	1,755
	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	23.1	[21.1,25.0]	9,188
	Rural	64.5	[54.3,74.6]	-	-	-	-	61.9	[57.5,66.3]	62.0	[57.8,66.3]	1,755	20.8	[18.6,23.1]	7,312
Namibia DHS 2006	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	31.7	[28.0,35.5]	1,877
	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	49.9	[47.0,52.8]	13,027
	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	51.9	[48.5,55.2]	10,190
Nigeria MIS 2010	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	42.7	[36.8,48.5]	2,838
	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	67.5	[66.5,68.5]	45,234
	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	66.9	[65.8,68.0]	38,897
Rwanda DHS 2011	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	71.2	[68.5,73.9]	6,337
	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	72.9	[68.6,77.1]	8,340
	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	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
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
Senegal DHS 2010															
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
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
Sierra Leone DHS 2008															
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
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
Tanzania DHS 2010															
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
Rural	-	-		88.5	[88.5,88.5]		-	-		55.2	[43.7,66.6]		56.7	[44.9,68.4]	1,383
Uganda MIS 2008															
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
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
Zambia DHS 2007															
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
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
Zimbabwe DHS 2010															

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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Angola MIS 2011	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	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	63.3	[60.1,66.5]	1,995
	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	61.1	[56.9,65.2]	1,213
DRC DHS 2007	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	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	50.6	[40.2,60.9]	439
	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	58.9	[51.8,65.9]	442
Ghana DHS 2008	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	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	60.8	[57.7,64.0]	2,366
	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	53.6	[49.6,57.6]	1,283
Kenya DHS 2008	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	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	65.7	[62.5,68.8]	3,059
	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	83.8	[80.6,87.0]	734
Liberia MIS 2011	Total	-	-	73.5	[68.6,78.4]	-	-	68.3	[64.7,71.9]	69.1	[65.9,72.3]	1,742	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	67.3	[63.1,71.5]	991
	Rural	-	-	59.3	[49.4,69.1]	-	-	72.5	[67.3,77.8]	71.4	[66.4,76.5]	752	71.4	[66.4,76.5]	752
Madagascar DHS 2008	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	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	70.5	[68.5,72.5]	6,754
	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	81.9	[79.4,84.4]	904
Malawi DHS 2011	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	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	57.6	[56.0,59.2]	10,344
	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	68.4	[64.1,72.7]	1,726
Mali AMP 2010	Total	78.9	[71.0,86.9]	-	-	*	*	78.2	[74.2,82.1]	78.2	[74.5,82.0]	1,724	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	79.0	[74.5,83.4]	1,402
	Rural	77.3	[65.6,89.0]	-	-	-	-	75.0	[69.1,81.0]	75.1	[69.4,80.9]	322	75.1	[69.4,80.9]	322
Namibia DHS 2006	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	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	31.9	[28.0,35.7]	1,272
	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	45.4	[39.2,51.6]	274
Nigeria MIS 2010	Total	-	-	*	*	69.8	[63.1,76.4]	53.4	[48.7,58.2]	58.7	[54.8,62.5]	2,859	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	60.0	[55.6,64.4]	2,307
	Rural	-	-	*	*	62.0	[53.0,71.0]	50.8	[41.3,60.3]	53.1	[45.5,60.7]	553	53.1	[45.5,60.7]	553
Rwanda DHS 2011	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	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	74.7	[73.3,76.1]	7,005
	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	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	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
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
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
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
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
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
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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Angola MIS 2011	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	70.7	[65.2,76.1]	311
	Urban	76.5	[69.3,83.6]	-	-	*	*	64.5	[58.0,71.0]	66.8	[58.3,75.4]	168	65.0	[52.0,78.0]	120
	Rural	(71.8)	[52.0,91.6]	57.6	[43.2,71.9]	*	*	71.6	[61.2,82.0]	62.4	[45.6,79.2]	64	68.0	[48.6,87.4]	55
DRC DHS 2007	Total	*	*	*	*	*	*	70.6	[57.5,83.8]	52.3	[44.6,59.9]	175	57.9	[48.9,66.8]	117
	Urban	*	*	*	*	*	*	67.2	[49.7,84.8]	41.0	[26.7,55.2]	58	74.0	[67.2,80.7]	277
	Rural	*	*	*	*	*	*	74.4	[55.7,93.0]	83.5	[75.2,91.8]	88	77.3	[70.2,84.5]	181
Ghana DHS 2008	Total	-	-	*	*	*	*	52.5	[44.5,60.5]	70.7	[61.5,79.8]	110	76.3	[70.8,81.8]	366
	Urban	-	-	-	-	-	-	57.9	[48.9,66.8]	76.6	[72.6,80.6]	727	74.0	[67.2,80.7]	277
	Rural	-	-	*	*	*	*	(38.9)	[22.5,55.3]	87.7	[78.9,96.5]	71	81.3	[70.6,92.1]	277
Kenya DHS 2008	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	74.0	[67.2,80.7]	277
	Urban	65.3	[53.4,77.3]	72.8	[63.2,82.4]	*	*	81.3	[70.6,92.1]	83.5	[75.2,91.8]	88	77.3	[70.2,84.5]	181
	Rural	84.9	[72.2,97.5]	*	*	*	*	(77.0)	[62.1,91.9]	77.3	[70.2,84.5]	181	70.7	[61.5,79.8]	110
Liberia MIS 2011	Total	-	-	(70.1)	[46.2,94.0]	-	-	78.8	[71.8,85.7]	87.7	[78.9,96.5]	71	76.9	[73.2,80.5]	825
	Urban	-	-	*	*	-	-	69.7	[61.0,78.4]	76.6	[72.6,80.6]	727	76.6	[72.6,80.6]	727
	Rural	-	-	*	*	-	-	90.0	[81.5,98.4]	86.0	[74.9,97.1]	99	78.5	[70.1,87.0]	99
Madagascar DHS 2008	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]	56.3	[52.6,59.9]	1,207	54.9	[51.0,58.7]	1,076
	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]	(50.4)	[34.7,66.2]	1,076	67.6	[55.7,79.6]	131
	Rural	71.2	[56.3,86.1]	*	*	*	*	86.0	[74.9,97.1]	61.9	[55.4,68.5]	1,207	54.9	[51.0,58.7]	1,076
Malawi DHS 2011	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]	54.9	[51.0,58.7]	1,076	67.6	[55.7,79.6]	131
	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]	61.9	[55.4,68.5]	1,207	54.9	[51.0,58.7]	1,076
	Rural	(74.9)	[54.6,95.1]	66.8	[49.6,83.9]	*	*	*	*	*	*	131	67.6	[55.7,79.6]	131
Mali AMP 2010	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namibia DHS 2006	Total	(18.6)	[7.7,29.5]	*	*	*	*	40.0	[28.5,51.4]	31.7	[23.3,40.0]	144	29.5	[19.5,39.5]	110
	Urban	*	*	*	*	*	*	38.1	[25.0,51.3]	(38.7)	[24.3,53.2]	34	64.9	[57.8,72.0]	363
	Rural	*	*	-	-	*	*	(48.7)	[27.2,70.2]	54.7	[46.9,62.6]	363	70.6	[63.1,78.0]	297
Nigeria MIS 2010	Total	-	-	*	*	82.4	[72.7,92.1]	61.4	[52.9,69.9]	39.1	[26.6,51.7]	65	81.0	[78.2,83.8]	831
	Urban	-	-	*	*	83.8	[73.6,93.9]	61.4	[52.9,69.9]	39.1	[26.6,51.7]	65	79.9	[76.7,83.1]	695
	Rural	-	-	-	-	*	*	33.7	[20.1,47.4]	85.4	[79.0,91.8]	695	86.6	[81.5,91.6]	136
Rwanda DHS 2011	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	79.9	[76.7,83.1]	695
	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]	81.0	[78.2,83.8]	831	79.9	[76.7,83.1]	695
	Rural	88.4	[80.8,96.1]	*	*	*	*	81.7	[73.1,90.3]	86.6	[81.5,91.6]	136	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	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N	Estimate	95% CI	N
Total	*	*	806	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	51.4	[46.8,56.0]	806
Urban	*	*	557	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	49.1	[44.3,53.9]	557
Rural	*	*	248	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	56.6	[45.8,67.5]	248
Total	*	*	230	68.1	[60.4,75.9]	*	*	(76.9)	[63.8,90.0]	71.0	[64.6,77.5]	230	71.0	[64.6,77.5]	230
Urban	*	*	173	70.8	[61.7,79.9]	*	*	(76.6)	[60.7,92.4]	73.0	[65.4,80.7]	173	73.0	[65.4,80.7]	173
Rural	*	*	57	59.4	[45.7,73.1]	*	*	*	*	65.0	[53.3,76.7]	57	65.0	[53.3,76.7]	57
Total	64.2	[47.3,81.1]	689	69.3	[53.1,85.5]	*	*	75.6	[71.1,80.0]	74.1	[70.0,78.2]	689	74.1	[70.0,78.2]	689
Urban	66.6	[48.4,84.9]	574	(77.6)	[55.4,99.9]	*	*	75.3	[70.6,80.1]	74.8	[70.3,79.3]	574	74.8	[70.3,79.3]	574
Rural	*	*	115	*	*	*	*	77.1	[63.9,90.3]	70.8	[60.3,81.3]	115	70.8	[60.3,81.3]	115
Total	*	*	222	(56.5)	[36.5,76.5]	*	*	81.9	[74.2,89.5]	77.6	[69.9,85.3]	222	77.6	[69.9,85.3]	222
Urban	*	*	201	(56.5)	[36.5,76.6]	*	*	80.5	[72.1,89.0]	76.1	[67.9,84.4]	201	76.1	[67.9,84.4]	201
Rural	-	-	21	-	-	-	-	*	*	*	*	21	*	*	21
Total	(67.1)	[46.6,87.7]	410	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	58.0	[52.4,63.6]	410
Urban	*	*	298	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	58.8	[52.2,65.5]	298
Rural	*	*	112	53.2	[40.0,66.4]	*	*	(58.8)	[39.9,77.7]	55.8	[45.2,66.4]	112	55.8	[45.2,66.4]	112
Total	31.9	[17.7,46.0]	215	(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	30.0	[22.7,37.2]	215
Urban	(33.8)	[14.2,53.4]	163	(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	28.9	[20.8,37.1]	163
Rural	(30.1)	[10.3,49.8]	52	*	*	*	*	(46.9)	[8.8,85.1]	33.2	[17.0,49.4]	52	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						N
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	19.9	[17.4,22.5]	20.1	[15.5,24.6]	20.0	[17.7,22.2]	14,454
DRC DHS 2007	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
	Rural	4.3	[2.3,6.3]	6.2	[4.9,7.5]	6.0	[4.8,7.2]	18,189
Ghana DHS 2008	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
	Rural	12.1	[6.1,18.1]	14.5	[13.2,15.7]	14.4	[13.2,15.6]	17,932
Kenya DHS 2008	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
	Rural	45.6	[40.0,51.2]	49.7	[40.9,58.5]	46.8	[42.1,51.5]	7,282
Liberia MIS 2011	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
	Rural	32.7	[25.2,40.3]	34.4	[29.8,38.9]	34.2	[30.0,38.5]	8,352
Madagascar DHS 2008	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
	Rural	33.8	[30.4,37.3]	61.7	[57.9,65.6]	44.0	[41.2,46.8]	10,855
Malawi DHS 2011	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
	Rural	37.0	[33.8,40.3]	44.0	[33.8,54.2]	38.1	[35.0,41.3]	16,389
Mali AMP 2010	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
	Rural	47.4	[25.2,69.7]	55.9	[50.9,60.9]	55.5	[50.6,60.4]	1,962
Namibia DHS 2006	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
	Rural	2.5	[1.8,3.1]	8.3	[6.3,10.3]	3.8	[3.1,4.5]	15,707
Nigeria MIS 2010	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
	Rural	17.4	[17.4,17.4]	16.0	[12.0,20.0]	16.0	[12.0,20.0]	7,559
Rwanda DHS 2011	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
	Rural	58.9	[54.3,63.5]	67.9	[63.7,72.1]	63.4	[60.1,66.8]	7,116
Senegal DHS 2010	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
	Rural	38.5	[30.7,46.2]	21.4	[17.8,25.1]	24.9	[21.6,28.2]	30,365
Sierra Leone DHS 2008	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
	Rural	18.1	[15.3,20.8]	18.3	[12.5,24.2]	18.1	[15.6,20.7]	12,543
Tanzania DHS 2010	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
	Rural	46.6	[39.6,53.5]	51.7	[46.6,56.9]	50.3	[46.2,54.3]	9,638
Uganda MIS 2008	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
	Rural	27.1	[27.1,27.1]	30.2	[24.2,36.1]	29.9	[24.5,35.3]	2,618
Zambia DHS 2007	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
	Rural	20.3	[17.7,22.9]	31.8	[26.4,37.3]	22.4	[20.1,24.7]	11,203
Zimbabwe DHS 2010	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
	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						N
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	29.3	[25.6,33.1]	29.7	[23.5,35.9]	29.5	[26.3,32.6]	2,514
DRC DHS 2007	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
	Rural	5.9	[1.7,10.1]	8.3	[6.1,10.5]	8.0	[6.0,10.1]	3,237
Ghana DHS 2008	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
	Rural	(22.1)	[14.7,29.6]	32.8	[29.8,35.9]	32.6	[29.6,35.6]	2,110
Kenya DHS 2008	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
	Rural	62.3	[56.3,68.2]	62.6	[54.3,70.9]	62.4	[57.6,67.2]	986
Liberia MIS 2011	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
	Rural	38.8	[26.3,51.3]	41.9	[36.1,47.6]	41.7	[36.3,47.0]	1,290
Madagascar DHS 2008	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
	Rural	47.9	[42.9,52.9]	72.0	[66.4,77.6]	57.1	[53.2,61.0]	1,296
Malawi DHS 2011	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
	Rural	47.0	[41.4,52.7]	55.9	[45.9,65.8]	48.4	[43.3,53.5]	2,440
Mali AMP 2010	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
	Rural	54.5	[24.8,84.3]	68.2	[61.4,74.9]	67.3	[60.6,74.1]	359
Namibia DHS 2006	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
	Rural	4.4	[2.9,5.9]	16.0	[11.2,20.8]	7.3	[5.6,8.9]	1,712
Nigeria MIS 2010	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
	Rural	*	*	22.2	[16.9,27.6]	22.2	[16.9,27.6]	1,320
Rwanda DHS 2011	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
	Rural	73.6	[69.3,77.9]	78.6	[73.3,83.9]	76.1	[72.6,79.6]	1,023
Senegal DHS 2010	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
	Rural	47.6	[38.7,56.5]	26.7	[22.0,31.5]	30.9	[26.5,35.3]	4,317
Sierra Leone DHS 2008	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
	Rural	31.4	[26.4,36.3]	27.4	[15.4,39.5]	30.3	[25.4,35.2]	1,611
Tanzania DHS 2010	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
	Rural	64.3	[57.0,71.6]	64.2	[58.0,70.4]	64.2	[59.5,68.9]	1,418
Uganda MIS 2008	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
	Rural	*	*	31.8	[23.9,39.8]	32.7	[24.3,41.1]	494
Zambia DHS 2007	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
	Rural	27.7	[23.6,31.8]	42.6	[37.6,47.7]	30.3	[26.6,34.1]	1,656
Zimbabwe DHS 2010	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
	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						N
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	30.1	[21.2,38.9]	25.3	[20.0,30.7]	28.2	[22.5,34.0]	398
DRC DHS 2007	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
	Rural	5.6	[-0.9,12.1]	9.8	[3.6,15.9]	9.4	[3.7,15.0]	400
Ghana DHS 2008	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
	Rural	*	*	15.9	[9.1,22.6]	16.9	[9.9,24.0]	140
Kenya DHS 2008	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
	Rural	49.5	[30.8,68.1]	54.3	[47.3,61.2]	50.9	[37.6,64.2]	145
Liberia MIS 2011	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
	Rural	*	*	42.3	[31.2,53.4]	40.8	[30.1,51.6]	152
Madagascar DHS 2008	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
	Rural	37.2	[25.5,49.0]	71.0	[60.8,81.2]	51.0	[41.9,60.0]	152
Malawi DHS 2011	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
	Rural	39.8	[26.4,53.2]	(38.9)	[19.9,57.9]	39.6	[28.5,50.7]	224
Mali AMP 2010	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-
Namibia DHS 2006	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
	Rural	2.9	[1.2,4.6]	16.9	[8.3,25.6]	6.2	[3.6,8.9]	211
Nigeria MIS 2010	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
	Rural	*	*	15.9	[9.4,22.4]	15.9	[9.4,22.4]	161
Rwanda DHS 2011	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
	Rural	80.5	[72.3,88.7]	79.3	[70.4,88.3]	80.0	[73.9,86.0]	148
Senegal DHS 2010	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
	Rural	58.6	[44.6,72.5]	27.4	[18.7,36.0]	32.3	[24.1,40.5]	436
Sierra Leone DHS 2008	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
	Rural	19.4	[12.8,25.9]	(28.6)	[14.9,42.4]	22.5	[16.3,28.7]	164
Tanzania DHS 2010	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
	Rural	(39.5)	[16.9,62.0]	50.5	[38.2,62.7]	46.7	[36.0,57.4]	174
Uganda MIS 2008	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
	Rural	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
Zambia DHS 2007	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
	Rural	26.0	[17.5,34.6]	36.8	[24.4,49.3]	27.8	[20.5,35.1]	225
Zimbabwe DHS 2010	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
	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						N
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	49.7	[46.3,53.1]	51.5	[45.4,57.6]	50.3	[47.3,53.3]	5,736
DRC DHS 2007	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
	Rural	51.7	[40.5,62.9]	46.7	[41.5,51.9]	47.0	[42.1,51.9]	2,326
Ghana DHS 2008	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
	Rural	22.6	[15.7,29.5]	36.0	[33.8,38.2]	35.5	[33.3,37.6]	7,279
Kenya DHS 2008	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
	Rural	74.4	[70.9,77.8]	71.2	[65.2,77.3]	73.4	[70.2,76.6]	4,645
Liberia MIS 2011	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
	Rural	55.5	[46.3,64.6]	63.1	[59.4,66.8]	62.5	[59.0,66.0]	4,575
Madagascar DHS 2008	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
	Rural	66.9	[63.9,69.8]	74.8	[71.2,78.5]	70.7	[68.5,72.9]	6,753
Malawi DHS 2011	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
	Rural	55.4	[52.2,58.6]	64.5	[58.9,70.0]	56.8	[53.9,59.8]	10,996
Mali AMP 2010	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
	Rural	64.5	[54.3,74.6]	61.9	[57.5,66.3]	62.0	[57.8,66.3]	1,755
Namibia DHS 2006	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
	Rural	35.9	[29.9,41.8]	28.4	[23.4,33.4]	31.7	[28.0,35.5]	1,877
Nigeria MIS 2010	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
	Rural	(41.7)	[41.7,41.7]	42.7	[36.8,48.5]	42.7	[36.8,48.5]	2,838
Rwanda DHS 2011	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
	Rural	68.5	[64.8,72.1]	73.8	[70.1,77.5]	71.2	[68.5,73.9]	6,337
Senegal DHS 2010	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
	Rural	54.0	[48.8,59.2]	40.9	[35.8,45.9]	44.2	[40.1,48.4]	17,094
Sierra Leone DHS 2008	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
	Rural	48.0	[45.1,50.9]	44.3	[40.3,48.3]	46.9	[44.5,49.2]	4,853
Tanzania DHS 2010	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
	Rural	70.0	[63.7,76.3]	73.2	[69.2,77.2]	72.3	[69.0,75.7]	6,698
Uganda MIS 2008	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
	Rural	(88.5)	[88.5,88.5]	55.2	[43.7,66.6]	56.7	[44.9,68.4]	1,383
Zambia DHS 2007	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
	Rural	37.3	[33.8,40.8]	53.0	[47.9,58.1]	40.4	[37.3,43.4]	6,217
Zimbabwe DHS 2010	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
	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						N
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	60.9	[55.6,66.2]	61.4	[54.7,68.0]	61.1	[56.9,65.2]	1,213
DRC DHS 2007	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
	Rural	61.3	[40.1,82.5]	58.7	[51.3,66.1]	58.9	[51.8,65.9]	442
Ghana DHS 2008	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
	Rural	*	*	54.4	[50.3,58.4]	53.6	[49.6,57.6]	1,283
Kenya DHS 2008	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
	Rural	84.0	[79.6,88.5]	83.2	[79.9,86.5]	83.8	[80.6,87.0]	734
Liberia MIS 2011	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
	Rural	59.3	[49.4,69.1]	72.5	[67.3,77.8]	71.4	[66.4,76.5]	752
Madagascar DHS 2008	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
	Rural	80.4	[77.1,83.7]	83.6	[79.5,87.7]	81.9	[79.4,84.4]	904
Malawi DHS 2011	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
	Rural	67.4	[62.5,72.4]	73.3	[66.1,80.5]	68.4	[64.1,72.7]	1,726
Mali AMP 2010	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
	Rural	77.3	[65.6,89.0]	75.0	[69.1,81.0]	75.1	[69.4,80.9]	322
Namibia DHS 2006	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
	Rural	46.8	[38.1,55.5]	44.3	[35.5,53.2]	45.4	[39.2,51.6]	274
Nigeria MIS 2010	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
	Rural	*	*	53.1	[45.4,60.7]	53.1	[45.5,60.7]	553
Rwanda DHS 2011	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
	Rural	78.6	[74.9,82.2]	81.3	[76.3,86.2]	79.9	[76.8,83.0]	974
Senegal DHS 2010	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
	Rural	61.8	[54.8,68.8]	46.1	[39.4,52.8]	50.0	[44.4,55.6]	2,670
Sierra Leone DHS 2008	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
	Rural	68.1	[63.2,72.9]	62.6	[48.3,76.8]	66.6	[61.5,71.7]	732
Tanzania DHS 2010	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
	Rural	82.1	[75.3,88.8]	81.8	[77.0,86.6]	81.9	[78.0,85.7]	1,112
Uganda MIS 2008	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
	Rural	*	*	56.3	[46.5,66.0]	57.8	[47.2,68.3]	280
Zambia DHS 2007	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
	Rural	47.1	[41.6,52.6]	67.9	[63.8,72.0]	51.0	[46.1,55.9]	985
Zimbabwe DHS 2010	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
	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						N
		No/Out season		Trans/In season		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	64.4	[52.5,76.4]	71.8	[62.7,80.8]	66.8	[58.3,75.4]	168
DRC DHS 2007	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
	Rural	*	*	71.5	[52.0,91.0]	68.0	[48.6,87.4]	55
Ghana DHS 2008	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
	Rural	*	*	38.9	[24.8,52.9]	41.0	[26.7,55.2]	58
Kenya DHS 2008	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
	Rural	87.7	[77.8,97.6]	(75.8)	[62.2,89.5]	83.5	[75.2,91.8]	88
Liberia MIS 2011	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
	Rural	*	*	90.0	[81.5,98.4]	87.7	[78.9,96.5]	71
Madagascar DHS 2008	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
	Rural	70.8	[57.2,84.4]	85.7	[75.7,95.8]	78.5	[70.1,87.0]	99
Malawi DHS 2011	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
	Rural	69.3	[55.6,82.9]	(62.3)	[36.4,88.1]	67.6	[55.7,79.6]	131
Mali AMP 2010	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-
Namibia DHS 2006	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
	Rural	(29.3)	[11.5,47.2]	(47.2)	[26.8,67.7]	(38.7)	[24.3,53.2]	34
Nigeria MIS 2010	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
	Rural	-	-	39.1	[26.6,51.7]	39.1	[26.6,51.7]	65
Rwanda DHS 2011	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
	Rural	87.4	[80.7,94.1]	85.6	[78.1,93.1]	86.6	[81.5,91.6]	136
Senegal DHS 2010	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
	Rural	70.7	[57.5,84.0]	52.4	[39.4,65.5]	56.6	[45.8,67.5]	248
Sierra Leone DHS 2008	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
	Rural	59.4	[45.7,73.1]	*	*	65.0	[53.3,76.7]	57
Tanzania DHS 2010	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
	Rural	57.5	[38.2,76.8]	78.1	[65.4,90.8]	70.8	[60.3,81.3]	115
Uganda MIS 2008	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
	Rural	-	-	*	*	*	*	21
Zambia DHS 2007	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
	Rural	55.2	[42.3,68.1]	(58.2)	[41.4,75.0]	55.8	[45.2,66.4]	112
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	16.6	[13.8,19.4]	21.7	[18.8,24.7]	20.0	[17.7,22.2]	14,454
DRC DHS 2007	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
	Rural	-	-	6.0	[4.8,7.2]	6.0	[4.8,7.2]	18,189
Ghana DHS 2008	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
	Rural	14.0	[9.0,18.9]	14.4	[13.2,15.7]	14.4	[13.2,15.6]	17,932
Kenya DHS 2008	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
	Rural	42.8	[37.6,48.0]	55.9	[45.9,65.9]	46.8	[42.1,51.5]	7,282
Liberia MIS 2011	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
	Rural	31.2	[20.2,42.2]	35.1	[30.6,39.5]	34.2	[30.0,38.5]	8,352
Madagascar DHS 2008	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
	Rural	66.4	[59.3,73.6]	41.0	[37.7,44.3]	44.0	[41.2,46.8]	10,855
Malawi DHS 2011	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
	Rural	-	-	38.1	[35.0,41.3]	38.1	[35.0,41.3]	16,389
Mali AMP 2010	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
	Rural	2.6	[2.6,2.6]	56.1	[51.3,60.9]	55.5	[50.6,60.4]	1,962
Namibia DHS 2006	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
	Rural	1.4	[0.8,1.9]	14.4	[11.0,17.8]	3.8	[3.1,4.5]	15,707
Nigeria MIS 2010	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
	Rural	4.4	[4.4,4.4]	16.2	[12.1,20.2]	16.0	[12.0,20.0]	7,559
Rwanda DHS 2011	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
	Rural	55.5	[46.8,64.1]	65.7	[62.4,68.9]	63.4	[60.1,66.8]	7,116
Senegal DHS 2010	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
	Rural	8.7	[3.3,14.0]	27.9	[23.8,32.0]	24.9	[21.6,28.2]	30,365
Sierra Leone DHS 2008	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
	Rural	17.6	[11.9,23.3]	18.2	[15.6,20.7]	18.1	[15.6,20.7]	12,543
Tanzania DHS 2010	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
	Rural	44.7	[37.9,51.5]	51.8	[46.9,56.6]	50.3	[46.2,54.3]	9,638
Uganda MIS 2008	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
	Rural	-	-	29.9	[24.5,35.3]	29.9	[24.5,35.3]	2,618
Zambia DHS 2007	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
	Rural	-	-	22.4	[20.1,24.7]	22.4	[20.1,24.7]	11,203
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	24.0	[20.4,27.6]	32.0	[27.8,36.1]	29.5	[26.3,32.6]	2,514
DRC DHS 2007	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
	Rural	-	-	8.0	[6.0,10.1]	8.0	[6.0,10.1]	3,237
Ghana DHS 2008	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
	Rural	41.6	[30.5,52.7]	32.1	[29.0,35.2]	32.6	[29.6,35.6]	2,110
Kenya DHS 2008	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
	Rural	60.4	[54.3,66.5]	66.0	[57.9,74.1]	62.4	[57.6,67.2]	986
Liberia MIS 2011	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
	Rural	41.6	[26.9,56.4]	41.7	[36.0,47.3]	41.7	[36.3,47.0]	1,290
Madagascar DHS 2008	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
	Rural	68.5	[58.9,78.1]	55.6	[51.3,60.0]	57.1	[53.2,61.0]	1,296
Malawi DHS 2011	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
	Rural	-	-	48.4	[43.3,53.5]	48.4	[43.3,53.5]	2,440
Mali AMP 2010	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
	Rural	*	*	68.4	[61.9,74.9]	67.3	[60.6,74.1]	359
Namibia DHS 2006	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
	Rural	2.8	[1.4,4.2]	23.8	[17.4,30.1]	7.3	[5.6,8.9]	1,712
Nigeria MIS 2010	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
	Rural	(3.8)	[3.8,3.8]	22.6	[17.1,28.1]	22.2	[16.9,27.6]	1,320
Rwanda DHS 2011	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
	Rural	69.1	[61.3,76.8]	77.8	[74.0,81.5]	76.1	[72.6,79.6]	1,023
Senegal DHS 2010	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
	Rural	14.2	[5.8,22.6]	33.5	[28.1,38.9]	30.9	[26.5,35.3]	4,317
Sierra Leone DHS 2008	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
	Rural	(26.5)	[7.1,45.9]	30.4	[25.4,35.4]	30.3	[25.4,35.2]	1,611
Tanzania DHS 2010	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
	Rural	59.8	[52.4,67.2]	65.2	[59.7,70.7]	64.2	[59.5,68.9]	1,418
Uganda MIS 2008	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
	Rural	-	-	32.7	[24.3,41.1]	32.7	[24.3,41.1]	494
Zambia DHS 2007	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
	Rural	-	-	30.3	[26.6,34.1]	30.3	[26.6,34.1]	1,656
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	27.4	[17.0,37.9]	28.5	[22.0,35.1]	28.2	[22.5,34.0]	398
DRC DHS 2007	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
	Rural	-	-	9.4	[3.7,15.0]	9.4	[3.7,15.0]	400
Ghana DHS 2008	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
	Rural	*	*	16.2	[8.7,23.6]	16.9	[9.9,24.0]	140
Kenya DHS 2008	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
	Rural	48.0	[29.3,66.8]	57.0	[46.7,67.3]	50.9	[37.6,64.2]	145
Liberia MIS 2011	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
	Rural	(32.4)	[18.3,46.5]	42.5	[30.3,54.8]	40.8	[30.1,51.6]	152
Madagascar DHS 2008	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
	Rural	(48.9)	[26.7,71.1]	51.3	[41.4,61.1]	51.0	[41.9,60.0]	152
Malawi DHS 2011	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
	Rural	-	-	39.6	[28.5,50.7]	39.6	[28.5,50.7]	224
Mali AMP 2010	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-
Namibia DHS 2006	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
	Rural	1.5	[-0.2,3.1]	23.8	[14.4,33.2]	6.2	[3.6,8.9]	211
Nigeria MIS 2010	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
	Rural	*	*	15.4	[9.0,21.9]	15.9	[9.4,22.4]	161
Rwanda DHS 2011	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
	Rural	(79.4)	[65.1,93.8]	80.1	[73.4,86.8]	80.0	[73.9,86.0]	148
Senegal DHS 2010	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
	Rural	*	*	33.4	[24.4,42.5]	32.3	[24.1,40.5]	436
Sierra Leone DHS 2008	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
	Rural	*	*	23.0	[16.6,29.4]	22.5	[16.3,28.7]	164
Tanzania DHS 2010	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
	Rural	(49.5)	[28.1,71.0]	46.0	[33.9,58.1]	46.7	[36.0,57.4]	174
Uganda MIS 2008	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
	Rural	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]	43
Zambia DHS 2007	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
	Rural	-	-	27.8	[20.5,35.1]	27.8	[20.5,35.1]	225
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	44.9	[40.3,49.6]	52.8	[49.5,56.2]	50.3	[47.3,53.3]	5,736
DRC DHS 2007	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
	Rural	-	-	47.0	[42.1,51.9]	47.0	[42.1,51.9]	2,326
Ghana DHS 2008	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
	Rural	34.9	[25.7,44.1]	35.5	[33.3,37.8]	35.5	[33.3,37.6]	7,279
Kenya DHS 2008	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
	Rural	73.6	[69.5,77.7]	73.0	[67.9,78.1]	73.4	[70.2,76.6]	4,645
Liberia MIS 2011	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
	Rural	61.1	[53.8,68.5]	62.8	[58.8,66.9]	62.5	[59.0,66.0]	4,575
Madagascar DHS 2008	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
	Rural	78.3	[73.4,83.1]	69.3	[66.7,71.9]	70.7	[68.5,72.9]	6,753
Malawi DHS 2011	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
	Rural	-	-	56.8	[53.9,59.8]	56.8	[53.9,59.8]	10,996
Mali AMP 2010	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
	Rural	*	*	62.2	[57.9,66.4]	62.0	[57.8,66.3]	1,755
Namibia DHS 2006	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
	Rural	21.6	[16.1,27.1]	39.4	[34.4,44.3]	31.7	[28.0,35.5]	1,877
Nigeria MIS 2010	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
	Rural	*	*	42.8	[36.9,48.7]	42.7	[36.8,48.5]	2,838
Rwanda DHS 2011	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
	Rural	67.3	[60.4,74.1]	72.2	[69.3,75.1]	71.2	[68.5,73.9]	6,337
Senegal DHS 2010	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
	Rural	23.3	[14.4,32.3]	46.6	[42.1,51.1]	44.2	[40.1,48.4]	17,094
Sierra Leone DHS 2008	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
	Rural	54.2	[48.9,59.5]	46.7	[44.3,49.1]	46.9	[44.5,49.2]	4,853
Tanzania DHS 2010	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
	Rural	68.2	[61.7,74.7]	73.4	[69.4,77.3]	72.3	[69.0,75.7]	6,698
Uganda MIS 2008	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
	Rural	-	-	56.7	[44.9,68.4]	56.7	[44.9,68.4]	1,383
Zambia DHS 2007	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
	Rural	-	-	40.4	[37.3,43.4]	40.4	[37.3,43.4]	6,217
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	57.2	[51.1,63.3]	62.5	[57.5,67.6]	61.1	[56.9,65.2]	1,213
DRC DHS 2007	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
	Rural	-	-	58.9	[51.8,65.9]	58.9	[51.8,65.9]	442
Ghana DHS 2008	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
	Rural	61.8	[46.1,77.6]	53.1	[48.9,57.3]	53.6	[49.6,57.6]	1,283
Kenya DHS 2008	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
	Rural	85.7	[80.9,90.6]	80.7	[77.8,83.7]	83.8	[80.6,87.0]	734
Liberia MIS 2011	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
	Rural	74.2	[63.1,85.4]	70.8	[65.2,76.3]	71.4	[66.4,76.5]	752
Madagascar DHS 2008	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
	Rural	80.6	[75.0,86.3]	82.1	[79.5,84.8]	81.9	[79.4,84.4]	904
Malawi DHS 2011	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
	Rural	-	-	68.4	[64.1,72.7]	68.4	[64.1,72.7]	1,726
Mali AMP 2010	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
	Rural	*	*	75.4	[69.7,81.1]	75.1	[69.4,80.9]	322
Namibia DHS 2006	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
	Rural	30.6	[20.7,40.5]	57.3	[50.5,64.1]	45.4	[39.2,51.6]	274
Nigeria MIS 2010	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
	Rural	*	*	53.2	[45.5,60.9]	53.1	[45.5,60.7]	553
Rwanda DHS 2011	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
	Rural	75.3	[68.7,81.9]	81.0	[77.6,84.4]	79.9	[76.8,83.0]	974
Senegal DHS 2010	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
	Rural	32.9	[20.1,45.8]	51.8	[45.5,58.0]	50.0	[44.4,55.6]	2,670
Sierra Leone DHS 2008	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
	Rural	*	*	66.4	[61.2,71.6]	66.6	[61.5,71.7]	732
Tanzania DHS 2010	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
	Rural	79.5	[71.9,87.2]	82.4	[77.8,86.9]	81.9	[78.0,85.7]	1,112
Uganda MIS 2008	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
	Rural	-	-	57.8	[47.2,68.3]	57.8	[47.2,68.3]	280
Zambia DHS 2007	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
	Rural	-	-	51.0	[46.1,55.9]	51.0	[46.1,55.9]	985
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	62.9	[45.4,80.4]	68.6	[60.1,77.1]	66.8	[58.3,75.4]	168
DRC DHS 2007	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
	Rural	-	-	68.0	[48.6,87.4]	68.0	[48.6,87.4]	55
Ghana DHS 2008	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
	Rural	*	*	40.0	[24.3,55.7]	41.0	[26.7,55.2]	58
Kenya DHS 2008	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
	Rural	85.4	[74.7,96.0]	80.4	[67.7,93.1]	83.5	[75.2,91.8]	88
Liberia MIS 2011	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
	Rural	*	*	88.9	[79.4,98.4]	87.7	[78.9,96.5]	71
Madagascar DHS 2008	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
	Rural	*	*	80.9	[73.0,88.9]	78.5	[70.1,87.0]	99
Malawi DHS 2011	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
	Rural	-	-	67.6	[55.7,79.6]	67.6	[55.7,79.6]	131
Mali AMP 2010	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-
Namibia DHS 2006	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
	Rural	*	*	(48.2)	[30.9,65.4]	(38.7)	[24.3,53.2]	34
Nigeria MIS 2010	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
	Rural	*	*	38.2	[25.7,50.7]	39.1	[26.6,51.7]	65
Rwanda DHS 2011	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
	Rural	*	*	86.4	[80.9,92.0]	86.6	[81.5,91.6]	136
Senegal DHS 2010	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
	Rural	*	*	56.9	[45.5,68.4]	56.6	[45.8,67.5]	248
Sierra Leone DHS 2008	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
	Rural	*	*	65.8	[54.1,77.6]	65.0	[53.3,76.7]	57
Tanzania DHS 2010	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
	Rural	86.4	[71.3,101.5]	67.6	[55.8,79.3]	70.8	[60.3,81.3]	115
Uganda MIS 2008	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
	Rural	-	-	*	*	*	*	21
Zambia DHS 2007	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
	Rural	-	-	55.8	[45.2,66.4]	55.8	[45.2,66.4]	112
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	20.7	[14.9,26.5]	19.9	[17.6,22.3]	20.0	[17.7,22.2]	14,454
DRC DHS 2007	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
	Rural	1.6	[0.3,2.8]	6.2	[5.0,7.4]	6.0	[4.8,7.2]	18,189
Ghana DHS 2008	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
	Rural	11.7	[6.9,16.4]	14.4	[13.2,15.7]	14.4	[13.2,15.6]	17,932
Kenya DHS 2008	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
	Rural	44.2	[39.3,49.0]	62.2	[56.1,68.2]	46.8	[42.1,51.5]	7,282
Liberia MIS 2011	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
	Rural	39.1	[22.2,56.0]	33.7	[29.4,38.0]	34.2	[30.0,38.5]	8,352
Madagascar DHS 2008	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
	Rural	57.6	[45.7,69.5]	43.7	[40.8,46.6]	44.0	[41.2,46.8]	10,855
Malawi DHS 2011	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
	Rural	-	-	38.1	[35.0,41.3]	38.1	[35.0,41.3]	16,389
Mali AMP 2010	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
	Rural	63.4	[57.3,69.6]	55.3	[50.3,60.3]	55.5	[50.6,60.4]	1,962
Namibia DHS 2006	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
	Rural	2.7	[2.1,3.4]	7.5	[5.2,9.7]	3.8	[3.1,4.5]	15,707
Nigeria MIS 2010	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
	Rural	10.2	[-3.1,23.5]	16.2	[12.1,20.3]	16.0	[12.0,20.0]	7,559
Rwanda DHS 2011	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
	Rural	62.9	[59.4,66.5]	69.5	[61.4,77.7]	63.4	[60.1,66.8]	7,116
Senegal DHS 2010	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
	Rural	19.2	[15.4,23.1]	42.7	[37.6,47.8]	24.9	[21.6,28.2]	30,365
Sierra Leone DHS 2008	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
	Rural	-	-	18.1	[15.6,20.7]	18.1	[15.6,20.7]	12,543
Tanzania DHS 2010	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
	Rural	44.2	[37.8,50.5]	53.5	[48.6,58.4]	50.3	[46.2,54.3]	9,638
Uganda MIS 2008	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
	Rural	-	-	29.9	[24.5,35.3]	29.9	[24.5,35.3]	2,618
Zambia DHS 2007	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
	Rural	17.2	[14.2,20.2]	26.0	[22.7,29.3]	22.4	[20.1,24.7]	11,203
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	29.3	[25.6,33.1]	29.7	[23.5,35.9]	29.5	[26.3,32.6]	2,514
DRC DHS 2007	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
	Rural	5.9	[1.7,10.1]	8.3	[6.1,10.5]	8.0	[6.0,10.1]	3,237
Ghana DHS 2008	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
	Rural	*	*	32.8	[29.8,35.9]	32.6	[29.6,35.6]	2,110
Kenya DHS 2008	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
	Rural	62.3	[56.3,68.2]	62.6	[54.3,70.9]	62.4	[57.6,67.2]	986
Liberia MIS 2011	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
	Rural	38.8	[26.3,51.3]	41.9	[36.1,47.6]	41.7	[36.3,47.0]	1,290
Madagascar DHS 2008	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
	Rural	47.9	[42.9,52.9]	72.0	[66.4,77.6]	57.1	[53.2,61.0]	1,296
Malawi DHS 2011	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
	Rural	47.0	[41.4,52.7]	55.9	[45.9,65.8]	48.4	[43.3,53.5]	2,440
Mali AMP 2010	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
	Rural	(54.5)	[24.8,84.3]	68.2	[61.4,74.9]	67.3	[60.6,74.1]	359
Namibia DHS 2006	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
	Rural	4.4	[2.9,5.9]	16.0	[11.2,20.8]	7.3	[5.6,8.9]	1,712
Nigeria MIS 2010	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
	Rural	*	*	22.2	[16.9,27.6]	22.2	[16.9,27.6]	1,320
Rwanda DHS 2011	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
	Rural	73.6	[69.3,77.9]	78.6	[73.3,83.9]	76.1	[72.6,79.6]	1,023
Senegal DHS 2010	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
	Rural	47.6	[38.7,56.5]	26.7	[22.0,31.5]	30.9	[26.5,35.3]	4,317
Sierra Leone DHS 2008	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
	Rural	31.4	[26.4,36.3]	27.4	[15.4,39.5]	30.3	[25.4,35.2]	1,611
Tanzania DHS 2010	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
	Rural	64.3	[57.0,71.6]	64.2	[58.0,70.4]	64.2	[59.5,68.9]	1,418
Uganda MIS 2008	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
	Rural	*	*	31.8	[23.9,39.8]	32.7	[24.3,41.1]	494
Zambia DHS 2007	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
	Rural	27.7	[23.6,31.8]	42.6	[37.6,47.7]	30.3	[26.6,34.1]	1,656
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	*	*	26.9	[21.2,32.5]	28.2	[22.5,34.0]	398
DRC DHS 2007	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
	Rural	*	*	9.5	[3.8,15.3]	9.4	[3.7,15.0]	400
Ghana DHS 2008	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
	Rural	*	*	16.5	[9.4,23.6]	16.9	[9.9,24.0]	140
Kenya DHS 2008	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
	Rural	51.3	[35.7,66.8]	(48.9)	[40.0,57.8]	50.9	[37.6,64.2]	145
Liberia MIS 2011	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
	Rural	*	*	42.0	[30.3,53.6]	40.8	[30.1,51.6]	152
Madagascar DHS 2008	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
	Rural	*	*	51.3	[42.2,60.3]	51.0	[41.9,60.0]	152
Malawi DHS 2011	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
	Rural	-	-	39.6	[28.5,50.7]	39.6	[28.5,50.7]	224
Mali AMP 2010	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-
Namibia DHS 2006	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
	Rural	(3.6)	[1.7,5.6]	(15.3)	[6.4,24.1]	6.2	[3.6,8.9]	211
Nigeria MIS 2010	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
	Rural	*	*	16.1	[9.5,22.7]	15.9	[9.4,22.4]	161
Rwanda DHS 2011	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
	Rural	80.1	[73.7,86.4]	*	*	80.0	[73.9,86.0]	148
Senegal DHS 2010	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
	Rural	23.5	[14.6,32.5]	60.3	[51.5,69.1]	32.3	[24.1,40.5]	436
Sierra Leone DHS 2008	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
	Rural	-	-	22.5	[16.3,28.7]	22.5	[16.3,28.7]	164
Tanzania DHS 2010	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
	Rural	(46.2)	[28.1,64.3]	46.9	[33.7,60.2]	46.7	[36.0,57.4]	174
Uganda MIS 2008	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
	Rural	-	-	*	*	*	*	43
Zambia DHS 2007	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
	Rural	(20.4)	[8.7,32.1]	33.1	[24.2,42.1]	27.8	[20.5,35.1]	225
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	42.9	[31.7,54.1]	50.9	[47.8,53.9]	50.3	[47.3,53.3]	5,736
DRC DHS 2007	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
	Rural	29.0	[13.1,44.9]	47.3	[42.4,52.3]	47.0	[42.1,51.9]	2,326
Ghana DHS 2008	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
	Rural	41.2	[13.4,69.1]	35.4	[33.3,37.6]	35.5	[33.3,37.6]	7,279
Kenya DHS 2008	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
	Rural	72.9	[69.1,76.7]	75.5	[71.7,79.3]	73.4	[70.2,76.6]	4,645
Liberia MIS 2011	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
	Rural	62.8	[53.4,72.2]	62.5	[58.7,66.3]	62.5	[59.0,66.0]	4,575
Madagascar DHS 2008	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
	Rural	66.3	[56.8,75.8]	70.9	[68.7,73.0]	70.7	[68.5,72.9]	6,753
Malawi DHS 2011	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
	Rural	-	-	56.8	[53.9,59.8]	56.8	[53.9,59.8]	10,996
Mali AMP 2010	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
	Rural	64.5	[59.1,69.8]	62.0	[57.6,66.3]	62.0	[57.8,66.3]	1,755
Namibia DHS 2006	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
	Rural	36.5	[30.7,42.3]	27.3	[21.9,32.6]	31.7	[28.0,35.5]	1,877
Nigeria MIS 2010	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
	Rural	32.4	[32.4,32.4]	42.9	[36.9,48.9]	42.7	[36.8,48.5]	2,838
Rwanda DHS 2011	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
	Rural	71.0	[68.1,73.9]	73.7	[66.3,81.2]	71.2	[68.5,73.9]	6,337
Senegal DHS 2010	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
	Rural	39.9	[34.1,45.7]	52.2	[48.4,56.0]	44.2	[40.1,48.4]	17,094
Sierra Leone DHS 2008	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
	Rural	-	-	46.9	[44.5,49.2]	46.9	[44.5,49.2]	4,853
Tanzania DHS 2010	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
	Rural	66.9	[60.5,73.4]	74.9	[71.5,78.4]	72.3	[69.0,75.7]	6,698
Uganda MIS 2008	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
	Rural	-	-	56.7	[44.9,68.4]	56.7	[44.9,68.4]	1,383
Zambia DHS 2007	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
	Rural	40.8	[23.6,58.1]	42.6	[39.8,45.4]	42.6	[39.8,45.4]	11,308
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	46.2	[38.1,54.4]	62.1	[57.9,66.3]	61.1	[56.9,65.2]	1,213
DRC DHS 2007	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
	Rural	(44.6)	[15.6,73.6]	59.2	[52.1,66.3]	58.9	[51.8,65.9]	442
Ghana DHS 2008	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
	Rural	*	*	53.4	[49.3,57.4]	53.6	[49.6,57.6]	1,283
Kenya DHS 2008	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
	Rural	84.4	[80.5,88.4]	81.5	[77.6,85.4]	83.8	[80.6,87.0]	734
Liberia MIS 2011	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
	Rural	77.3	[62.9,91.8]	70.7	[65.5,76.0]	71.4	[66.4,76.5]	752
Madagascar DHS 2008	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
	Rural	(79.0)	[70.3,87.7]	82.0	[79.5,84.5]	81.9	[79.4,84.4]	904
Malawi DHS 2011	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
	Rural	-	-	68.4	[64.1,72.7]	68.4	[64.1,72.7]	1,726
Mali AMP 2010	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
	Rural	(85.9)	[71.8,100.1]	74.9	[69.1,80.7]	75.1	[69.4,80.9]	322
Namibia DHS 2006	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
	Rural	49.2	[40.5,57.9]	42.0	[32.6,51.5]	45.4	[39.2,51.6]	274
Nigeria MIS 2010	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
	Rural	*	*	53.0	[45.3,60.6]	53.1	[45.5,60.7]	553
Rwanda DHS 2011	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
	Rural	80.3	[77.0,83.5]	75.1	[68.6,81.7]	79.9	[76.8,83.0]	974
Senegal DHS 2010	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
	Rural	44.5	[37.0,52.0]	60.5	[55.7,65.3]	50.0	[44.4,55.6]	2,670
Sierra Leone DHS 2008	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
	Rural	-	-	66.6	[61.5,71.7]	66.6	[61.5,71.7]	732
Tanzania DHS 2010	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
	Rural	75.6	[67.1,84.2]	84.8	[81.7,87.9]	81.9	[78.0,85.7]	1,112
Uganda MIS 2008	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
	Rural	-	-	57.8	[47.2,68.3]	57.8	[47.2,68.3]	280
Zambia DHS 2007	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
	Rural	45.9	[37.6,54.2]	54.0	[48.0,60.0]	51.0	[46.1,55.9]	985
Zimbabwe DHS 2010	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
	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						N
		None/Low (<5%)		Interm/High (5 to 100%)		Total		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Angola MIS 2011	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
	Rural	*	*	65.4	[56.7,74.1]	66.8	[58.3,75.4]	168
DRC DHS 2007	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
	Rural	*	*	67.8	[48.3,87.4]	68.0	[48.6,87.4]	55
Ghana DHS 2008	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
	Rural	*	*	40.6	[25.7,55.4]	41.0	[26.7,55.2]	58
Kenya DHS 2008	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
	Rural	86.3	[77.6,95.0]	(69.9)	[52.1,87.7]	83.5	[75.2,91.8]	88
Liberia MIS 2011	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
	Rural	*	*	87.1	[77.5,96.6]	87.7	[78.9,96.5]	71
Madagascar DHS 2008	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
	Rural	*	*	80.2	[72.6,87.8]	78.5	[70.1,87.0]	99
Malawi DHS 2011	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
	Rural	-	-	67.6	[55.7,79.6]	67.6	[55.7,79.6]	131
Mali AMP 2010	Total	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-
Namibia DHS 2006	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
	Rural	(37.4)	[16.6,58.2]	(39.9)	[19.7,60.2]	(38.7)	[24.3,53.2]	34
Nigeria MIS 2010	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
	Rural	*	*	40.2	[27.4,53.0]	39.1	[26.6,51.7]	65
Rwanda DHS 2011	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
	Rural	86.5	[81.2,91.7]	*	*	86.6	[81.5,91.6]	136
Senegal DHS 2010	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
	Rural	47.4	[32.9,61.9]	74.7	[65.6,83.9]	56.6	[45.8,67.5]	248
Sierra Leone DHS 2008	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
	Rural	-	-	65.0	[53.3,76.7]	65.0	[53.3,76.7]	57
Tanzania DHS 2010	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
	Rural	79.5	[63.5,95.6]	67.5	[54.7,80.3]	70.8	[60.3,81.3]	115
Uganda MIS 2008	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
	Rural	-	-	*	*	*	*	21
Zambia DHS 2007	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
	Rural	(52.3)	[34.4,70.3]	57.5	[44.3,70.7]	55.8	[45.2,66.4]	112
Zimbabwe DHS 2010	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
	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										N	
	None (0%)			Low (<0 to <75%)			High (<=75%)			Total		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate		95% CI
Angola MIS 2011	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]	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]	18.7	[16.1,21.3]	20,977
	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]	20.0	[17.7,22.2]	14,454
DRC DHS 2007	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]	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]	3.4	[2.4,4.3]	24,148
	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]	6.0	[4.8,7.2]	18,189
Ghana DHS 2008	Total	-	-	10.0	[6.1,13.9]	21.2	[20.0,22.3]	20.9	[19.7,22.0]	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]	25.9	[24.2,27.6]	22,951
	Rural	-	-	9.9	[5.6,14.2]	14.7	[13.4,15.9]	14.4	[13.2,15.6]	14.4	[13.2,15.6]	17,932
Kenya DHS 2008	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]	35.6	[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]	32.8	[30.1,35.4]	28,491
	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]	46.8	[42.1,51.5]	7,282
Liberia MIS 2011	Total	-	-	-	-	32.3	[29.6,35.1]	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]	30.5	[27.0,34.1]	8,903
	Rural	-	-	-	-	34.2	[30.0,38.5]	34.2	[30.0,38.5]	34.2	[30.0,38.5]	8,352
Madagascar DHS 2008	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]	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]	36.1	[34.6,37.7]	65,276
	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]	44.0	[41.2,46.8]	10,855
Malawi DHS 2011	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]	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]	27.4	[26.2,28.5]	88,862
	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]	38.1	[35.0,41.3]	16,389
Mali AMP 2010	Total	-	-	53.6	[43.7,63.4]	57.4	[54.3,60.4]	57.1	[54.2,60.1]	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]	57.6	[54.0,61.2]	6,787
	Rural	-	-	47.4	[25.2,69.7]	55.9	[50.9,60.9]	55.5	[50.6,60.4]	55.5	[50.6,60.4]	1,962
Namibia DHS 2006	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]	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]	6.8	[5.9,7.8]	22,251
	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]	3.8	[3.1,4.5]	15,707
Nigeria MIS 2010	Total	-	-	11.6	[4.3,18.8]	23.1	[20.1,26.0]	23.0	[20.0,25.9]	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]	25.5	[21.8,29.2]	20,726
	Rural	-	-	17.7	[17.6,17.8]	16.0	[12.0,20.0]	16.0	[12.0,20.0]	16.0	[12.0,20.0]	7,559
Rwanda DHS 2011	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]	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]	56.9	[55.6,58.2]	45,761
	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]	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
Senegal DHS 2010	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
	Rural	-	-	40.7	[32.1,49.2]	24.0	[20.5,27.5]	24.9	[21.6,28.2]	30,365
Sierra Leone DHS 2008	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
	Rural	-	-	-	-	18.1	[15.6,20.7]	18.1	[15.6,20.7]	12,543
Tanzania DHS 2010	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
	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
Uganda MIS 2008	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
	Rural	-	-	27.1	[27.1,27.1]	30.2	[24.2,36.1]	29.9	[24.5,35.3]	2,618
Zambia DHS 2007	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
	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
Zimbabwe DHS 2010	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
	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										N
	None (0%)			Low (<0 to <75%)			High (<=75%)			Total	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
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]	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]	24.9	[21.4,28.4]	5,071
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]	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]	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]	4.6	[3.1,6.2]	4,798
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]	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]	39.1	[37.1,41.1]	5,443
Urban	-	-	*	*	43.2	[40.5,45.9]	43.2	[40.5,45.9]	43.2	[40.5,45.9]	3,333
Rural	-	-	33.3	[20.2,46.5]	32.6	[29.5,35.7]	32.6	[29.6,35.6]	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]	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]	43.8	[39.9,47.8]	4,583
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]	62.4	[57.6,67.2]	986
Total	-	-	-	-	37.8	[34.5,41.1]	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]	35.2	[31.0,39.3]	1,895
Rural	-	-	-	-	41.7	[36.3,47.0]	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]	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]	45.0	[42.8,47.2]	10,575
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]	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]	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]	38.1	[36.6,39.6]	15,634
Rural	*	*	57.7	[52.4,63.0]	44.8	[38.5,51.1]	48.4	[43.3,53.5]	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]	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]	73.4	[68.6,78.2]	1,508
Rural	-	-	54.5	[24.8,84.3]	68.2	[61.4,74.9]	67.3	[60.6,74.1]	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]	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]	12.4	[10.6,14.2]	3,265
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]	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]	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]	30.8	[25.9,35.7]	4,490
Rural	-	-	(25.5)	[24.3,26.7]	22.2	[16.8,27.6]	22.2	[16.9,27.6]	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]	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]	68.9	[67.4,70.5]	7,588
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]	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
Senegal DHS 2010	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
	Rural	-	-	52.1	[42.5,61.7]		29.7	[25.1,34.2]		30.9	[26.5,35.3]	4,317
Sierra Leone DHS 2008	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
	Rural	-	-	-	-		30.3	[25.4,35.2]		30.3	[25.4,35.2]	1,611
Tanzania DHS 2010	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
	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
Uganda MIS 2008	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
	Rural	-	-	57.1	[57.1,57.1]		31.8	[23.9,39.8]		32.7	[24.3,41.1]	494
Zambia DHS 2007	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
	Rural	*	*	36.6	[29.6,43.6]		28.7	[24.5,32.9]		30.3	[26.6,34.1]	1,656
Zimbabwe DHS 2010	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
	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										N	
	None (0%)			Low (<0 to <75%)			High (<=75%)			Total		
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI		
Angola MIS 2011	Total	*	[21.8,33.8]	27.8	[19.5,28.2]	23.8	[18.7,28.3]	25.9	[22.2,29.7]	25.9	[22.2,29.7]	1,281
	Urban	-	[17.3,37.2]	27.2	[17.3,37.2]	23.5	[18.7,28.3]	24.9	[20.0,29.8]	24.9	[20.0,29.8]	883
	Rural	*	[21.7,35.2]	28.5	[21.7,35.2]	26.5	[17.8,35.1]	28.2	[22.5,34.0]	28.2	[22.5,34.0]	398
DRC DHS 2007	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]	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]	6.3	[3.0,9.6]	638
	Rural	*	[-1.0,9.4]	4.2	[-1.0,9.4]	10.1	[3.8,16.4]	9.4	[3.7,15.0]	9.4	[3.7,15.0]	400
Ghana DHS 2008	Total	-	*	*	*	27.7	[22.6,32.8]	27.0	[21.9,32.0]	27.0	[21.9,32.0]	340
	Urban	-	*	*	*	34.1	[27.3,41.0]	34.0	[27.2,40.8]	34.0	[27.2,40.8]	200
	Rural	-	*	*	*	18.0	[10.6,25.3]	16.9	[9.9,24.0]	16.9	[9.9,24.0]	140
Kenya DHS 2008	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]	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]	47.9	[39.6,56.2]	429
	Rural	*	*	54.1	[41.4,66.9]	54.7	[47.8,61.6]	50.9	[37.6,64.2]	50.9	[37.6,64.2]	145
Liberia MIS 2011	Total	-	-	-	-	39.8	[33.5,46.0]	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]	39.0	[31.5,46.4]	199
	Rural	-	-	-	-	40.8	[30.1,51.6]	40.8	[30.1,51.6]	40.8	[30.1,51.6]	152
Madagascar DHS 2008	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]	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]	46.3	[42.4,50.2]	1,203
	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]	51.0	[41.9,60.0]	152
Malawi DHS 2011	Total	*	*	35.9	[30.0,41.8]	34.1	[31.1,37.1]	34.6	[31.9,37.2]	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]	33.9	[31.3,36.6]	1,739
	Rural	*	*	43.2	[28.0,58.5]	37.5	[22.9,52.1]	39.6	[28.5,50.7]	39.6	[28.5,50.7]	224
Mali AMP 2010	Total	-	-	-	-	-	-	-	-	-	-	-
	Urban	-	-	-	-	-	-	-	-	-	-	-
	Rural	-	-	-	-	-	-	-	-	-	-	-
Namibia DHS 2006	Total	*	*	7.0	[4.0,10.1]	26.4	[16.3,36.5]	9.0	[6.3,11.7]	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]	10.9	[6.7,15.1]	296
	Rural	*	*	6.8	[3.7,10.0]	14.0	[-1.0,29.1]	6.2	[3.6,8.9]	6.2	[3.6,8.9]	211
Nigeria MIS 2010	Total	*	*	-	-	33.4	[26.9,40.0]	33.2	[26.7,39.7]	33.2	[26.7,39.7]	709
	Urban	*	*	-	-	38.7	[30.6,46.7]	38.3	[30.3,46.3]	38.3	[30.3,46.3]	548
	Rural	-	-	-	-	15.9	[9.4,22.4]	15.9	[9.4,22.4]	15.9	[9.4,22.4]	161
Rwanda DHS 2011	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]	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]	70.8	[67.4,74.1]	784
	Rural	*	*	82.2	[75.1,89.3]	73.3	[57.8,88.7]	80.0	[73.9,86.0]	80.0	[73.9,86.0]	148

(Continued...)

Table B30. – Continued

	Suitability									
	None (0%)		Low (<0 to <75%)		High (<=75%)		Total			N
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	
	-	-	56.0	[40.5,71.5]	35.2	[30.8,39.7]	36.1	[31.8,40.4]		1,148
Senegal DHS 2010	-	-	55.9	[47.2,64.6]	37.8	[33.2,42.5]	38.4	[33.9,42.9]		712
	-	-	*	*	30.9	[22.5,39.3]	32.3	[24.1,40.5]		436
	*	*	-	-	27.6	[23.2,32.1]	27.7	[23.2,32.1]		589
	*	*	-	-	29.6	[23.9,35.3]	29.7	[24.0,35.3]		425
Sierra Leone DHS 2008	-	-	-	-	22.5	[16.3,28.7]	22.5	[16.3,28.7]		164
	(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
	(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	*	*	*	*	46.9	[34.0,59.7]	46.7	[36.0,57.4]		174
	*	*	35.0	[20.4,49.7]	46.6	[39.1,54.2]	43.5	[36.1,50.9]		395
	*	*	35.0	[20.4,49.7]	47.0	[38.4,55.5]	43.4	[35.2,51.6]		352
Uganda MIS 2008	-	-	-	-	(44.6)	[32.8,56.3]	(44.6)	[32.8,56.3]		43
	*	*	29.4	[18.9,39.8]	33.3	[29.1,37.6]	32.8	[28.9,36.8]		725
	*	*	27.5	[14.0,41.0]	36.1	[31.1,41.2]	35.1	[30.4,39.8]		500
Zambia DHS 2007	-	-	32.1	[16.2,48.1]	26.7	[18.6,34.8]	27.8	[20.5,35.1]		225
	*	*	7.8	[4.4,11.1]	10.6	[7.1,14.1]	9.1	[6.7,11.6]		705
	-	-	10.5	[5.1,15.9]	9.9	[6.1,13.7]	10.0	[6.9,13.1]		471
Zimbabwe DHS 2010	-	-	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										N
	None (0%)			Low (<0 to <75%)			High (<=75%)			Total	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
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]	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]	54.6	[52.2,57.1]	7,182
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]	50.3	[47.3,53.3]	5,736
Angola MIS 2011	(43.6)	[31.6,55.7]	51.2	[40.4,62.1]	44.0	[39.7,48.2]	44.4	[40.4,48.4]	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]	41.4	[34.9,47.8]	1,969
Rural	*	*	52.9	[40.2,65.6]	46.5	[41.2,51.7]	47.0	[42.1,51.9]	47.0	[42.1,51.9]	2,326
DRC DHS 2007	-	-	26.2	[18.7,33.7]	43.5	[41.9,45.2]	43.2	[41.6,44.8]	43.2	[41.6,44.8]	19,756
Total	-	-	19.0	[19.0,19.0]	47.8	[45.6,49.9]	47.6	[45.5,49.8]	47.6	[45.5,49.8]	12,477
Urban	-	-	27.2	[18.9,35.6]	35.9	[33.7,38.1]	35.5	[33.3,37.6]	35.5	[33.3,37.6]	7,279
Rural	56.2	[48.9,63.6]	58.4	[55.5,61.3]	61.2	[57.9,64.5]	58.7	[56.6,60.9]	58.7	[56.6,60.9]	21,695
Total	51.0	[41.7,60.3]	54.8	[51.6,58.0]	56.7	[52.8,60.7]	54.7	[52.3,57.2]	54.7	[52.3,57.2]	17,050
Urban	69.9	[59.8,80.1]	74.4	[70.8,77.9]	73.5	[67.1,80.0]	73.4	[70.2,76.6]	73.4	[70.2,76.6]	4,645
Rural	-	-	-	-	61.4	[59.0,63.8]	61.4	[59.0,63.8]	61.4	[59.0,63.8]	9,086
Total	-	-	-	-	60.3	[57.0,63.5]	60.3	[57.0,63.5]	60.3	[57.0,63.5]	4,511
Urban	-	-	-	-	62.5	[59.0,66.0]	62.5	[59.0,66.0]	62.5	[59.0,66.0]	4,575
Rural	72.7	[66.8,78.5]	52.4	[48.6,56.3]	65.4	[63.8,67.0]	63.2	[61.8,64.5]	63.2	[61.8,64.5]	44,896
Total	67.2	[52.0,82.3]	48.3	[43.2,53.3]	64.4	[62.8,66.1]	61.8	[60.3,63.4]	61.8	[60.3,63.4]	38,143
Urban	75.5	[70.9,80.1]	63.8	[59.9,67.7]	73.9	[70.5,77.4]	70.7	[68.5,72.9]	70.7	[68.5,72.9]	6,753
Rural	47.0	[35.3,58.6]	50.9	[48.5,53.2]	47.7	[46.4,49.1]	48.5	[47.4,49.7]	48.5	[47.4,49.7]	62,996
Total	45.9	[33.9,57.9]	48.4	[45.7,51.1]	46.3	[44.8,47.7]	46.8	[45.5,48.0]	46.8	[45.5,48.0]	52,000
Urban	79.4	[79.4,79.4]	59.7	[55.3,64.1]	55.5	[51.8,59.2]	56.8	[53.9,59.8]	56.8	[53.9,59.8]	10,996
Rural	-	-	65.6	[58.2,72.9]	63.6	[61.1,66.2]	63.7	[61.3,66.2]	63.7	[61.3,66.2]	7,844
Total	-	-	65.8	[57.1,74.4]	64.1	[61.0,67.2]	64.2	[61.3,67.1]	64.2	[61.3,67.1]	6,090
Urban	-	-	64.5	[54.3,74.6]	61.9	[57.5,66.3]	62.0	[57.8,66.3]	62.0	[57.8,66.3]	1,755
Rural	13.1	[5.9,20.4]	20.2	[17.6,22.7]	36.1	[31.9,40.3]	23.1	[21.1,25.0]	23.1	[21.1,25.0]	9,188
Total	9.2	[3.1,15.3]	16.5	[13.5,19.5]	40.0	[34.9,45.1]	20.8	[18.6,23.1]	20.8	[18.6,23.1]	7,312
Urban	21.7	[10.7,32.8]	36.1	[31.0,41.2]	23.6	[18.0,29.2]	31.7	[28.0,35.5]	31.7	[28.0,35.5]	1,877
Rural	-	-	43.0	[20.5,65.5]	49.9	[47.0,52.8]	49.9	[47.0,52.8]	49.9	[47.0,52.8]	13,027
Total	-	-	(43.0)	[3.7,82.3]	51.9	[48.6,55.2]	51.9	[48.5,55.2]	51.9	[48.5,55.2]	10,190
Urban	-	-	43.0	[42.5,43.6]	42.6	[36.7,48.6]	42.7	[36.8,48.5]	42.7	[36.8,48.5]	2,838
Rural	62.0	[59.8,64.2]	69.8	[68.5,71.1]	67.6	[64.0,71.1]	67.5	[66.5,68.5]	67.5	[66.5,68.5]	45,234
Total	61.7	[59.4,64.0]	69.5	[68.1,70.9]	65.3	[61.3,69.2]	66.9	[65.8,68.0]	66.9	[65.8,68.0]	38,897
Urban	66.5	[56.5,76.5]	71.7	[68.5,74.8]	72.2	[66.6,77.7]	71.2	[68.5,73.9]	71.2	[68.5,73.9]	6,337
Rural											

(Continued...)

Table B31. – Continued

		Suitability								
		None (0%)		Low (<0 to <75%)		High (<=75%)		Total		
		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
	Rural	-	-	54.8	[50.8,58.8]	43.4	[39.0,47.9]	44.2	[40.1,48.4]	17,094
Senegal DHS 2010	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
	Rural	-	-	-	-	46.9	[44.5,49.2]	46.9	[44.5,49.2]	4,853
Sierra Leone DHS 2008	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
	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
Tanzania DHS 2010	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
	Rural	-	-	(88.5)	[88.5,88.5]	55.2	[43.7,66.6]	56.7	[44.9,68.4]	1,383
Uganda MIS 2008	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
	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
Zambia DHS 2007	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
	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										N
	None (0%)			Low (<0 to <75%)			High (<=75%)			Total	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
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]	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]	63.3	[60.1,66.5]	1,995
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]	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]	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]	50.6	[40.2,60.9]	439
Rural	*	*	59.7	[44.0,75.5]	58.8	[51.1,66.4]	58.9	[51.8,65.9]	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]	58.3	[55.9,60.7]	3,649
Urban	-	-	*	*	60.9	[57.7,64.0]	60.8	[57.7,64.0]	60.8	[57.7,64.0]	2,366
Rural	-	-	59.0	[40.9,77.2]	53.3	[49.2,57.5]	53.6	[49.6,57.6]	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]	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]	65.7	[62.5,68.8]	3,059
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]	83.8	[80.6,87.0]	734
Total	-	-	-	-	69.1	[65.9,72.3]	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]	67.3	[63.1,71.5]	991
Rural	-	-	-	-	71.4	[66.4,76.5]	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]	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]	70.5	[68.5,72.5]	6,754
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]	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]	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]	57.6	[56.0,59.2]	10,344
Rural	*	*	74.7	[68.6,80.7]	65.7	[60.2,71.2]	68.4	[64.1,72.7]	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]	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]	79.0	[74.5,83.4]	1,402
Rural	-	-	77.3	[65.6,89.0]	75.0	[69.1,81.0]	75.1	[69.4,80.9]	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]	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]	31.9	[28.0,35.7]	1,272
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]	45.4	[39.2,51.6]	274
Total	-	-	*	*	58.7	[54.9,62.6]	58.7	[54.8,62.5]	58.7	[54.8,62.5]	2,859
Urban	-	-	*	*	60.1	[55.6,64.5]	60.0	[55.6,64.4]	60.0	[55.6,64.4]	2,307
Rural	-	-	*	*	53.0	[45.3,60.7]	53.1	[45.5,60.7]	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]	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]	74.7	[73.3,76.1]	7,005
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]	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	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
	Rural	-	-	67.6	[61.1,74.1]	48.7	[42.8,54.6]	50.0	[44.4,55.6]	2,670
Senegal DHS 2010	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
	Rural	-	-	-	-	66.6	[61.5,71.7]	66.6	[61.5,71.7]	732
Sierra Leone DHS 2008	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
	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
Tanzania DHS 2010	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
	Rural	-	-	*	*	56.3	[46.5,66.0]	57.8	[47.2,68.3]	280
Uganda MIS 2008	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
	Rural	*	*	63.2	[56.8,69.6]	48.2	[42.7,53.6]	51.0	[46.1,55.9]	985
Zambia DHS 2007	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
	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							N		
	None (0%)		Low (<0 to <75%)		High (<=75%)		Total			
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate		95% CI	
Angola MIS 2011	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	
	Rural	*	66.3	[56.3,76.2]	(69.1)	[56.8,81.3]	66.8	[58.3,75.4]	168	
DRC DHS 2007	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	
	Rural	-	*	*	72.5	[53.2,91.8]	68.0	[48.6,87.4]	55	
Ghana DHS 2008	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	
	Rural	-	-	-	41.0	[26.7,55.2]	41.0	[26.7,55.2]	58	
Kenya DHS 2008	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
	Rural	*	*	84.8	[73.2,96.5]	(76.3)	[62.4,90.1]	83.5	[75.2,91.8]	88
Liberia MIS 2011	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	
	Rural	-	-	-	87.7	[78.9,96.5]	87.7	[78.9,96.5]	71	
Madagascar DHS 2008	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
	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
Malawi DHS 2011	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
	Rural	*	*	71.0	[51.0,91.1]	65.7	[50.9,80.5]	67.6	[55.7,79.6]	131
Mali AMP 2010	Total	-	-	-	-	-	-	-	-	
	Urban	-	-	-	-	-	-	-	-	
	Rural	-	-	-	-	-	-	-	-	
Namibia DHS 2006	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
	Rural	*	*	(44.4)	[27.5,61.4]	*	*	38.7	[24.3,53.2]	34
Nigeria MIS 2010	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
	Rural	-	-	-	-	39.1	[26.6,51.7]	39.1	[26.6,51.7]	65
Rwanda DHS 2011	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
	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	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	N
Senegal DHS 2010	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
	Rural	-	*	*	55.6	[44.1,67.0]	56.6	[45.8,67.5]	248
Sierra Leone DHS 2008	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
	Rural	-	-	-	65.0	[53.3,76.7]	65.0	[53.3,76.7]	57
Tanzania DHS 2010	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
	Rural	*	77.2	[59.6,94.7]	70.6	[58.4,82.7]	70.8	[60.3,81.3]	115
Uganda MIS 2008	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
	Rural	-	-	-	*	*	*	*	21
Zambia DHS 2007	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
	Rural	-	(61.1)	[38.4,83.8]	54.3	[42.7,66.0]	55.8	[45.2,66.4]	112
Zimbabwe DHS 2010	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
	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					1.04	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			1.03	0.62,1.71			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					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			3.25***	2.01,5.26			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	1.30***	1.14,1.49
Poorer									1.15**	1.04,1.28	1.15**	1.04,1.28
Middle									1.20***	1.08,1.34	1.20***	1.08,1.34
Richer									1.13*	1.01,1.27	1.13*	1.01,1.27
Richest									0.98	0.86,1.12	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									1.28	0.83,1.99	1.31	0.84,2.03
Total ITN in household			2.03**	1.26,3.28	2.05*	1.17,3.60	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	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									2.94***	1.84,4.69	2.83***	1.65,4.85
Total ITN in household			5.35***	3.75,7.64	5.51***	3.31,9.18	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	2.23***	1.62,3.07
Poorer									0.70*	0.52,0.96	0.70*	0.52,0.96
Middle									0.58**	0.40,0.84	0.58**	0.40,0.84
Richer									0.62*	0.41,0.95	0.62*	0.41,0.95
Richest									0.22***	0.13,0.36	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	1.00	1.00,1.00	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
Total ITN in household			1.00	1.00,1.00			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	3.06***	2.11,4.43	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					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	0.72***	0.69,0.74
Pregnant							2.20***	1.75,2.78	2.20***	1.75,2.78	2.18***	1.73,2.75
Child < 5							1.84***	1.65,2.06	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	2.83***	1.55,5.15	2.90***	1.58,5.32
Child < 5							2.10***	1.73,2.53	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	0.81***	0.79,0.83	0.78***	0.76,0.80
Pregnant							1.67**	1.19,2.34	1.67**	1.19,2.34	1.62**	1.15,2.27
Child < 5							2.34***	2.14,2.55	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	2.28***	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	0.75***	0.73,0.77	0.76***	0.74,0.78
Pregnant					2.66***	1.95,3.63	2.66***	1.95,3.63	2.66***	1.95,3.63	2.65***	1.94,3.62
Child < 5					2.13***	1.90,2.39	2.13***	1.90,2.39	2.13***	1.90,2.39	2.14***	1.91,2.39
Rural					1.56***	1.26,1.93	1.56***	1.26,1.93	1.56***	1.26,1.93	1.56***	1.26,1.93
Poorer					0.82*	0.68,0.97	0.82*	0.68,0.97	0.82*	0.68,0.97	0.82*	0.68,0.97
Middle					0.99	0.82,1.19	0.99	0.82,1.19	0.99	0.82,1.19	0.99	0.82,1.19
Richer					0.86	0.70,1.05	0.86	0.70,1.05	0.86	0.70,1.05	0.86	0.70,1.05
Richest					0.96	0.74,1.24	0.96	0.74,1.24	0.96	0.74,1.24	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	2.09***	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	0.80***	0.78,0.82	0.79***	0.77,0.81	0.80***	0.77,0.82
Pregnant					2.53***	1.66,3.84	2.53***	1.66,3.84	2.49***	1.66,3.84	2.49***	1.64,3.78
Child < 5					1.80***	1.57,2.08	1.80***	1.57,2.08	1.80***	1.57,2.08	1.77***	1.54,2.04
Rural					1.26	0.96,1.66	1.26	0.96,1.66	1.26	0.96,1.66	1.26	0.96,1.66
Poorer					0.92	0.73,1.16	0.92	0.73,1.16	0.92	0.73,1.16	0.92	0.73,1.16
Middle					0.91	0.69,1.20	0.91	0.69,1.20	0.91	0.69,1.20	0.91	0.69,1.20
Richer					1.04	0.73,1.50	1.04	0.73,1.50	1.04	0.73,1.50	1.04	0.73,1.50
Richest					0.56**	0.39,0.80	0.56**	0.39,0.80	0.56**	0.39,0.80	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	2.66***	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	0.72***	0.71,0.74
Pregnant					1.96***	1.59,2.42	1.96***	1.59,2.42	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	1.91***	1.77,2.07	1.91***	1.77,2.07
Rural					1.40***	1.16,1.69	1.40***	1.16,1.69	1.40***	1.16,1.69	1.40***	1.16,1.69
Poorer					1.16*	1.03,1.31	1.16*	1.03,1.31	1.16*	1.03,1.31	1.16*	1.03,1.31
Middle					1.10	0.96,1.24	1.10	0.96,1.24	1.10	0.96,1.24	1.10	0.96,1.24
Richer					0.99	0.84,1.15	0.99	0.84,1.15	0.99	0.84,1.15	0.99	0.84,1.15
Richest					0.86	0.68,1.07	0.86	0.68,1.07	0.86	0.68,1.07	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	2.06***	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	0.78***	0.77,0.80	0.79***	0.77,0.80
Pregnant					1.45***	1.23,1.71	1.45***	1.23,1.71	1.45***	1.23,1.71	1.48***	1.26,1.74
Child < 5					1.92***	1.83,2.02	1.92***	1.83,2.02	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					1.17	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			1.12	0.79,1.58			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					1.32	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			1.08	0.78,1.49			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	2.12***	1.93,2.32	2.06***	1.90,2.23
Total household members					0.82***	0.80,0.84	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	1.92***	1.41,2.63	1.92***	1.41,2.63	1.93***	1.42,2.63
Child < 5					1.85***	1.64,2.09	1.85***	1.64,2.09	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	2.04***	1.69,2.46
Child < 5							1.69***	1.59,1.79	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	1.40***	1.18,1.68	1.44***	1.21,1.72
Child < 5							1.41***	1.33,1.49	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	2.31***	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***	0.79,0.83	0.81***	0.79,0.82	0.81***	0.79,0.83
Pregnant					2.79***	1.98,3.95	2.79***	1.98,3.95	2.79***	1.98,3.95	2.71***	1.92,3.83
Child < 5					1.92***	1.69,2.18	1.92***	1.69,2.18	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	2.50***	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	2.04***	1.63,2.55	2.08***	1.66,2.61
Child < 5							2.50***	2.27,2.76	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	3.66***	2.32,5.77	3.67***	2.33,5.78
Child < 5							1.76***	1.52,2.02	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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