

Monitoring and Evaluation of the Tanzanian National Net Strategy

Under-five catch Up campaign and
fixed top-up Voucher

Household and Health facility surveys

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Executive Summary

This report provides results from household and health facility surveys that were conducted in Nachingwea, Mtwara Urban (Southern zone), Sengerema, Rorya and Chato (Lake zone). At the time the surveys were carried out, distribution of free LLINs to children under five years of age had been implemented in all the districts (about a year earlier) and the keep up approach through issuing of upgraded fixed top-up vouchers was ongoing. The surveys were conducted in July and August 2010.

The survey addressed four main objectives:

1. To assess the impact of U5CC and upgraded-fixed top-up vouchers in household ITN ownership in the Southern and Lake zones
2. To assess the impact of the U5CC and upgraded fixed top-up vouchers on ITN coverage of children under 5 years in the Southern and Lake zones
3. To assess the coverage and redemption of the upgraded fixed top-up vouchers for ITN among pregnant women and children < 1 year in the Southern and Lake zones
4. To assess the impact of the U5CC and upgraded fixed top-up vouchers on ITN coverage of pregnant women in the Southern and Lake zones

A total of 889 households were surveyed in the Lake zone and 591 in the Southern zone. Surveyed health facilities were 27 in the Lake zone and 17 in the Southern zone.

Household ITN ownership

Definitions of ITN used in the NATNETS household surveys in 2008 were adopted; ITNs included recently treated nets with conventional insecticide and nets with long lasting treatment. Long lasting insecticidal nets (LLINs) are a subset of ITN.

Estimates of household ownership of ITN (at least one) in the Lake and Southern zones were 81% and 60% respectively. In both zones the estimates were only slightly lower than those produced from the 2009 survey (82% and 61% in the Lake and Southern zones respectively). However, percentage of households with specific number of nets showed a shift from the 2009 where the concentration was in the higher numbers to lower numbers in 2010. In the Lake zone percent of households owning only one net increased from 24% to 30% while in the Southern zone 39% of households owned one net in 2009 and 51% in 2010. Households owning at least three nets decreased from 53% in 2009 to 41% in 2010 in the Lake zone and from 34% to 24% in the Southern zone.

Ownership of ITNs was much higher in households with at least one child under-five compared to the general population. In such households, ITN coverage was 92% in the Lake zone and 79% in the Southern zone. These estimates were slightly lower than those reported in the 2009 survey where coverage in the Lake zone was 95% and 85% in the Southern zone. The observed drop is not unexpected. Similar to the 2009 survey, household ownership estimates were fairly equitable across SES quintiles, 80% and 74% of the poorest and the least poor households respectively, had at least one ITN

in the Southern zone (equity ratio=1.1). Likewise, in the Lake zone 91% and 96% of the poorest and the least poor households respectively, had at least one ITN (equity ratio=0.9)

ITN use in children

Similar to the U5CC household survey, point estimates of personal ITN use were derived from the question to the head of household about sleeping under ITN in the night preceding the survey. Of the children under-five included in the survey 71% in the Lake zone and 56 % in the Southern zone slept under ITN. These estimates were slightly higher compared to the 2009 estimates (62% in the Lake zone and 48% in the Southern zone). Estimates for use of LLIN by children under-five were higher in the Lake zone (62%) compared to the Southern zone where only 41% of such children slept under LLIN. These estimates are slightly higher than those derived from the 2009 survey (55% and 34% in the Lake and Southern zones respectively). In comparison to the 2009 coverage estimates, there was an improvement in the equity achievement in the Southern zone. While only 24% of the children in the poorest households slept under ITN, in 2010 they were 43% - thus equity ratio increased from 0.4 to 0.7. In the Lake zone a much higher proportion of the children in the poorest households slept under ITN (76%).

ITN use by Women of child bearing age (15-49)

Coverage of ITN use among women of child bearing age (15-49) was slightly higher compared to the 2009 estimates. In the Lake zone 50% and 62% of the women were reported to have slept under ITN in the night preceding the survey in 2009 and 2010 respectively. An increase of a similar magnitude was also observed in the Southern zone (35% in 2009 and 47% in 2010).

ITN use by pregnant women

At the time of the currently reported survey, 17% and 7% of the interviewed women (15-49) in the Lake and Southern zones respectively were pregnant. Of those women, 64% in the Lake zone and 55% in the Southern zone slept under ITN in the night preceding the survey. However, due to the small numbers caution is needed in interpreting results.

ITN use by all household members

Similar to the 2009 survey, findings show that the U5CC and ITNS acquired through vouchers benefit not only the targeted groups but other household members as well. Coverage of ITN use among the household members was 57% in the Lake zone and 38% in the Southern zone. In both zones a substantial increase was observed compared to the 2009 estimates (46% in the Lake zone and 30% in the Southern zone).

Fixed top-up vouchers

Following the distribution of free LLINs to children under-five years of age, access to discounted ITNs by use of a voucher is maintained as a “keep up strategy”. At the time of the currently reported survey, the

upgraded fixed top-up voucher had been operational for about 8 months in the two zones. Among the interviewed currently pregnant women (in the household), 49% in the Lake zone and 58% in the Southern zone had visited ANC clinic at least once. Of those 38% in the Lake zone and 53% in the Southern zone had received a voucher and at the time of the interview 59% and 79% in the Lake and Southern zones respectively, had used the voucher to buy a net.

Women who have had a live birth within the last two years were also asked about receipt and use of the voucher. Of such women, 97% and 100% in the Lake and Southern zones respectively attended ANC clinic at least once during pregnancy and 45% and 71% received a voucher in the Lake and Southern zones respectively. In the Lake zone 31% of the received vouchers were the upgraded fixed top-up and 32% in the Southern zone. Proportions of exchange of vouchers for a net by women who were pregnant in the recent past, suggest that, the upgraded fixed top-up vouchers were exchanged at higher rate than the initial vouchers in the Southern zone (77% Vs 52%) but no such suggestive findings in the Lake zone (69% Vs.68%).

Care givers to infants were also asked about infant vouchers. Of the 212 infants in the Lake zone, 88% had been taken to RCH clinic at least once and 91% in the Southern zone. Among those, 28% in the Lake and 48% Southern zones respectively, had received a voucher. Sixty two percent in the Lake zone and 63% in the Southern zone had used the voucher to buy a net. The exchange rates were higher than the 2008 national average of 49%. For those who had not exchanged their vouchers, the most common reason for failure to access a net was "lack of money". These findings indicate that there is still a small proportion of people that cannot pay the fixed amount of TZS 500. Of those who had exchanged the upgraded voucher for a net, all reported to have paid a top-up of TZS 500

Health facility indicators

Assessment of voucher stocks in health facilities indicated that only 15 (54%) in the Lake zone and 13 (77%) in the Southern zone had pregnant women vouchers in stock. About the same proportion of health facilities in the Lake zone (54%) and far fewer in the Southern zone (29%) had had stocks of infant vouchers. Few RCH service providers had correct knowledge about when to place orders for new supplies of the vouchers (21% in the Lake zone and 53% in the Southern zone). All interviewed RCH service providers knew that the top-up amount for the upgraded vouchers is TZS 500.

Timing of ANC

Among few questions asked to the currently pregnant women at ANC clinics was the pregnancy age at first visit to the ANC clinic. In the Southern zone the mean age at first ANC visit was 21 weeks in the Lake zone and 17 weeks in the Southern zone. The same question was asked to the currently pregnant women in the households and results were fully consistent with those at ANC clinic (21 weeks in the Lake zone and 17 weeks in the Southern).

Context

Two major contextual factors need to be considered in interpreting the ITN use indicators.

1. The new voucher had been operational in less than a year, therefore its impact on ownership of nets was still less substantial.
2. The survey was conducted in the dry season in both zones (July/August)

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Background

With support from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and the United States “Presidents Malaria Initiative”, the National Malaria Control Programme (NMCP) defined a national ITN strategy between 2004-2008 which provided subsidized nets targeted at vulnerable groups through discounted vouchers issued at antenatal clinics. The voucher could be used as part of payment for ITN from appointed retailers.

In order to accelerate coverage and address the equity gap, in 2009 the National Malaria Control Programme diversified the strategy to include distribution of free long lasting insecticidal nets (LLIN) to children under -five (U5CC), delivery of high-value (fixed-top up) vouchers to pregnant women and infants and Universal Coverage Campaign (UCC) that aims at distributing long-lasting insecticidal nets to households with sleeping places that are not currently covered by LLIN.

Following revision of NMCP M&E framework as well as diversification of ITN strategies in 2009, IHI has been conducting a series of household surveys at sub-national level. Each survey follows implementation of each of the ITN delivery strategies. The first survey in that series evaluated the U5CC followed by a second one that assessed the impact of the upgraded fixed top-up vouchers on ITN coverage. This report is third in the series, it presents findings from a household and RCH facility survey conducted in the Southern and Lake zones to provide ITN coverage and upgraded fixed top-up voucher indicators for pregnant women and infants after implementation of the U5CC and launching of the upgraded fixed top-up voucher. Where appropriate, comparisons of the coverage indicators estimated soon after completion of the U5CC are included for comparison.

The upgraded fixed top-up voucher

The *Hati Punguzo* pregnancy and infant **fixed top-up** vouchers have been replaced with *Hati Punguzo* **fixed top-up** vouchers. This shift attempted to address, in part, previous findings that (1) the amount required to be added to the original voucher was increasing year on year as retail net prices increased, and (2) the most common reason for not using a voucher was reported to be a lack of money. The new upgraded vouchers can be used to purchase a longer lasting insecticide treated net with a fixed top-up payment of TZS 500/-. The change from fixed value to fixed top-up took place on a rolling basis across mainland Tanzania 2009-10. Issuing of the upgraded fixed-value vouchers started in the late October 2009 in the Southern zone and early November in the Lake zone.

Objectives

1. To assess the impact of U5CC and upgraded fixed top-up vouchers in household ITN ownership in the Lake and Southern zones.
2. To assess the impact of the U5CC and upgraded fixed top-up vouchers on ITN coverage of children under 5 years in the Lake and Southern zones
3. To assess the coverage and redemption of the upgraded fixed top-up vouchers for ITN among pregnant women and children < 1 year in the Lake and Southern zones
4. To assess the impact of the U5CC and upgraded fixed top-up vouchers on ITN coverage of pregnant women in the Lake and Southern zones

Methodology

Study site

The survey was carried out in five of the 24 districts selected in 2008 for the NATNETS baseline survey. These included two districts from the Southern zone (Mtwara Urban in Mtwara and Nachingwea in Lindi) and three from the Lake zone (Chato in Kagera, Sengerema in Mwanza and Rorya in Mara). These are the same districts that were assessed for the coverage of the U5CC free net campaign and would therefore allow comparison of the combined effect to that of free net distribution only.

Timing

The household and health facility survey to evaluate the impact of combined U5CC and upgraded voucher was conducted in July and August 2010. The shift to upgraded vouchers commenced in the late October/early November 2009 in all the five study districts. The upgraded vouchers had therefore been in circulation for about 8 months at the time of the survey.

Sampling and sample size

Two zones (Southern and Lake) and later the Coastal zone are clearly marked in NMCP M&E as zones that would be sampled for the sub-national NATNETS surveys. The two zones were deliberately covered first in the U5CC and introduction of the upgraded fixed top-up vouchers being the zones with the highest prevalence of malaria. Similar to the U5CC survey all the districts that were included in the 2008 household survey sample in the Southern zone were included in the survey, while in the lake zone, 3 out of 4 districts were purposively selected. Sampling scheme was adopted from the previous national TNVS household surveys where each household within the chosen district had an equal chance of being included in the sample. Sampling within the district started with selecting clusters (villages) with probability proportional to the size of the village. Within each chosen village, one sub-village (kitongoji) was selected using simple random sampling (by drawing lots). Within each selected kitongoji, 30 households were chosen using a modified EPI-type sampling procedure. From each district 10 clusters were chosen and from each cluster 30 households were chosen, thus 300 hundred households were

selected from each district. The sample size of 300 hundred households was set to estimate net use in the night before the survey in children under-five years with a standard error of 10% at district level.

The survey

The survey tool

Design of the questionnaire was primarily guided by the tools employed in the evaluation of the U5CC and upgraded fixed top-up voucher. Input from the NATNETS partners as well as taking into account the corresponding NMCP –M&E indicators, a questionnaire for the combined strategies was constructed.

The Household survey questionnaire consisted of four modules including:

1. Household module (HH) with questions on;
 - Identifiers
 - Household roster for all residents
 - Household assets (markers of socioeconomic status)
 - Information about vouchers
 - Treatment status of the net
 - Who used the net night before the survey?
 - Reasons for not using the net
- 2: Women module for women aged 15-49 years with questions on;
 - Knowledge of the voucher programme
 - Awareness of the importance of early attendance to ANC clinic
 - Current pregnancies
 - Use of antenatal services
 - Receipt and use of voucher to buy net during pregnancy
 - Pregnancies in the previous 24 months
- 3: Module on infant voucher (respondents were the care providers) with questions on;
 - Identifier
 - Receipt and use of voucher to buy a net
 - Reasons for not using the infant voucher
- 4: Module on susceptibility and severity of malaria with questions on;
 - Exposure to messages about malaria
 - Exposure to PSI advocacy tools on malaria

The RCH facility user questionnaire included 1) Identification of the facility, 2) Socio economic background of the respondent, 3) Current pregnancy status and knowledge on antenatal clinics attendance, 4) Voucher knowledge and use. The facility questionnaire inquired of the 1) Status of voucher stock at the facility, 2) assessment of the record books for the period of April to June 2010 to determine clinic attendance and voucher receipt, 3) assessment of the facility staff knowledge of the voucher and their practice in issuing the voucher.

Data collection was done using personal digital assistant (PDA).

Logistics

The survey was carried out by 2 teams, each composed of 6 interviewers, a supervisor and a driver. The teams were also accompanied by 1 research officer (senior supervisor) and one data manager. Districts were completed one at a time.

Quality control

The field team

All the interviewers and supervisors were those who conducted the U5CC household survey

Training

Training on data collection started on 5th July until 10th July including pilot testing. Field work started on 11th July 2010 and was completed by end of August, 2010.

Training was done in Dar es Salaam and piloting was carried out in Kisarawe where fixed top-up vouchers were operational.

Field supervision

Supervisors accompanied interviewers in at least two to three interviews for each interviewer per day and did re-interviews on key aspects of the questionnaire in some randomly selected households. Completeness check forms were completed for each cluster.

Checking and storing data

Procedures used in the previous household surveys were adopted. At the end of each day supervisors synchronized the PDAs to their Laptop computers and ran sets of checks using purpose-written MS Access programmes. The quality control check compared the original interview and re-interview and identified discrepancies. The reporting programme produced a summary of the data collected for each cluster, including specific problems. Interviewers completed data error forms whenever a data entry error was encountered. These were collected by the supervisors and provided to the data manager for subsequent data cleaning.

Data processing

Data management followed similar procedures used for the TNVS national and the zonal household surveys. All survey data were entered into handheld computers at the point of data collection. Data cleaning was undertaken by the data manager using information from the data error forms, supervisor summary forms, daily Access-generated reports and standard range and consistency checks.

Informed consent

Information sheet about the survey was drawn up in Swahili (with information of the free net campaign, upgraded voucher and the aim of the study), providing in summary why the study was being carried out, by whom, and what it involved. A copy of the information sheet was left with each household. Respondents were asked if they had any questions and whether they agreed to take part in the study. Written consent of each respondent was obtained before proceeding with interview. Consent was sought from the household heads (or appointed representative) and from each woman or mother interviewed.

Data analysis

Data were analyzed using STATA software according to an analytical plan. The “svy” commands were used to allow the confidence intervals of estimated parameters to be adjusted for the cluster structure of the survey. Estimates of ITN coverage and other indicators are all presented as percentages. Similar to the approach used in the previous TNVS household surveys, principal components analysis was used to construct an index of socioeconomic status in order to examine the relationship between ITN coverage indicators and socio-economic status. Equity ratio (coverage in the poorest quintile/coverage in the least poor quintile) was used to assess socio-economic equity in the ownership of and use of ITN.

Definition

In this report ITN is defined as follows:

LLIN (Olyset or Permanet) or an ordinary net treated with long lasting insecticide or an ordinary net treated within the previous 12 months with conventional insecticide. As such LLIN is a subset of ITN. Whenever, that is treated contrarily it is clearly stated as “ITN excluding LLIN”.

Results

Coverage indicators for ITN and uptake of fixed top-up vouchers are presented. Where appropriate we make a comparison of the current estimates with those derived from the U5CC survey that was conducted in the same districts ITN a coverage indicators were calculated from the information provided by the heads of households.

Study sample

A total of 889 (99%) households out of a sample of 900 households were interviewed in the Lake zone. In the Southern zone, 600 households were included in the sample of which 591 (98%) were interviewed. Of the interviewed households 70% and 41% had at least one child under-five years of age in the Lake and Southern zones respectively. In the Lake zone 821 women of reproductive age (15-49) were interviewed, 477 of such women were interviewed in the Southern zone. Among the interviewed women, 18% and 7% were currently pregnant in the Lake and Southern zones respectively. A total of 1368 infants were included, of which 1086 were from the Lake zone (Table 1).

Table1: Summary of the surveyed households

	Lake zone	Southern zone
Number of districts	3	2
Number of clusters	30	20
Number of households	889	591
Number of household with at least one child <5	618 (69.5%)	244 (41.3%)
Number of people in the households	5198	2365
Number of people who slept in the HH in the night preceding the survey?	4833	2111
Mean household size	5.8	4.0
Children under-five	1086	282
Children under-five who slept in the HH in the night preceding the survey	1047	261
Infants	225	53
Number of women 15-49	821	477
Currently pregnant women	145 (18%)	33 (7%)

Household ownership and use of ITN

Net ownership

Similar to the previous TNVS household surveys, detailed information about each net was recorded. In that way it was possible to assess ownership of any nets at household level, and to identify which nets were ITNs as well as to determine the sources of those nets. Table 2 shows that in 2010, 91% and 74% of the surveyed households in the Lake and Southern zones respectively had a net (any). While this indicator remained essentially the same in the Lake zone a substantial decline was observed in the Southern zone. Encouragingly, ownership of ITNs indicated a very small decrease between the two surveys. Of the surveyed households 81% in the Lake zone and 61% in the Southern zone had **at least one** insecticide treated net (ITN). In both zones a small percentage increase was observed in the household ownership of LLINs. Ownership of ITN was higher than the 2008 national estimates particularly in the Lake zone (Table 2).

Table 2: Household ownership of nets

	N	At least one net (any)	At least one ITN	At least one LLIN
		% (95% CI)	% (95% CI)	% (95% CI)
Lake zone				
2009	891	91.6 (89.5-93.3)	82.0 (79.4-84.5)	75.5(72.6-78.2)
2010	889	90.7 (88.6-92.4)	81.3 (78.7-83.7)	76.3 (73.4-78.9)
Southern zone				
2009	592	85.8 (82.9-88.3)	60.8 (56.8-64.6)	43.4 (39.5-47.4)
2010	591	73.8 (70.9-76.5)	60.2 (56.7-63.9)	45.4 (41.6-49.2)
National (2008)	7200	69.8 (63.8-75.2)	45.7 (40.1-51.5)	

Discussion number of nets decreased but household with at least one remained essentially the same?

Number of nets

Actual numbers of nets owned by each household were reported by the heads of households in each of the survey. Distribution of households by number of nets owned in 2009 and 2010 indicate in both zones increases in the percent of households owning only one net and a decrease in those owning at least 3 nets. In the Lake zone the percent of households owning only one net increased from 24% to 30% while in the Southern zone 39% of households owned one net in 2009 and 51% in 2010. Households owning at least three nets decreased from 53% in 2009 to 41% in 2010 in the Lake zone and from 34% to 24% in the Southern zone (Figure 1).

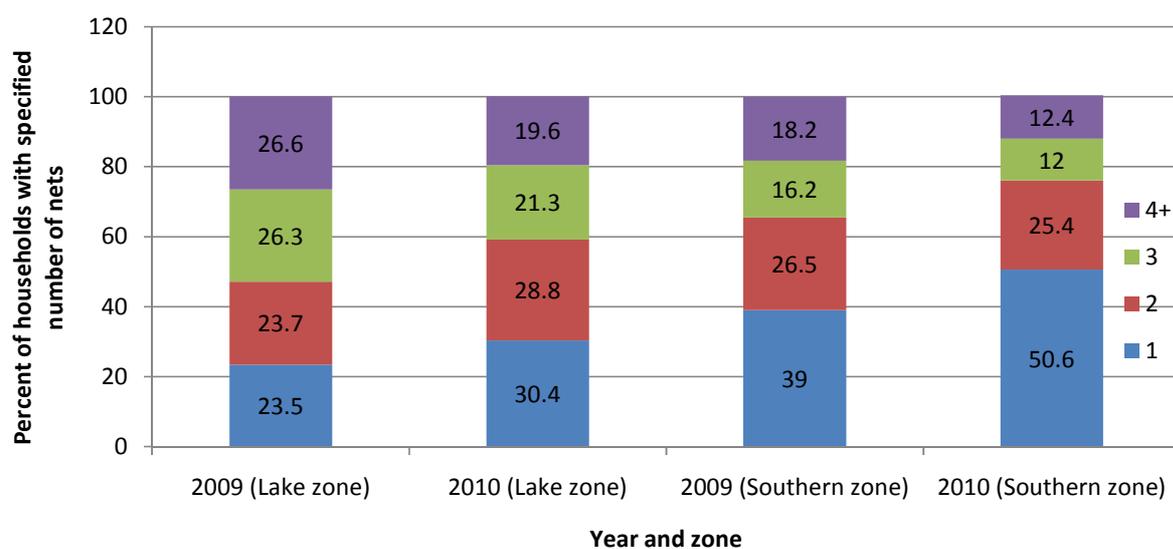


Figure 1: Ownership of nets by number of nets in the household

ITN ownership at district level

While the zonal estimates remained fairly stable between 2009 and 2010, most districts depicted changes. Most notable is the lower coverage in Mtwara Urban and higher in Nachingwea district in 2010 as compared to the 2009 estimates. Estimates in Rorya district remained at around 76%. With exception of Matwara Urban, ITN ownership estimates in 2009 and 2010 were much higher than those derived from the 2008 national survey (Table 3).

Table 3: ITN ownership by district (at least one ITN)

District	2008	2009	2010
		% (95% CI)	% (95% CI)
Mtwara Urban	66.7 (61.1-71.8)	67.5 (61.9-72.5)	58.0 (53.0-62.4)
Nachingwea	43.5 (33.2-54.5)	54.2 (48.5-59.8)	62.5 (57.0-67.7)
Sengerema	45.6 (36.6-54.8)	87.6 (83.1-91.0)	83.6 (79.0-87.3)
Chato	37.8 (31.1-45.0)	82.5 (77.7-86.4)	84.9 (80.4-88.4)
Rorya	35.0 (27.0-44.0)	76.0 (70.7-80.6)	75.5 (70.3-80.0)

Ownership and type of net

Similar to the U5CC household survey, information about the net treatment status of each reported net was used to categorize them accordingly. By doing that, it was possible to assess the contribution of each type of a net in the ownership coverage as well to make a comparison with the 2009 estimates. Similar to the 2009 estimates, the LLINs remained at the top in the Lake zone but ranked second in the Southern zone. Encouragingly, the proportions of LLINs in both zones increased in 2010 while the share of the untreated nets dropped (Figure 2).

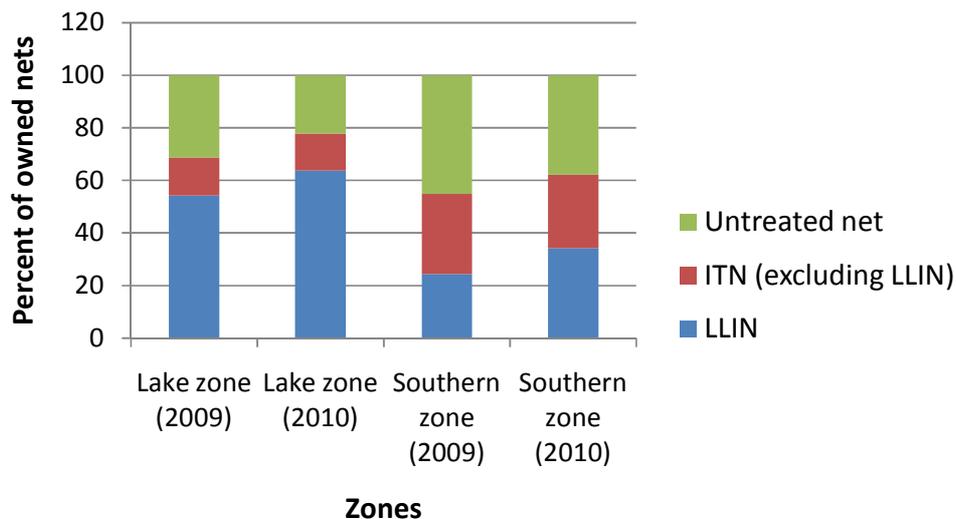


Figure 2: Net ownership by type of net

Source of net

Using the information about source of each net, contribution of U5CC and fixed top-up voucher to the ownership of nets was assessed (Table 4). In the Lake zone, the main source of owned nets was the U5CC (49%) followed by those purchased from the private sector (34%). Contribution of the U5CC in the Southern zone was just one fifth (20%) of all the nets owned in the surveyed households, the main source was commercial (56%). At the time of the survey contribution of vouchers in owning a net in the household, had remained substantially low in both zones (11.6% in the Lake zone and 9.9% in the Southern zone). Notable is the minimal contribution of the infant voucher compared to the pregnant women voucher – in the 2010 survey, nets acquired through infant voucher were only 4% and 3.5% of all nets in the households in the Lake and Southern zones respectively. As would be expected, the 2008 national survey indicated that purchased nets had the largest share in ownership but a relatively higher contribution of HP nets (13%) with a higher coverage of nets acquired through pregnant women voucher (11%) than infant vouchers (2%).

Table 4: Source of nets

Source of net	Lake zone		Southern zone		National*
	2009 N=2412	2010 N=2109	2009 N=1250	2010 N=1022	2008 N=7716
HP infant	3.0	2.0	3.0	2.2	2
HP pregnant women	7.6	4.7	4.6	4.1	11
Upgraded voucher (Pregnant Women)	n/a	2.9	n/a	2.3	n/a
Upgraded voucher (Infants)	n/a	2.0	n/a	1.3	n/a
USCC	54.2	49.3	24.6	20.4	n/a
Purchased	33.0	34.0	57.1	56.2	76
Other	2.2	5.1	10.7	13.5	11*

**Includes 7% free nets from various sources*

Net ownership and equity

Estimates of household ownership of ITN in the Lake zone remained higher than the Southern zone across the socio-economic status quintiles. While only 51% of the poorest households in the Southern zone owned at least one ITN in the Lake zone such 74% of households in that category owned at least one ITN. Such a disparity was also observed in the least poor households where 69% and 94% of those in the Southern and Lake zones respectively, owned at least one ITN. Comparison of the ownership coverage between 2009 and 2010 by socio-economic quintiles indicated that there was an improvement in the least poor households in the Lake zone but a slight drop in the poorest households. In the Southern zone a slight increase in the second and third quintiles. Overall, equity fell from 1.0 in 2009 to 0.8 in 2010 in the Lake zone but remained at 0.7 in the Southern zone. Compared to the 2008 national estimates, both coverage and equity improved notably (Figure 3).

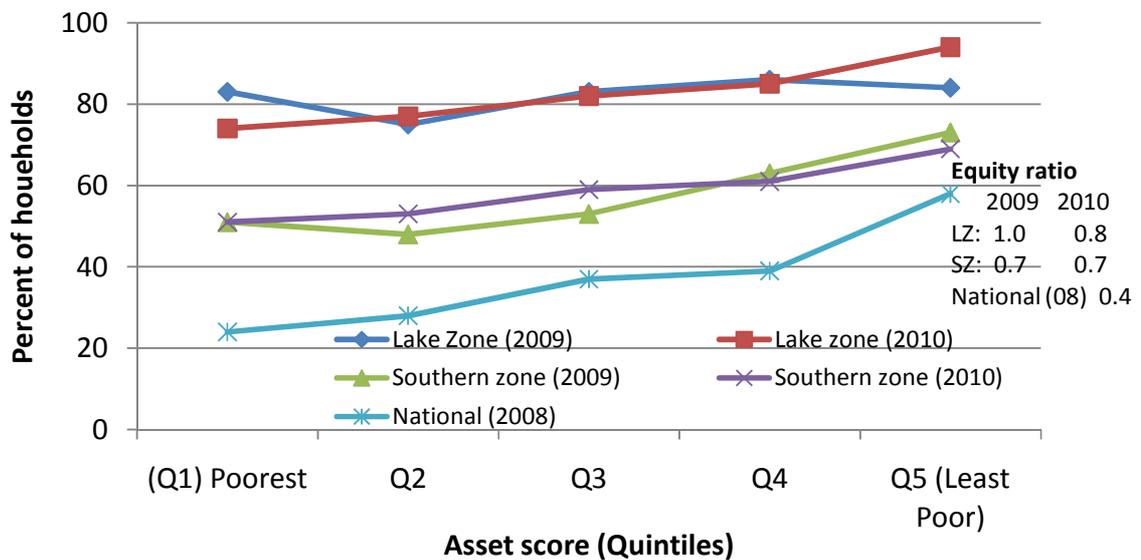


Figure 3: Percentage of households owning at least one ITN by socio-economic status

Households with at least one child under-five only

Similar to the U5CC household survey we re-estimated ITN ownership indicators for households that had at least one child under five years of age. This was necessary for a rational comparison between the two zones as a way to control for the disproportionate distribution of the households with children under-five. Estimates of ownership of ITN only in **households with at least one child under-five** showed that **coverage was 91.9% (89.5-93.8) in the Lake zone and 79.1% (75.1-82.6) in the Southern zone**. This compared fairly well with the 2009 estimates that were produced following the U5CC (95.3% (93.4-96.7) in the Lake zone and 85.0% (80.2-88.8) in the Southern zone). Ownership of at least one LLIN in such households was also reasonably high, coverage in the Lake zone was 89.0 (86.3-91.2) and 70.5 (65.4-75.2).

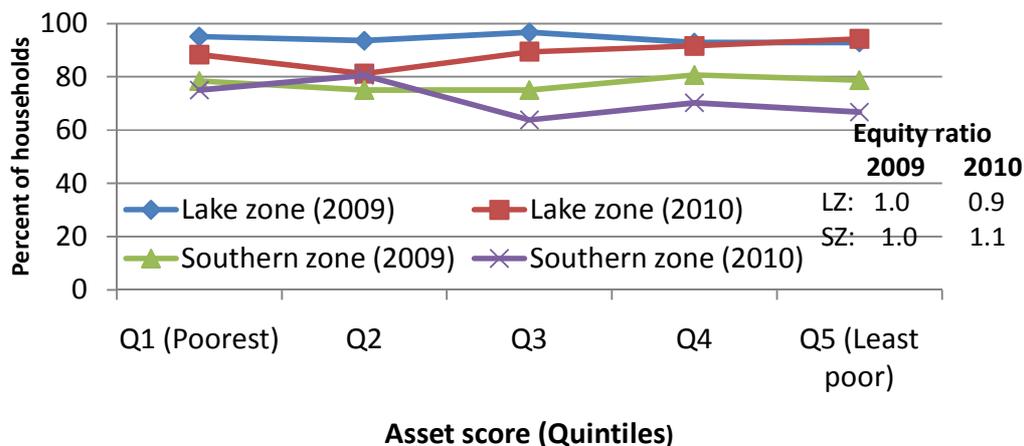


Figure 4: Ownership LLIN only in households with at least one <5

Similar to the findings from the U5CC survey, equity in LLIN ownership among the **households with at least one child under-five**, revealed that in both zones, LLIN coverage was fairly high and equitable across the SES quintiles (Figure 4). **In the Lake zone 96% and 93% of the poorest and the least poor households respectively, had at least one LLIN.** In the Southern zone, 82% and 90% of the poorest and the least poor households respectively, had at least one LLIN. While in the Lake zone a slight decline in coverage was observed in the first two socio-economic quintiles, in the Southern zone a measurable drop was seen in the last three quintiles. Encouragingly, a high equity level was maintained in both zones.

Net use

Sleep under a net in the night preceding the survey is a coverage indicator for use of net. Similar to the U5CC we produced three coverage indicators – sleeping under any net, ITN, LLIN. Focusing on the children under-five years of age, ITN coverage in the Lake zone was 71% and 56% in the Southern zone. For both zones the estimates were higher than those produced soon after completion of the U5CC in 2009, notably in the Lake zone where there was a substantial increase from 62% to 71% in the coverage of ITN. Likewise, LLIN coverage in the two zones was also higher than the 2009 estimates. The gain was higher in the Lake zone where 62% (55% in 2009) of the children under-five reported to have slept under LLIN in the night preceding the survey. In the Southern zone such coverage increased from 34% in the 2009 survey to 41% in 2010. With reference to the 2008 estimates, there was a large improvement in 2009 and 2010 (Table 5).

Table 5: Net use – children under-five

	N	Any net	ITN	LLIN
Lake zone				
2009	1184	71.2 (68.0-74.2)	62.2 (58.8-65.5)	55.4 (51.9-58.8)
2010	1047	82.5 (79.3-85.4)	71.3 (67.8-74.7)	62.2 (58.5-65.7)
Southern zone				
2009	304	61.2(55.5-66.6)	48.0 (42.3-53.8)	33.9 (28.6-39.6)
2010	261	68.2 (62.9-73.1)	55.9 (50.1-61.6)	40.6 (34.8-46.7)
National (2008)	5701	48.3 (40.8-55.8)	28.8 (22.3-36.3)	n/a

Since the ITN strategy is essentially the exclusive source of the LLINs, net type- specific coverage estimates provide an insight about the contribution of the U5CC and the fixed top-up vouchers to the use of ITNs in children under-five (Figure 5). Similar to the 2009 survey, in both zones, the LLINs had the highest contribution in the net coverage in children under-five. However, LLIN coverage was lower in the Southern zone (41%) compared to the Lake zone where the coverage was 62%. While in the Southern zone there was a slight increase in the coverage of ITN (excluding LLINs) and a decline in untreated nets such phenomenon was not obvious in the Lake zone.

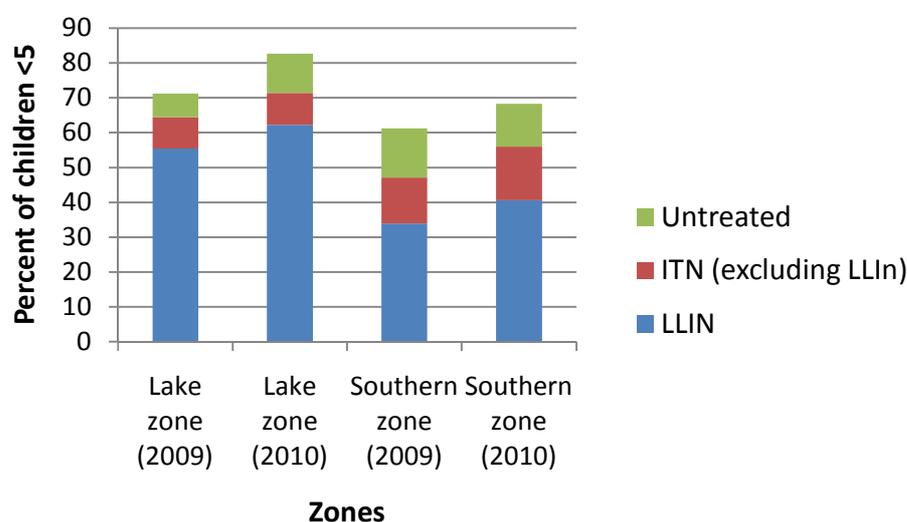


Figure 5: ITN use among children under five years by type of net

Net use and equity

Estimates of use of ITN by children under-five years of age across socio-economic quintiles in the U5CC household survey indicated that use of ITN in the poorest quintiles was substantially high in the Lake zone and very low in the Southern zone. Figure 6 presents results from such analysis for the survey reported here. While in the Lake zone there was generally a slightly higher coverage in all the quintiles compared to the 2009 estimates, a higher rise was seen in the first two quintiles of the Southern zone. In the Lake zone, coverage in the poorest and the least poor households was the same (76%), in the Southern zone such estimates were 43% and 59% in the poorest and the least poor households respectively. This survey has shown a big leap in the coverage of ITNs in children under-five particularly in the poor households and thus a notable improvement in equity from 0.2 in 2008 to 1.0 and 0.7 in the Lake and Southern zones respectively, in 2010.

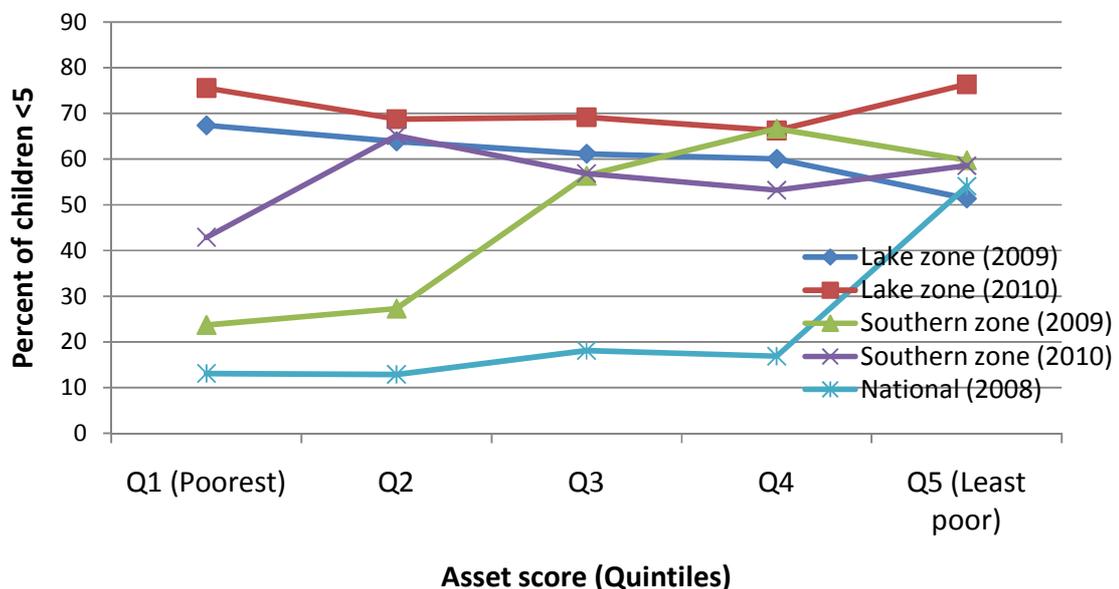


Figure 6: ITN use among children under five years by socio-economic status

Confining analysis to the LLINs (Figure 7), coverage across socio-economic quintiles indicated gains in the first two quintiles in the Southern zone while the Lake zone marked a huge leap among the children in the least poor households. In the Lake zone, LLIN use among children in the poorest households was 69% and 61% in for those in the least poor households (equity ratio=1.1). Surprisingly, the poorest households in the Southern zone had a substantially higher coverage (41%) compared to 33% in the least poor households (equity ratio=1.2).

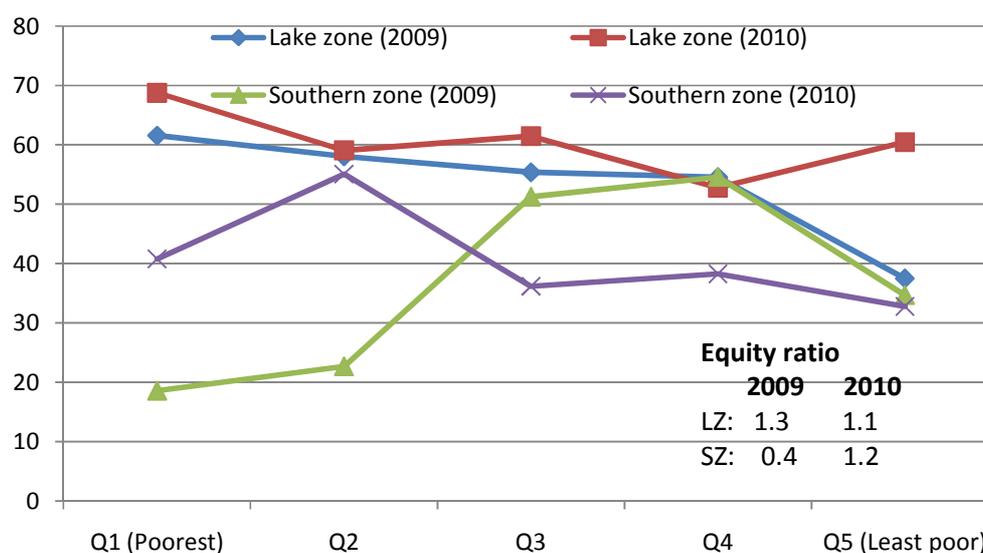


Figure 7: LLIN use among children under five years by socio-economic status

Coverage estimates in the use of ITNs by children under-five at district level for 2010 ranged from 50% in Mtwara Urban to 72% in Chato district. Dispersion of coverage across districts was not as high as the 2009 estimates. There was no consistency across the districts in the magnitude of gains or decrease in the coverage. However, noteworthy is the major leap in Chato district from 47% in 2009 to 72% in 2010. The low coverage in 2009 in Chato could potentially be due to IRS that was carried out in September 2009, few months before the U5CC household survey that happened in November 2009. All districts maintained higher levels of coverage compared to those documented in 2008, but Mtwara did not experience improvement (Table 6).

Table 6: ITN use- Children under five by district

District	2008	2009	2010
	% (95% CI)	% (95% CI)	% (95%CI)
Mtwara Urban	47 (46-60)	59 (50-65)	50 (42-58)
Nachingwea	14 (9-22)	37 (29-45)	55 (46-64)
Sengerema	30 (23-39)	72 (66-77)	68 (61-74)
Chato	12 (8-18)	47 (42-53)	72 (66-77)
Rorya	17 (13-24)	69 (63-75)	71 (64-76)

ITN use for other groups of people

ITN coverage for **all household members** in the surveyed households was 57% in the Lake zone and 38% in the Southern zone. As shown in Figure 8, this particular indicator has been increasing gradually across the three surveys. Lake zone has maintained higher estimates.

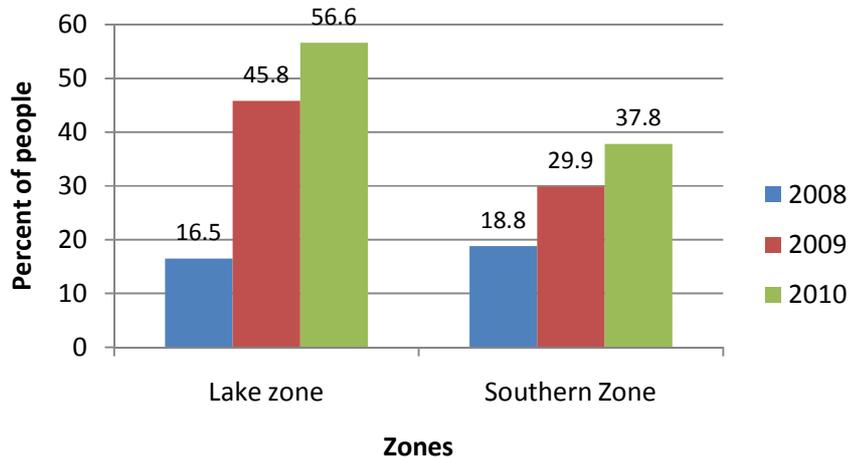


Figure 8: ITN use by all household members

According to responses from the heads of households, about 62 % and 47% of **women of children bearing age (15-49)** in the Lake and Southern zones respectively, slept under ITN in the night preceding the survey (Figure 9). The coverage tripled and doubled in the Lake and Southern zones respectively, between 2008 and 2010.

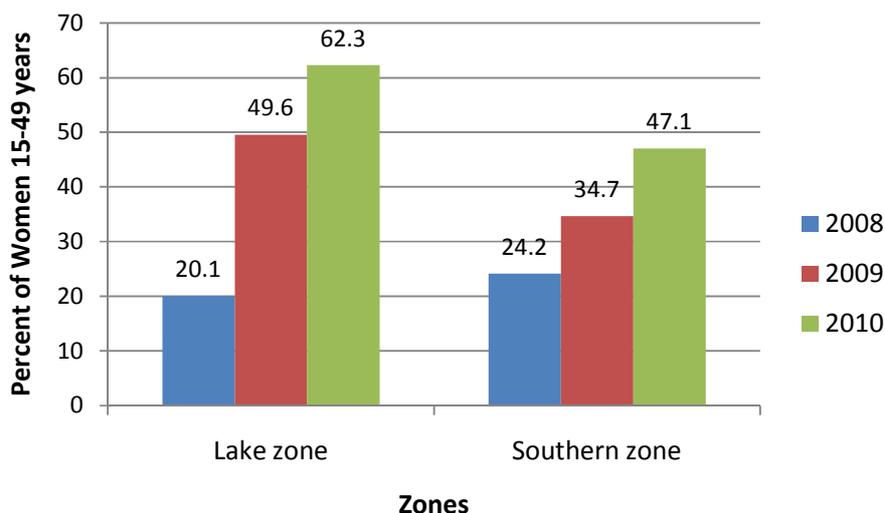


Figure 9: ITN use by women (15-49)

Pregnant women remain a priority group targeted for accelerated access to ITNs. As shown in Figure 10, Proportions of currently pregnant women who slept under ITN in the night preceding the survey was reasonably high in both zones (64% and 55% in the Lake and Southern zones respectively). Results indicate that most of the ITNs used by those women in the Lake zone were LLINs. In the Southern zone, LLINs were about 60% of the ITNs that pregnant women slept under in the previous night. Coverage has been on consistent increase after 2008.

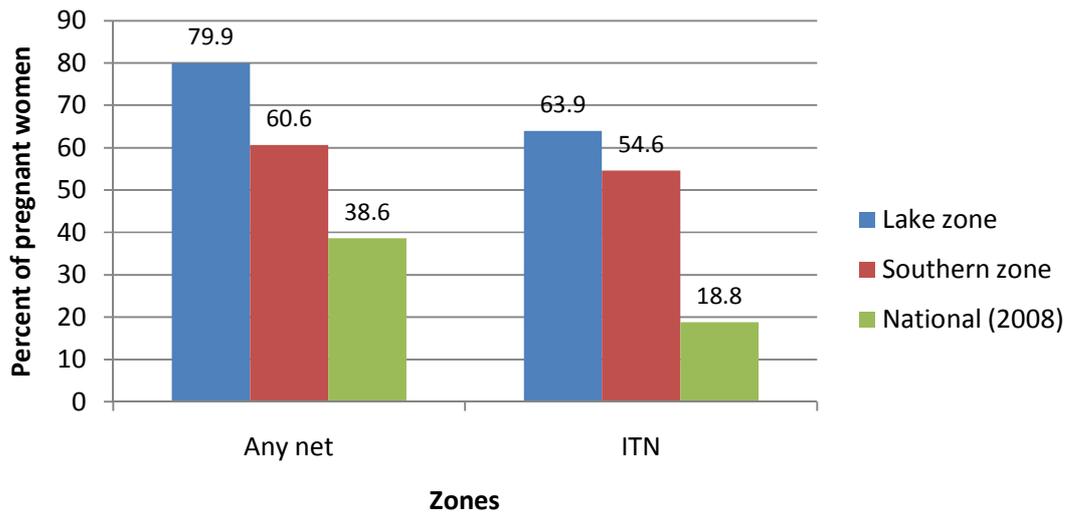


Figure 10: ITN use by currently pregnant women

Upgraded fixed top-up Voucher

Delivery of ITNs to Pregnant women and Infants using vouchers has been implemented and monitored since the launching of the TNVS. Following the introduction of upgraded fixed top-up vouchers in the late 2009, the currently reported sub-national household survey was conducted in July-August 2010 to assess the uptake and combined (with U5CC) impact on the coverage of ITNs. At the time of this survey, those vouchers had been operational in the survey districts for at least 8 months. To derive indicators of the upgraded fixed top-up vouchers, the survey interviewed heads of households, women in the households and ANC clients at health facilities.

Awareness of the upgraded fixed- top-up voucher was assessed by asking whether the respondents had heard about it and what the sources of information were. This question was preceded by another about awareness of *hati punguzo*. Eighty eight percent of the interviewed heads of households and 89% of women (15-49 years) stated that they had heard about *hati punguzo*. Of the interviewed heads of household, 72% and 70% in the Lake and Southern zones respectively, stated that they had heard about that voucher. . Of the heads of households who were aware of the upgraded voucher, 99% in each zone knew that the top-up was TZS 500.

A slightly higher percent of women (15-49) had heard about the upgraded fixed top-up voucher (79% and 80% in the Lake and Southern zones respectively). In the Southern zone all women and 99% in the Lake zone of those who had heard of upgraded fixed top-up voucher knew that the top-up was TZS 500.

In both zones, the most frequently mentioned sources of information for the heads of households were radio (61% in the Lake zone and 48% in Southern zone) followed by health workers. For women, the leading source of information was health worker (78% in the Lake zone and 54% in Southern zone) followed by radio. For both heads of households and women, word of mouth from friend/household member or neighbour appeared as important source of information. Television as a source of voucher information showed a significant contribution in Southern zone (26% of the women and 17% of the heads of households). The non-conventional sources of information such as road shows and promotional materials made just a small contribution (Table 7). Table 7: Source of information about the upgraded fixed top-up voucher

	Lake zone*		Southern zone*	
	Heads of household N=622	Women (15-49) N=288	Heads of household N=386	Women (15-49) N=155
Health worker	57.5	77.8	45.2	54.2
Radio	61.3	53.1	47.9	51.6
TV	4.2	7.6	17.2	25.8
HH member/neighbour/friend	37.2	31.3	27.3	41.9
Shop	6.4	0.0	15.6	0.0
Road show/mobile video	2.2	0.4	7.7	3.9
Local papers	1.1	2.8	4.1	1.3
Bill boards	0.0	5.9	7.7	1.9
Village government	2.8	0.0	4.6	0.0
Flyers	0.0	2.1	0.0	0.7

*Each respondent was asked to mention all the sources of information. Percentages were calculated for each mentioned source using the denominators shown in the table.

Currently pregnant women

Among the 832 and 483 women of child bearing age, 145 (17.4%) and 33 (6.8%) were pregnant in the Lake and Southern zones respectively. 33/483 (6.8%), among those 71 (49%) had visited ANC clinic at least once in the Lake zone and 19 (58%) in the Southern zone. Of those who had visited ANC clinic 38% in the Lake zone and 53 % in the Southern zone had received a voucher; 70% of those in the Lake zone received the voucher in the first ANC visit and 80% in the Southern zone (Table 8). These estimates were higher compared to the 2008 national survey where only 33% of the pregnant women received the voucher in the first ANC visit. Fifty nine percent and 70% in the Lake and Southern zone respectively had used the vouchers to buy a net. The mean gestation age at the first visit to ANC clinic was 20.7 weeks in the Lake zone and 16.5 weeks in the Southern zone. Mean gestation age at the time they received the voucher was 21.3 weeks in the Lake zone and 16.7 weeks in the Southern zone. A high proportion of those who had exchanged the voucher for a net stated that they paid the fixed amount TZS 500 (in the Lake zone 94% and all in the Southern zone).

Table 8: Uptake and use of the upgraded fixed top-up vouchers by currently pregnant women

	Lake zone		Southern zone	
	n/N	%	n/N	%
Currently pregnant	145/832	17.4	33/483	6.8
Visited ANC at least once	71/145	49.0	19/33	57.6
Received a voucher	27/71	38.0	10/19	52.6
The voucher was received in the first ANC visit	19/27	70.4	8/10	80.0
Had used the voucher to purchase a net	16/27	59.3	7/10	70.0
Top-up was TZS 500	15/16	93.8	7/7	100

Previous pregnancies

Similar to the previous household surveys, women who had a live birth within the last two years were asked questions about receipt and use of vouchers and it was possible to identify the upgraded fixed top-up vouchers.

Women who had given birth in the last two years were 448/832 (53.8%) in the Lake zone and 126/483 (26.1%) in the Southern zone. Questions about use of ANC services and voucher receipt were asked for each live birth in that period. Reported live births were 531 in the Lake zone and 133 in the Southern zone. Among them, 97% in the Lake zone and 100% in the Southern zone had visited ANC clinic at least

once and of those 45% and 71% received a voucher. In both zones the upgraded vouchers were less than one third of those reported to have been received. Of those who received a voucher, 69% and 60% in the Lake zone and Southern zone respectively, had exchanged the voucher for a net. Such estimates specifically for the upgraded fixed top-up vouchers were 69% and 77% in the Lake and Southern zone respectively. In the Lake zone, 81% of women reported that they paid TZS 500 as a top-up and 96% in the Southern zone (Table 9). Reasons for not using the voucher to buy a net are shown in Table y. Mean gestation age at the first visit to ANC clinic was 19 weeks in the Lake zone and 16 weeks in the Southern zone - these estimates indicated an improvement from the national gestation mean of 21 weeks derived from the 2008 national survey.

Table 9: Uptake and use of the fixed top-up vouchers by previously pregnant women

	Lake zone		Southern zone	
	n/N	%	n/N	%
Visited ANC at least once	516/531	97.2	133/133	100
Received a voucher	233/516	45.2	94/133	70.7
The voucher was fixed top-up	72/233	30.9	30/94	31.9
Had used the voucher to purchase a net				
Initial voucher	110/161	68.3	33/64	51.6
Fixed top-up	50/72	69.4	23/30	76.7
Top-up was TZS 500 (Fixed top-up voucher)	45/50	80.9	22/23	95.7

Infants

A total of 256 infants were included in the analysis. Of those 187 (88%) in the Lake zone and 40 (91%) in the Southern zone had been taken to the RCH clinic. But only 52 (28%) reported that they were given a voucher in the Lake zone and 19 (47%) in the Southern zone. Only about one third of the vouchers had been exchanged for a net. In both zones, lack of money was the most common reason for not buying a net (47% in the Lake zone and 71% in the Southern zone). Of those who had exchanged the voucher for a net, all (100%) reported of paying TZS 500 (Table 10).

Table 10: Uptake and use of the fixed top-up vouchers by infants

	Lake zone		Southern zone	
	n/N	%	n/N	%
Had been taken to the RCH clinic	187/212	88.2	40/44	90.9
Received a voucher	52/187	27.8	19/40	47.5
The voucher was upgraded fixed top-up	48/52	92.3	19/19	100
Had used the voucher to purchase a net	30/48	62.5	12/19	63.2
Top-up was TZS 500	30/30	100	12/12	100

Facility users

A total of 187 and 77 facility users were interviewed in the Lake zone and Southern zone respectively. . Of those interviewed in the Lake zone, 60% reported that they had received a voucher and 66% in the Southern zone. In the Lake zone, of those who had received a voucher, 62% received it at first visit and 63% in the Southern zone. Of those who received the voucher 42% and 57% in the Lake and Southern zones respectively had used their vouchers to buy a net.. Fifty three percent of the women in the Lake zone stated stock outs as a reason for not receiving the voucher. In the Southern zone 46% of the women said they did not know the reason for not receiving the voucher. All women who had exchanged their vouchers for a net in the Southern zone reported that they paid TZS 500. Mean gestation at first visit lake zone was 21 (20-22) weeks and 17 (16-18) weeks in the Southern zone. Those women stated ideal pregnancy age for visiting ANC clinic as 15 (13-16) weeks in the Lake zone and 13 (10-15) weeks in the Southern zone.

Use and non-use of upgraded fixed top-up vouchers

Table 11 indicates that of the received upgraded fixed-value vouchers by women who were pregnant within past 2 years from the time of the survey, 69% exchanged their vouchers for a net and 63% of infant vouchers had been used in the Lake zone, 60% and 63% of such vouchers had been exchanged for a net in the Southern zone. While the exchange rates of the vouchers for the previous pregnancies compared closely with that reported by the 2008 national survey (64%), the infant estimates were higher than the national estimate of 49%. Lack of money was the most frequently stated reason for not exchanging the voucher for a net-17% in the Lake zone and 24% in the Southern zone for pregnant women vouchers. That reason was stated with slightly higher frequencies for infant vouchers (19% in the Lake zone and 26% in the Southern zone). While money as a setback showed improvement in the vouchers for infants compared to the national estimates of 31%, there was no obvious change in the vouchers for previous pregnancies.

Table 11: Use and non-use of Vouchers

	Lake zone		Southern zone		National 2008	
	Vouchers for		Vouchers for		Vouchers for	
	Previous pregnancies N=233	Infants N=48	Previous pregnancies N=94	Infants N=19	Previous pregnancies N=348	Infants N=433
Used the voucher to buy a net	68.7	62.5	59.6	63.2	64	49
Already had a net	3.0	0.0	1.1	0.0	1	3
Had no money for the top-up	16.7	18.7	24.5	26.3	20	31
Lost the voucher	3.9	0.0	6.4	0.0	5	4
No shop/the place too far	3.0	0.0	0.0	0.0	1	2
Others	4.7	18.7	7.4	10.5	9	10

Health facility survey

A total of 45 health facilities were included in the survey, 28 were in the Lake zone and 17 in the Southern zone. Two (7%) of the health facilities in the Lake zone had stocks of old vouchers. Vouchers for pregnant women were in stock in 15 (54%) of the health facilities in the Lake zone and 13 (76%) of those in the Southern zone. Infant vouchers were in stock in 54% and 29% in the Lake and Southern zones respectively. (Figure11). Vouchers had been out of stock for about 9 weeks in the Lake zone and 6 weeks in the Southern zone.

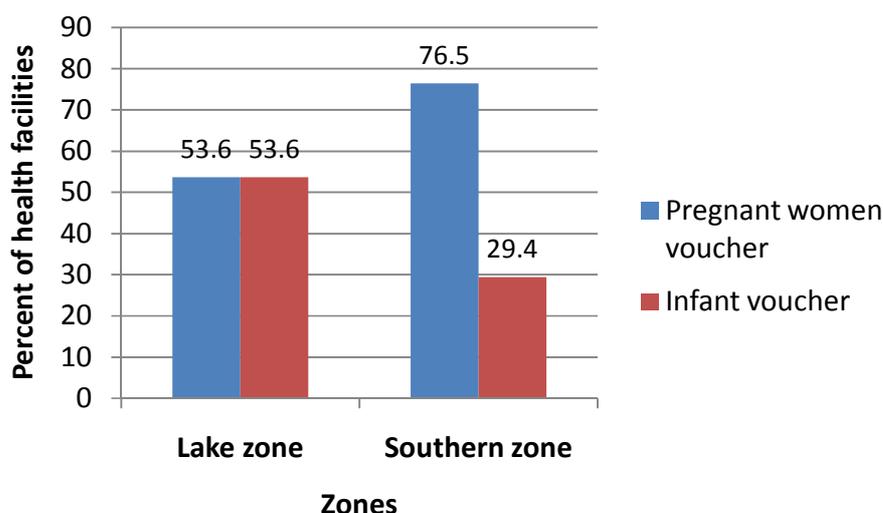


Figure 11: Voucher stocks in the health facilities

Some few questions were asked to the ANC service providers about knowledge and practices related to vouchers. Only 6 (21%) of those interviewed in the Lake zone and 9 (53%) in the Southern zone knew the right timing of placing orders for new supply of vouchers - once the first of the two books was used up. However, all of them knew that the top up amount for the upgraded fixed top-up vouchers was TZS 500. The most common reason given as to why they did not issue vouchers to some women was stock out (56%). But there were few (7%) who stated that they did not give vouchers to women who could not afford to get TZS 500.

On the day of the survey, over 50% of the health facilities that reported having some stock had at least 4 books of infant vouchers in the Lake zone but 27% had only one such book. In the Southern zone, 60% of the health facilities that had vouchers in stock had only one infant voucher book.

Discussion

The survey that produced data for this report was conducted about a year after distribution of free LLINs to children under five years of age. Encouragingly, ownership of ITNs has remained high but as noted previously, that does not necessarily translate into use.

Net ownership

Ownership of ITN at household level remains an important indicator to measure progress in coverage although not sufficient to attribute to protection against malaria. The survey showed that household ownership of ITNs in both zones remained at very similar levels as they were in 2009 soon after distribution of free LLINs to children under five years of age. In the Lake zone 81% of the surveyed households had at least one ITN while in 2009 that estimate was 82%. In the Southern zone household ownership of at least one ITN was 61% and 60% in 2009 and 2010 respectively. Comparatively,

ownership of LLINs showed a slight increase in the Southern zone, from 43% in 2009 to 45% in 2010. In the Lake zone, the estimate remained at 76% as in the year 2009. These findings are suggestive that households managed to keep the nets that were distributed for children under five a year earlier and contribution of the “keep up” strategy through the fixed top-up vouchers is not insignificant. Contrarily the share of untreated nets decreased between 2009 and 2010.

Equity in the household ownership of ITNs in those with at least one child under-five was maintained – the equity ratios remained at around 1.

Use of ITN

While acquisition of ITNs can be high but use does not always match with ownership because it is behavioral thus shaped by perceptions and beliefs. Findings from this survey are suggestive that the BCC might have an impact in the use of ITNs. As discussed earlier, there was no change in the coverage of ownership of ITNs yet an increase in the use of ITNs by children under-five was observed in both zones. Percent of children who slept under ITN in the night preceding the survey increased from 62% in 2009 to 71% in 2010 in the Lake zone and in the Southern zone the increase was from 48% to 56%. Most of the gains was confined to the LLINs than the conventional ITNs (ordinary nets treated with insecticide). Assessment of that increase from socio-economic perspective revealed that in the Southern zone much was in the poorer households while in the Lake zone most of the gain occurred in the least poor households – following that the equity ratio in the Southern zone increased from 0.4 in 2009 to 0.7 in 2010, whereas in the Lake zone it changed from 1.3 in 2009 to 1.0 in 2010.

Interestingly, in both zones, ITN coverage indicators for children under five and currently pregnant women had very similar values particularly for LLINs. In the Lake zone, 55% of children under five and 56% of the pregnant women slept under LLIN in the night preceding the survey. In the Southern zone the figures for that indicator were 34% and 33% for children and pregnant women respectively.

Voucher (fixed top-up)

Survey findings showed that most of the respondents were aware of the upgraded fixed top-up vouchers and were currently being issued.. All vouchers reported as been received by the currently pregnant women were all the upgraded. However, responses about receipt of vouchers by pregnant women and infants who had attended RCH clinics suggest that issuing of vouchers was not optimal. The situation was more critical in the Lake zone where only 38% of pregnant women who had attended ANC clinic had received a voucher and as low as 28% of the infants that had attended RCH clinic at least once.

Stocking of vouchers was assessed by asking each surveyed facility whether it had a stock of vouchers at the day of the survey. It became evident that only about 50% of the health facilities in the Lake zone had in stock either the infant vouchers or pregnant women vouchers. Informed knowledge about when to order for new supply of vouchers is fundamental in ensuring a constant availability of vouchers. A substantial proportion of the interviewed RCH service providers indicated that they did not know the

correct timing of ordering for voucher supplies particularly in the Southern zone where only 21% knew when to do that.

Following implementation of the “new” upgraded voucher where the recipient is required to pay only TZS 500 to get LLIN, it is logical to expect a high rate of exchange of the voucher for a net. Findings reveal that there had been some improvement in the rate of exchanging a voucher for a net between 2008 and 2010. Among the infant vouchers that were reported by their care givers to have been received, over 60% had been exchanged for LLIN compared to the 2008 national average of 49%. For those who had not exchanged their vouchers, the most common reason for failure to access a net was “lack of money”. These findings indicate that there is still a small proportion of people that cannot pay the fixed amount of TZS 500.

Proportions of exchange of vouchers for a net by women who were pregnant in the recent past, suggest that, the upgraded fixed top-up vouchers were exchanged at higher rate than the initial vouchers in the Southern zone but no such suggestive findings in the Lake zone. In the Southern zone only 52% of the old voucher had been exchanged for a net compared to 77% of the upgraded fixed top-up vouchers.

Context

Two major contextual factors need to be considered in interpreting the ITN use indicators.

1. The new voucher had been operational in less than a year, therefore its impact on ownership of nets was still less substantial.
2. The survey was conducted in the dry season in both zones (July/August)

