

FINAL
22 February 2007

Monitoring and Evaluation of the TNVS

Report on 2006 TNVS Household, Facility services and Facility users surveys (a comparison between baseline and 12 month follow-up)

Kara Hanson²
Tanya Marchant^{1,2}
Hadji Mponda¹
Rose Nathan¹
Jane Bruce²

¹ Ifakara Health Research and Development Centre

² London School of Hygiene and Tropical Medicine

Table of Contents	
Executive Summary	3
Study limitations and strengths	4
List of tables.....	6
Acknowledgements	8
1. Introduction.....	9
2. Methodology	9
2.1 Survey Modules.....	10
2.2 Sampling process.....	11
2.3 Sample size.....	12
2.4 Logistics	12
2.5 Quality control.....	13
2.6 Data processing	13
2.7 Ethical aspects and informed consent	13
2.8 Timing	14
2.9 Data analysis	14
3. Results	15
3.1 Characteristics of the sample	15
3.2 Coverage and use of vouchers.....	20
3.3 The cost of using vouchers.....	25
3.4 Household ownership of bednets	27
3.5 Coverage of bednets: currently pregnant women.....	30
.....	35
3.6 Coverage of bednets: past pregnancies	35
3.7 Coverage of bednets: children under 5	36
3.8 Coverage of bednets: children under 1	38
3.9 Coverage of bednets: all household members.....	39
3.10 District level coverage data.....	41
.....	44
3.11 Insecticide treatment of bednets	44
3.12 Insecticide retreatment kits.....	47
3.13 Antenatal care coverage, timing of first use and use of IPT.....	48
3.14 Infrastructure availability.....	51
3.15 Information and awareness.....	51
4. Discussion and conclusions	54
Main findings and implications.....	54
Study limitations and strengths	57

Executive Summary

This report presents the findings of the 2005 and 2006 household, facility and facility user surveys undertaken as part of the Monitoring and Evaluation of the Tanzania National Voucher Scheme. The surveys were undertaken in June-August 2005 and in 2006 in the same 21 randomly selected districts. Data have been analysed stratified by the time elapsed between the launch of Hati Punguzo in each district and the date of each survey to explore the relationship between Hati Punguzo implementation and key outcomes over time.

The main findings are as follows:

Bednet use among vulnerable groups:

Household ownership of at least one net increased from 43% to 57% between 2005 and 2006. For recently treated nets the increase was from 18% to 29%. In both the household and facility surveys, household ownership of nets is significantly associated with both time since launch (with higher ownership in those areas which launched at least 12 months prior to the survey) and with socioeconomic status. Overall, 12.6% of all nets in households had been bought using a voucher.

Use of any net by pregnant women increased by about 35% between the two surveys. From the household survey, 25% of currently pregnant women slept under any net in 2005 increasing to 34% in 2006. ITN coverage measured in household survey increased from 11% to 18% in currently pregnant women.

Among children under five years of age, use of any net increased from 28% to 41%, and ITN use from 15% to 28%. Under-ones had similar levels of coverage and increases between the two years.

Socioeconomic status, urban residence and time since launch were all significant predictors of any net and ITN use among both pregnant women and children.

Sample size was calculated to provide reasonably precise estimates of net use among children under five at the district level. Almost all districts saw increases in use of any net and ITNs among children, and statistically significant increases were seen in one-third of the districts. In the 3 M&E districts where free nets were distributed in 2005 (Tandahimba, Nachingwea and Rufiji) large increases in coverage were observed. However, the free net campaign was implemented against a backdrop of other ITN activities including Hati Punguzo distribution. Despite universal distribution, ITN coverage among under 5s remains less than 50% one year after the campaign.

Insecticide treatment of nets:

Overall, 45% of all nets had been recently treated. Around half of all nets had been purchased packaged with insecticide. More recently-purchased nets were more likely to have been bundled with insecticide (75% of nets purchased in the previous 6 months). Although there were relatively few “don’t know” responses to this question (about 5%), the answers are subject to some error due to recall errors (responses referring to past events) and respondent errors (for example, the person who answered the question may not have been the one who had purchased the net). Multivariate analysis shows net treatment to be associated with time since launch, voucher use and age of net. The peak in treatment is observed for nets which are 6-12 months old, suggesting a delay between purchase and first use of insecticide.

Coverage and use of vouchers:

The proportion of women receiving a voucher has increased from around 40-50% in 2005 to 70% in 2006. Voucher coverage is significantly higher in those areas which have been distributing Hati Punguzo for more than 12 months, and also increases with socioeconomic status (facility user survey) and rural location (household survey). Only 2% of household survey respondents said that they received their antenatal care from an outreach clinic. The facility survey recorded ongoing difficulties with distribution of Hati Punguzo on outreach visits. Overall, the availability of vouchers in health facilities increased from 69% in 2005 to 93% in 2006.

The voucher redemption rate estimated from previous pregnancies in the household survey is 83%, which is similar to the rate in the 2005 survey (80%) and is the same as MEDA's calculation from its voucher redemption data (also 83%). The facility survey of currently pregnant women estimates the redemption rate to be 70%, though these women have not yet completed their "exposure". Nearly all respondents (99%) who used their voucher reported that it was easy use. Voucher redemption is higher among the least poor women. "No money" is the most common reason given for not using a voucher, accounting for 53% of all reasons for non-use, and approximately 9% of all voucher recipients.

There has been an increase in the average top-up amount paid of 18% between 2005 and 2006 (from around TSh 1000 to TSh 1200). There is no change in either travel time or travel costs associated with voucher redemption. Unlike 2005, there is no indication that nets bought using Hati Punguzo are larger than other nets.

Awareness and knowledge of Hati Punguzo:

For both the household and facility user surveys, the RCH facility and radio are the most important sources of information, accounting for over 80% of first sources. This suggests that expenditure on cultural performances and other mass media such as newspapers may be having little impact.

Awareness of the scheme and knowledge of eligibility have improved since 2005, but knowledge of the value of the voucher remains low, at around 12% of currently pregnant women.

Timing and use of antenatal care services:

There is no evidence that women are using antenatal services earlier in their pregnancy in 2006 than in 2005. Coverage of IPTp is unchanged between the survey years, at 70% for IPT1 and 35% for IPT2.

Study limitations and strengths

Every attempt was made to minimise potential bias between the survey years from baseline in 2005 to follow-up in 2006. Sampling, timing and implementation of the survey remained the same for both years. However, in interpretation of the results there remain a number of limitations that must be considered. First, the surveys were cross sectional and as such only measure indicators such as ITN coverage at a point in time: seasonal changes in ITN use cannot be accounted for. Secondly, some districts had already launched Hati Punguzo at the time of the 2005 baseline survey and as such do not provide a true baseline for district level comparison with 2006. The result of this would have been to underestimate the relationship between Hati Punguzo implementation and key outcomes. The effect of this on analysis at national level is ameliorated by adjustment for time since launch of the voucher scheme in each district. Thirdly, because there were other ITN interventions going on at the same time as Hati Punguzo (such as, for example, continued activities by the SMARTNET project, free net distributions in some districts, etc), it is not possible to

attribute all of the changes in aggregate coverage to Hati Punguzo. For the present analysis we focus on the changes in coverage over time. Further analysis will focus on trying to estimate with greater precision the programme effect on coverage by controlling for potential confounding variables. Finally, there is the problem for inference about impact of Hati Punguzo on coverage which arises because of the non-random nature of the phased roll-out of the scheme. Because there are factors which differ systematically across districts and which are correlated with determinants of ITN use, the simple measure of exposure used here (time since launch) may be a biased proxy for the impact of the scheme. By including known confounders such as socioeconomic status and rural/urban location in our multivariate models we try as far as possible to minimize this source of bias, but it cannot be ruled out completely from the interpretation of aggregate coverage changes.

The main strengths of the M&E design are the careful implementation of representative surveys which, as noted above, were undertaken in such a way as to be as similar as possible between the two rounds; and the triangulation across multiple data sources (household, facility and exit surveys). This latter is an extremely important method for ensuring the validity of the main conclusions.

List of tables

Table 1. TNVS Monitoring and Evaluation – sampled M&E districts	11
Table 2. Sample size calculations for household survey.....	12
Table 3. Characteristics of sampled households/individuals (after cleaning), TNVS June 2006	16
Table 3a Denominators for pregnancy coverage indicators, Household and Facility surveys 2005/06	18
Table 3b. Breakdown of current pregnancies by key demographic variables for household and facility users surveys 2006	19
Table 3c Summary of facility sample 2005 and 2006 surveys	20
Table 4 Summary statistics for voucher coverage from Household and Facility surveys, 2006	20
Table 4a. Bivariate and multivariate analysis of determinants of receipt of a voucher in launched districts, Facility users 2006.....	22
Table 4b. Bivariate and multivariate analysis of determinants of receipt of a voucher in launched districts, Household currently pregnant 2006	23
Table 5 Summary statistics for voucher redemption (use) from Household and Facility surveys, 2006.....	24
Table 6 Bivariate and multivariate analysis of determinants of voucher redemption Household Past Pregnancies 2006.....	24
Table 7 Reasons for non-use of voucher, Household Past pregnancies 2006.....	25
Table 8 Mean top-up paid by size of net bought, Facility user and Household survey 2006	25
Table 8a Mean top-up paid for voucher net, Household survey 2006, current and past pregnancies combined: Districts which received Olyset nets (Kibondo and Biharamulo) vs other districts	26
Table 9. Cost of using voucher.....	26
Table 10 Size of net purchased, by whether or not the net was purchased using a voucher (reported by household head).....	26
Table 11 Summary statistics for household ownership of at least one bednet, Household and Facility surveys, 2006	27
Table 12. Mean number of bednets per household in Tanzania: all households and households with resident pregnant woman, Household survey 2006	27
Table 13a. Bivariate and multivariate analysis of determinants of household ownership of any net, Facility user survey 2006	28
Table 13b. Bivariate and multivariate analysis of determinants of household ownership of any net, Household survey 2006	29
Table 13c. Bivariate and multivariate analysis of determinants of household ownership of recently treated net, Household survey 2006	29
Table 14a. Bivariate and multivariate analysis of determinants of use of any bednet last night for currently pregnant women, Facility user survey 2006	31
Table 14b. Bivariate and multivariate analysis of determinants of use of a recently treated bednet last night for currently pregnant women, Facility user survey 2006	32
Table 14c. Bivariate and multivariate analysis of determinants of use of any bednet last night for currently pregnant women, Household survey 2006.....	33
Table 14d. Bivariate and multivariate analysis of determinants of use of a recently treated bednet last night for currently pregnant women, Household survey 2006	34
Table 16. Summary statistics for bednet use at any time during pregnancy, previous pregnancies, Household survey 2006	35
Table 17 Summary statistics for bednet use by children and all household members, night preceding survey, Household survey 2006	36
Table 17a Summary statistics for bednet use by children and all household members, night preceding survey, Household survey 2006	36
Table 18a Use of any bednet by children under 5, bivariate and multivariate analysis, household survey, 2006	37

Table 18b Use of a recently treated bednet by children under 5, bivariate and multivariate analysis, household survey, 2006.....	37
Table 19a Use of any bednet by children under 1, bivariate and multivariate analysis, household survey, 2006	38
Table 19b Use of a recently treated bednet by children under 1, bivariate and multivariate analysis, household survey, 2006.....	39
Table 20 Use of any bednet by all household members, bivariate and multivariate analysis, household survey, 2006.....	40
Table 21 Use of a recently treated bednet by all household members, bivariate and multivariate analysis, household survey, 2006	40
Table 22 – By district: coverage among under 5s, changes 2005 to 2006	42
(any net, recently treated net), Household survey 2006	42
Table 23 – By district: coverage among all household members, changes 2005 to 2006 (any net, recently treated net), Household survey 2006	43
Table 24 Insecticide treatment of nets, summary, Household survey 2006.....	45
Table 24a Proportion of nets packaged with insecticide treatment of nets by age of net, Household survey 2006	45
Table 25a Ever treatment of bednets, bivariate and multivariate analysis, Household survey 2006	46
Table 25b Recent treatment of bednets, bivariate and multivariate analysis, Household survey 2006	47
Table 26. Coverage of IRKs in <1's (who had already attended clinic at least once), Household survey 2006	48
Table 27 Reported gestation at first RCH visit, Household and Facility surveys 2006.....	49
Table 28a RCH and IPT coverage during pregnancy (self-reported)	50
Table 29. Infrastructure availability (equipment, drugs) in RCH facilities*	51
Table 30. Awareness of HP – Summary	52
Table 31. Awareness of HP, 2006, bivariate analysis	52
Table 32 Source of information about Hati Punguzo, Household heads, 2006 only	53
Table 33 Source of information about Hati Punguzo, currently pg women, Household survey and Facility survey, 2006 only	53
Table 34 Hati Punguzo knowledge and understanding among currently pregnant women, Household and Facility survey 2006	54

Acknowledgements

We wish to acknowledge a number of people who were instrumental in the implementation of this survey and its analysis. Silas Temu from the Ifakara Health Research and Development Centre was the Data Manager for the project, programmed the questionnaire, accompanied the team in the field, and organised the initial cleaning of the data. He was assisted in this work by Thabit Athumani . James Beard, from the Gates Malaria Partnership of the London School of Hygiene and Tropical Medicine provided programming support for the PDA implementation. Joanna Armstrong Schellenberg provided expert advice on sampling and shared her experience of large household surveys.

We are grateful to the DMOs and Malaria Focal Persons in the districts who facilitated our work in the field, and to the survey teams who worked under very challenging conditions to implement the fieldwork. And finally, we are indebted to the respondents to the surveys who provided their time and shared their experiences.

Funding for these surveys came from the Ministry of Health Tanzania, Population Services International, and the Gates Malaria Partnership of the London School of Hygiene and Tropical Medicine.

1. Introduction

The Ifakara Health Research and Development Centre and the London School of Hygiene and Tropical Medicine have been contracted to undertake the Monitoring and Evaluation of the Tanzania National Voucher Scheme (TNVS). This scheme delivers a voucher worth TSh2750 as part-payment for an insecticide-treated mosquito net to all women at their first antenatal care visit. The scheme began district-level activities in October 2004 on a phased roll-out basis, and reached the whole country by May 2006. It is funded through a grant from the Global Fund for AIDS, TB and Malaria.

This report presents the findings of the 2006 household, facility and exit surveys, and examines the changes in outcome and process indicators that occurred between the 2005 and 2006 surveys. Preliminary findings were presented to the ITN cell in the National Malaria Control Programme and to the TNVS partners on 16th November 2006, and to a broader group of NMCP and Ministry of Health officials on 19th November. None of the findings presented here are different in substance from the preliminary results, however, there have been some minor changes and corrections (e.g. in confidence intervals) arising from subsequent data cleaning. For this reason, the results in this report supersede those in previous presentations and reports. Where possible this report presents both 2005 and 2006 results for comparison. There have been some minor changes in the 2005 results arising from, for example, re-calculation of the SES index, so the 2005 figures presented in this report may differ slightly from those in the 2005 report, however none of the conclusions from 2005 are materially affected.

2. Methodology

Essential to the design of the household and facility survey component of the TNVS M+E was that the protocol for the 2006 survey should replicate that of the 2005 survey as closely as possible – particularly in terms of sampling, timing, and survey tools.

Sampling: The 2006 survey teams returned to the same clusters (wards) as the 2005 survey (10 per district), but there was no attempt to return to the same households. The final sampling unit for households (kitongoji in rural areas, mtaa in urban areas) was reselected in 2006, within the same Ward as for 2005, by simple random sampling with no exclusion of 2005 kitongoji or mtaa. (Note: overlap occurred 12 times in total: 9 of the same vitongoji and 3 mitaa were randomly sampled in 2006 and in 2005).

Timing: The 2006 survey teams returned to the same districts on the same dates (within 3 days) as in 2005. The period of training, piloting and fieldwork was from June to August 2006.

Survey tools: The 2006 survey tools remained with the same questions as 2005, plus some additional questions that had been highlighted as warranting further exploration (e.g. attendance to RCH at outreach or at clinic). Implementation of the tools was by PDA, and quality control mechanisms remained the same.

The main aims of the surveys were:

Household survey:

- To provide estimates of ITN coverage in children < 5 years, children < 1 years, and pregnant women at national level
- To provide estimates of ITN coverage in children < 5 years at district level

- To investigate the changes over time in ITN ownership and use by target groups, and the relationship between these changes and *Hati Punguzo* implementation
- To provide information about household awareness and knowledge about the operation of the voucher scheme

Facility survey:

- To provide information about the availability of equipment and supplies for antenatal services, services offered, supervision, and utilization
- To provide information about conduct and content of health education sessions, particularly as they pertain to malaria in pregnancy
- To provide information from women attending RCH services about their knowledge and use of the voucher scheme, ITN use in pregnancy and knowledge of malaria in pregnancy
- To investigate the relationship between implementation of *Hati Punguzo* and RCH service provision and use over time

2.1 Survey Modules

The survey questionnaires consist of 3 instruments: household, facility services and facility users. The instruments were composed of the following modules:

(1) Household survey

Household module (HH) for a sample of 6300 households –

- Identifiers
- All residents
- Household assets (markers of socioeconomic status)
- Education and occupation of the household head
- Location of the household using a GPS
- ITN coverage of all household members

Women’s module (W) for all women aged 15-49 in a sample of 6300 households –

- Current pregnancies
- Pregnancies in the previous 18 months
- Use of antenatal services during these pregnancies
- Use of voucher scheme during these pregnancies
- Coverage of ITNs and IPTp in pregnancy

Children’s module (C) for all children aged 0-59 months in a sample of 6300 households

- ITN use

***Hati Punguzo* IRK module for all infants aged < 1 year, to be administered in those districts which were distributing IRKs by 1 June 2005. (5 districts = Tanga, Dodoma Rural, Kilombero, Rufiji, Bagamoyo).**

- Receipt of IRK
- Use of IRK to treat net

(2) Health Facility Survey

Health facility survey for the facility serving each cluster (210 facilities in total)

- Equipment, supplies and provision of antenatal services
- Conduct and content of health education/promotion activities

(3) Facility users Survey

An exit survey for women who have used RCH facility services (7 women X 210 facilities = 1470 women in total)

- Exit interviews of RCH users on their pregnancy history, use of RCH services this pregnancy, voucher knowledge and use, ITN use, and knowledge of malaria in pregnancy

2.2 Sampling process

A random sample of 21 “M&E districts” was drawn, stratified by phase of implementation (see Table 1 and Appendix 1).

Table 1. TNVS Monitoring and Evaluation – sampled M&E districts

Region	District	Phase* (2005)	Actual launch date	Days since launch at survey date
Dodoma	Dodoma Rural	1	25 Oct 2004	624
Morogoro	Kilombero	1	23 Dec 2004	559
Tanga	Tanga	1	4 Dec 2004	547
Coast	Rufiji	1	25 Feb 2005	469
Coast	Bagamoyo	1	1 Mar 2005	460
Singida	Singida Urban	2	25 Apr 2005	447
Kilimanjaro	Same	1	18 Apr 2005	415
Tabora	Tabora Rural	2	8 Jun 2005	405
Lindi	Nachingwea	2	20 May 2005	394
Mtwara	Tandahimba	2	18 Jul 2005	331
Arusha	Karatu	1	29 Jul 2005	325
Tabora	Igunga	2	1 Sep 2005	325
Kagera	Biharamulo	3	18 Nov 2005	233
Mwanza	Magu	2	20 Sep 2005	281
Mara	Bunda	2	5 Oct 2005	263
Kigoma	Kibondo	3	14 Nov 2005	241
Mara	Simanjiro	3	19 Dec 2005	173
Manyara	Mbulu	3	13 Jan 2006	152
Shinyanga	Meatu	3	13 Feb 2006	140
Iringa	Ludewa	3	23 Mar 2006	93
Rukwa	Sumbawanga rural	3	30 May 2006	30

*Phase reflects districts that were proposed for launch ‘early’ ‘middle’ and ‘late’ in the roll out process.

Ten clusters of 30 households (300 households in total) were selected in each district. Sampling was undertaken so that all households within the district had an equal chance of being included in the sample. Clusters (wards) were selected with probability proportionate to size of the ward. Within each chosen ward, one sub-village (kitongoji) was selected using simple random sampling. Within each selected kitongoji, 30 households were chosen using a modified EPI-type sampling procedure (see Appendix 1).

The facility module was administered to the health facility which serves the selected cluster, giving a total of 10 facilities per district.

At each facility the facility users’ interview was administered to the first 7 women to leave the facility on the day of survey. The interviewer(s) waited by the exit of the facility and introduced

him/her self to each woman as she left, asking for (approx) 15 minutes of her time and informed consent to proceed with the questionnaire.

2.3 Sample size

The sample size for the household survey was set to estimate two key indicators for each district. These two key indicators are:

1. Net use in the night before the survey in children under five years
2. Net use while *in utero* for children aged 0-11 months (reflects net use in pregnancy roughly one year prior to the survey).

Assuming an average household size of 5 people, 16% of the population below 5 years, 2.6% under 1 year, and a design effect of 2.0, Table 2 below gives the number of households to be visited in the survey area to estimate each indicator to within a given degree of precision.

Table 2. Sample size calculations for household survey

Indicator	Expected level to be estimated	Numbers of households required for estimating with given precision in percentage points (standard error)*		
		5	10	12.5
Net use in previous night in children < 5	0.50	250	63	40
Net use in utero for children aged 0-11 months	0.50	1538	385	246

*Limits of 95% confidence interval will be plus or minus twice the standard error

With 300 households in total, therefore, we would expect to be able to estimate net use by under-fives plus-or-minus 10%; and for children aged 0-11 months plus-or-minus 25%.

The sample size for the Facility users survey at RCH was estimated to detect one principal and more secondary outcomes:

1. An increase in the proportion of women first accessing antenatal services in the first trimester of pregnancy
2. An increase in the proportion of pregnant women who are protected by an insecticide treated bednet following inception of the voucher scheme

Assuming that two-thirds of pregnant women accessing antenatal services on the day of survey will have been exposed to the scheme, a sample of 170 respondents would give the study 90% confidence and 80% power to observe an increase in the proportion attending antenatal clinics in the first trimester from 5% to 20%.

This sample size is also sufficient to detect, with reasonable precision (90% confidence and 70% power), an increase in use of bednets by pregnant women from 40% to 60%, again assuming that two-thirds of the women accessing services on the day of interview have been exposed to the voucher scheme.

2.4 Logistics

The survey was carried out by 10 teams composed of 6 interviewers, a supervisor and a driver. The teams were combined into two groups of 5 teams, with each group working in one district, completing 2 clusters per team. One group followed a “Northern Route” (12 districts) and one a

“Southern Route” (9 districts). In each team two of the interviewers worked on the facility surveys and four worked on the household survey.

Each interviewer carried a personal digital assistant (PDA) (a small, hand-held computer) for data collection and GPS for recording the location of each household and facility. Each supervisor carried one laptop computer so that data from each day could be downloaded from the PDAs and written to a CD.

2.5 Quality control

Experienced interviewers were selected and trained for 2 weeks. Training included household selection, the consent process, interview technique, and probing for dates using local event calendars. A detailed interviewers’ guide was prepared, piloted during the training sessions and carried in the field by all interviewers.

The supervisor repeated key aspects of 3-4 household interviews independently each day, through accompanied interview and re-interview. Twenty percent of all facilities received a visit from the team supervisor on the day of interview. During this visit the supervisor aimed to:

- Observe interaction between MCH staff and Facility interviewer with a view to maintaining professionally appropriate behaviour by the TNVS employee
- Check posters on display with those noted by interviewer on survey instrument
- Re-interview respondent for specified key section.
- Counter-check the figures extracted from the Ledger books
- Observe at least one Facility User interviewer with a view to maintaining professionally appropriate behaviour by the TNVS employee
- Re-interview at least one respondent using specified key indicators.

At the end of each day supervisors synchronized the PDAs to their PC and ran two 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 with, e.g. household numbers, GPS readings, etc.

When a data entry error was encountered, the supervisors were asked to produce a Data Error Form. These were provided to the Data Manager for subsequent data cleaning.

2.6 Data processing

All 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.

2.7 Ethical aspects and informed consent

For all three surveys an information sheet about the study was drawn up in kiSwahili, explaining why it was being carried out, by whom, and what it involved. Respondents were asked if they had any questions and whether they agreed to take part in the study. Written consent of all respondents was obtained before proceeding with interview. For the household survey this consent was sought from the household heads (or appointed representative) and from each woman interviewed aged 15-49. For the facility user survey the information and consent process was carried out with each respondent individually away from the clinic site and respondents given a study number; no names or physical addresses were recorded. For the facility survey the district medical officer was contacted in the first instance and district level activities were described and consent sought to visit any of the RCH facilities within that District. At individual sampled facilities this process was then repeated with the Head of facility. Confidentiality of all study participants was assured. As a

means of enhancing this for facility employees the names of facilities interviewed within any district were not recorded at any time and feedback is restricted to District level – never facility level – issues.

2.8 Timing

Data collection took place between 3rd July and 23 August 2006. Cleaned data were provided by the Data Manager on 28th September. Preliminary results were presented to the TNVS partners at meetings at NMCP on 16 November 2006 and a subset of these were presented to NMCP and Ministry of Health officials on 18th November in Bagamoyo.

2.9 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.

An important element of the analysis was to define exposure to the voucher scheme. In 2005 exposure was based on ‘early’ ‘middle’ and ‘late’ launched districts according to the schedule for roll-out developed by implementers. However, in 2006 all districts had launched *Hati Punguzo* at least 30 days prior to survey date and actual district launch dates were available. The following definitions apply to the 2006 analysis:

Time since launch: This was calculated at the district level and for each survey year separately. It is defined as the number of days that had elapsed between the actual date of *Hati Punguzo* launch and the date of the survey (2005 or 2006). In the analysis this was further categorised into (a)not launched at time of survey (only applicable to some 2005 districts), (b)launched < 6 mths prior to survey, (c)launched between 6 and 12 months prior to survey, (d)launched >12 months prior to survey (only applicable to some 2006 districts).

2005 and 2006 current pregnancies: These were defined as being in “launched” districts if the actual district launch date provided by MEDA was at least 30 days prior to the date of interview in 2005 and 2006, respectively.

2005 Previous pregnancies (2004/5): These were defined as being in “launched” districts if the date of birth of the child was at least 30 days after the actual district launch date provided by MEDA.

2006 Previous pregnancies (2005/6): As for 2005, a previous pregnancy was exposed to the voucher scheme if the date of birth of the child was at least 30 days after the actual district launch date.

2005 Facility survey: Analysis was carried out for both district launch date plus 30 days and individual facility launch date due to the early stage of the implementation process at the time of survey.

2006 Facility survey: A facility was defined as launched if the actual district launch date was at least 30 days prior to the date of survey. (All individual facilities surveyed had launched at least 30 days prior to the 2006 survey (in keeping with district launch).

In order to examine the relationship between key coverage outcomes and socioeconomic status, an index of socioeconomic status was constructed using principal components analysis. The same approach was used in 2006 as for 2005 – the index being calculated separately for each year for both household and facility user survey data.

The indicators included in the index were a mixture of household ownership of assets (radio, mobile phone, and bicycle), housing conditions (whether own or rent house, type of toilet, whether connected to electricity supply, and type of roof), and education of household head. The education of household head was divided into three categories (no education, 1-6 years, or more than 6 years of education). All other variables were entered as binary (0-1) variables. The continuous variable produced by the principal components analysis was divided into 5 equal sized groups (quintiles). Results of the SES analysis are presented in Appendix 2.

3. Results

3.1 Characteristics of the sample

The characteristics of the samples for 2005 and 2006 are shown in Table 3. As in 2005, the number of refusals by household heads and women were low (0.4% for households and 5.4% for women aged 15-49). Although the number of households interviewed was similar, the number of current and previous pregnancies was lower in 2006 compared with 2005.

Table 3. Characteristics of sampled households /individuals (after cleaning), TNVS June 2006

	2005			2006		
	Household	Facility users	Facility services	Household	Facility users	Facility services
Total number of households interviewed	6199			6260		
By time since district launch*						
More than 12 months	2058	270	62	3274	368	80
6 – 12months	2078	328	62	1794	328	66
Less than 6months	2063	250	66	1192	166	42
Number of household refusals (%)	86 (1.4%)			25 (0.4%)		
Number of clusters	210	154	190	210	160	188
Total individuals in households	31164			30273		
Number of women 15-49	6287			6624		
Number of children < 5	5567			5815		
Number of children < 1	1180			1265		
Number of women interviewed	6287			5941		
Number of women refusals (%)	446 (6.6%)			336 (5.4%)		
Number of pregnant women interviewed		848			862	
Number of women not interviewed**	198			255		
Number of nets (household report)	5220			6939		
Number of antenatal records reviewed			17351			35,239
Number of current pregnancies	779			584		
Mean gestation (weeks)	20.3	26.8		21.0	26.7	
Number of live births in previous 12 months	1870			1332		
Household head respondents***:						
Men				2377		
Women				3726		
Of whom: currently pregnant				296		

*In 2005 the districts were categorised by proposed district launch date (early, middle and late)

** Women were not interviewed if they had travelled away from the household on the day of the interview and would not return while the survey team were in the vicinity; or if they were ill.

***The number of men and women household head respondents does not add up to the total number of respondents because of missing information on sex in a number of cases.

Figure 1 shows the distribution of households by SES and time since HP launch. This is especially important for interpreting the effects of time (exposure to the HP scheme) particularly in bivariate analysis, on key outcomes. The figure shows that the households in more recently-launched districts have a different distribution of socioeconomic status than those where the scheme has been operating for a longer period of time. In particular, the proportion of households in the “poorest”

quintile is 22% for the group which has been launched less than 6 months and only 14% for those with the longest exposure; and the share of those in the “least poor” group is 16% in the recently launched group compared with 28% in the longest exposure group. These differences must be borne in mind when considering what the likely effects of greater exposure time will be on, for example, bednet coverage.

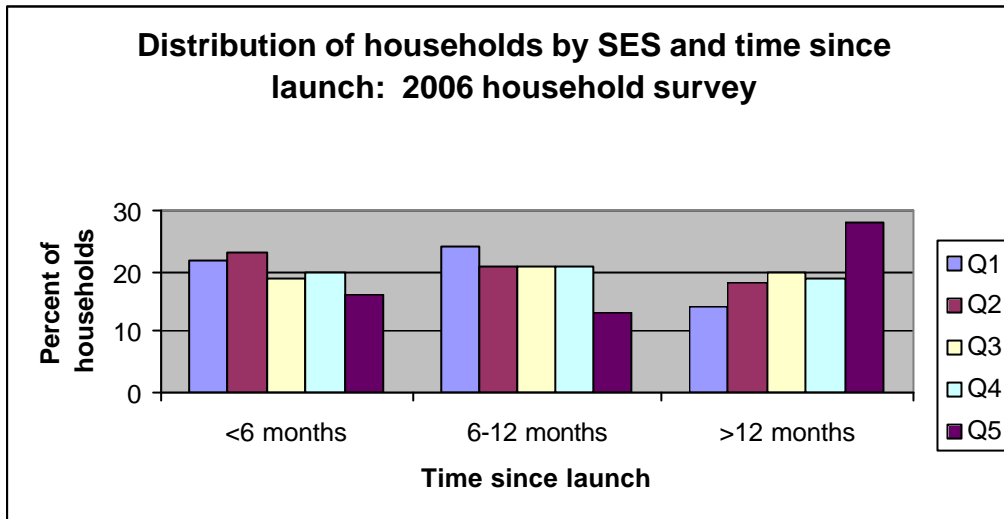


Figure 1

A similar implication follows from the changes in the rural/urban composition of the sample over time. The roll-out plan for HP was largely developed on a convenience basis – starting from Dar es Salaam and moving to the furthest reaches of Tanzania. In the facility user survey this has meant that of all women interviewed in areas that had launched for less than 6 months, 65% lived in rural wards and 4% lived in urban wards. By comparison, of all women interviewed in areas that had been launched for more than 12 months 54% lived in rural wards and 23% lived in urban wards. Figure 2 shows the same picture for the 2006 household survey data, with a higher share of urban households among the districts which had been launched for more than 12 months.

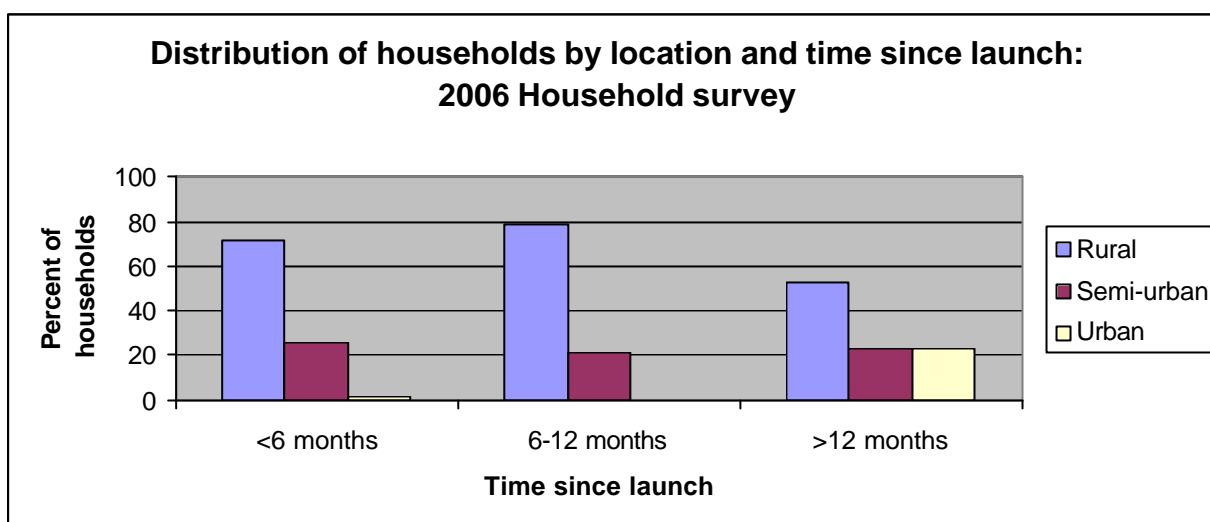


Figure 2

The data presented in this report represent 3 different populations of pregnant women: (1) currently pregnant women from the household survey, (2) women who had a pregnancy ending in a live birth in the 12 months prior to the household survey, (3) women who were interviewed while attending a sampled RCH facility. In addition, pregnant women are represented by the data extracted from routine RCH ledger books. Each population represents a slightly different group of women, and each is associated with different bias. Taken together the estimates offer a rich picture of pregnancy indices.

Table 3a shows the denominators used to calculate pregnancy coverage indicators presented in this report. Hati Punguzo coverage is restricted to women who have already attended RCH services during pregnancy. Bednet coverage indicators include all women. IPT coverage indicators include all women (unless otherwise specified).

Table 3a Denominators for pregnancy coverage indicators, Household and Facility surveys 2005/06

	2005				2006			
	Household survey		Facility		Household survey		Facility	
	Current pg	Pregnancies in 2004/5	Pregnant RCH users	Facility records	Current pg	Pregnancies in 2005/6	Pregnant RCH users	Facility records
Total pregnancies	779	1870	848	Attenders: 17,351	584	1332	862	Attende 35,239
Pregnancies in launched districts	420	164	488		584	977 (73.3)	862	
Attended RCH – overall (%)	377 (48.4)	1825 (97.6)			331 (56.7)	1264		
Attended RCH – launched (%)	214 (51.0)	163 (99.4)			331 (56.7)	922 (97.7)		

Table 3b. Breakdown of current pregnancies by key demographic variables for household and facility users surveys 2006

	Household current pregnancies N=584	Facility users N=862
Location		
Rural	70.2 (62.7-77.6)	63.2 (55.1-70.6)
Semi-urban	21.9 (15.1-28.8)	26.3 (19.4-34.5)
Urban	7.9 (4-11.7)	10.4 (0.7-16.0)
Trimester		
1 st	28.6 (25-32.2)	3.2 (2.2-4.7)
2 nd	36 (32.1-40)	39.5 (35.9-43.3)
3 rd	35.4 (31.7-39.2)	57.2 (53.1-61.2)
Gravidity		
Primigravidae	15.1 (12.1-18)	23.4 (20.5-26.6)
Multigravidae	84.9 (82-87.9)	76.6 (73.4-79.5)
Time since launch		
<6 months	25.2 (20-30.3)	19.2 (16.9-21.8)
6-12 months	38.2 (30.5-45.9)	38.0 (35.4-40.7)
>12 months	36.6 (30.6-42.7)	42.7 (39.9-45.6)
Socioeconomic status		
Q1	16.6 (13.4-19.8)	19.2 (16.4-22.5)
Q2	20.4 (16.8-24)	20.0 (17.3-23.1)
Q3	23.3 (19.9-26.7)	20.6 (17.8-23.7)
Q4	22.4 (19.1-25.7)	20.0 (17.3-22.8)
Q5	17.3 (13.4-21.2)	20.0 (16.4-24.4)

Table 3b compares the characteristics of the two groups of pregnant women (facility users and household current pregnancies) over which key indicators such as bednet coverage, voucher receipt and voucher use are calculated. There are important differences between the two survey populations to consider when interpreting the levels of coverage estimated by each. Most importantly these are:

1. The facility user group represents fewer rural residents than the household survey. Urban clinics tend to be busier than rural clinics and therefore a one-day facility survey in an urban clinic is more likely to fulfill its required sample than in a rural clinic. This is a selection bias associated with interviewing women at clinic compared to in their own homes.
2. The urban bias in the facility survey is further exaggerated in the early launch districts because of the additional urban bias which arises from the roll-out plan for Hati Punguzo (see Figure 2). As a consequence, the facility user population has a higher proportion of women living in districts that had launched more than 12 months before the survey than the household pregnant population.
3. The facility user group represents fewer women at the beginning of pregnancy than the household population (3% vs 29%). This would be expected in a country where the mean gestation at first attendance is not before 20 weeks of pregnancy. The implication of this, however, is that the facility user group have had more pregnancy exposure time than the household group.
4. Although there is almost universal attendance at RCH at least once in Tanzania, the women who are at clinic on the day of survey are more likely to be regular users of services. As such they may represent a group with positive health seeking behaviour.

Note that the SES distribution of pregnant women across the two surveys is not directly comparable. In the household survey the SES variable was modeled on all households included in the sample – some with non-pregnant residents – and as such shows the distribution of pregnancies

across the wealth quintiles of all households in this sample. The facility user survey models SES for all pregnant respondents and therefore distributes women equally across the wealth quintiles.

In summary, the demographics of the facility user survey population are such that the group is likely to display higher levels of net ownership and use than the household survey.

Table 3c summarises sampled RCH clinics for both years. Overall there were slightly fewer dispensaries, and more health centres, in 2006 compared to 2005. All individual facilities had launched HP in 2006.

Table 3c Summary of facility sample 2005 and 2006 surveys

	2005	2006	P
All facilities	N=190	N=188	
Facility types			
Dispensary	78.9	72.3	0.006
Health Centre	11.0	16.4	
Hospital	10.0	11.1	
Facility ownership			
Mission	10.5	9.5	0.8
NGO	0.5	0.5	
Government	88.9	89.9	
Facility Hati Punguzo Status			
Not started	45.2	0	<0.001
Trained	14.2	0	
Started	40.5	100	

3.2 Coverage and use of vouchers

Table 4 summarises information about voucher coverage nationally from the household, and facility data. Estimates of voucher coverage, defined as the proportion of pregnant women attending RCH nationally who received a voucher, ranged from 70.1% (household, currently pregnant) to 75.3% (facility users). The estimate from the household survey for previous pregnancies is 64.7%, this lower estimate reflecting coverage in the recent past when the voucher system was at an earlier stage of implementation. We therefore believe that the estimates from the household current pregnancies and facility users are better measures. The validity of these indicators is underscored by the similarity of the measures from household current pregnancies, and facility groups. The results show a dramatic increase from 2005 levels, regardless of the group in which this indicator is measured.

Table 4 Summary statistics for voucher coverage from Household and Facility surveys, 2006

	2005	2006	p
Household (current pg)	N=194 44.3 (36.3-52.7)	N=331 70.1 (63.7-75.8)	<0.05
Household (births in previous 12 months)	N=138 55.8 (46.5-64.7)	N=922 64.7 (60.6-68.6)	0.01
Facility users	N=488 42.0 (33.8-50.6)	N=862 75.3 (70.5-79.4)	<0.001
Facility records	N=10239 46.7 (45.7-47.7)	N=25033 72.1 (71.5-72.6)	<0.001

Tables 4a and 4b examine the associations between voucher coverage and key potential explanatory variables for the facility user and household current pregnancy group, respectively. There are some interesting similarities and differences between the factors influencing voucher coverage in these 2 groups, as explored in Tables 4a and 4b. For simplicity, and because it allows for a degree of control for confounding of time and other factors, we focus on the interpretation of the multivariate analysis of the 2006 survey data.

First, time since launch is significantly associated with voucher coverage in both groups, with women in the >12 months group having a significantly higher chance of receiving a voucher than those in the <6 months group (an odds ratio of 2.4 in the facility user group and 4.9 in the household current pregnancy group). Clearly, time for the system to “bed down” is important in achieving higher levels of voucher coverage.

Second, there seems to be a moderate effect of socioeconomic status on the likelihood of receiving a voucher in the group of facility users (OR of 2.3 for the highest quintile compared with the lowest), but this relationship is not present in the household survey group. The issue of who receives vouchers has been of concern to programme implementers and, while the conflicting evidence means that rationing by socioeconomic status cannot be ruled out, it is heartening to see that the evidence is ambiguous.

Third, there is evidence from the household current pregnancy group that location is associated with voucher receipt, with urban women less likely to receive a voucher than rural women. The results for the facility users survey group are similar in direction but not statistically significant. One possibility may be greater use in urban areas of private ANC services where vouchers are not available.

Because of concerns which had been raised from qualitative work presented earlier in the year about reasons for not giving vouchers, the household and facility users surveys both explored the issue of attendance at outreach clinics. The household survey asked whether RCH attendance had been at outreach or the fixed facility, for both current and previous pregnancies. For current pregnancies only 2.1% of women reported that they had received their services on outreach (n=7 in total) so it is not possible to explore any relationships between the location where services were received and voucher receipt. However, the facility survey indicated that only around half (56/101, 53.4%) of facilities that provided outreach services also distribute HP at outreach, and just over half of those (33/56, 58.9%) said that they distribute to everyone. The most common reasons cited for not distributing vouchers at outreach were 1)vouchers were only for distribution at clinic, 2)women at outreach can't afford to use the vouchers, 3)the feeling that there would not be enough vouchers, and 4)being unsure about how to record vouchers delivered at outreach.

Table 4a. Bivariate and multivariate analysis of determinants of receipt of a voucher in launched districts, Facility users 2006

	Facility users – bivariate analysis 2006			Facility users – multivariate analysis 2006	
	N	%	p	Adj Odds Ratio (95% CI)	F (p-value)*
All women in launch districts	862	75.2 (70.4-79.4)			
Gravidity					
Primigravidae	202	74.7 (66.9-81.2)	0.82	1.0	0.04 (0.83)
Multigravidae	660	75.4 (70.6-79.6)		0.96 (0.6-1.3)	
Gestation					
First trimester	28	53.5 (33.9-72.1)	0.007	1.0	1.25 (0.28)
Second	341	69.8 (62.6-76.2)		1.91 (0.78-4.65)	
Third trimester	493	80.2 (75.2-84.2)		2.24 (0.82-6.12)	
Residence					
Rural	545	76.3 (70.7-81.1)	0.73	1.0	1.10 (0.33)
Semi-urban	227	74.4 (65.7-82.2)		0.86 (0.51-1.45)	
Urban	90	70.0 (47.8-85.5)		0.41 (0.12-1.35)	
Socio-economics					
Q1 (poorest)	166	66.2 (56.6-74.4)	0.007	1.0	4.57 (0.001)
Q2	173	69.3 (61.3-76.3)		1.16 (0.74-1.84)	
Q3	178	80.9 (74.0-86.2)		2.19 (1.30-3.68)	
Q4	172	81.9(75.8-87.3)		2.51 (1.42-4.43)	
Q5 (least poor)	173	77.4 (65.3-86.2)		2.30 (1.09-4.83)	
Time since launch					
<6 mths	166	67.4 (54.2-78.4)	0.15	1.0	3.60 (0.02)
6-12 mths	328	74.3 (67.0-80.5)		1.41 (0.73-2.69)	
>12 mths	368	79.6 (72.6-85.2)		2.35 (1.19-4.63)	

Totals do not always add up due to missing values

*Adjusted Wald test for significance of differences observed

**Facility user multivariate analysis controls for number of visits to clinic

Table 4b. Bivariate and multivariate analysis of determinants of receipt of a voucher in launched districts, Household currently pregnant 2006

	HH Current – bivariate analysis 2006			HH Current – multivariate analysis 2006 only	
	N		(p- value)	Adj Odds Ratio (95% CI)	F (p-value)
All women in launch districts	331	70.1 (63.7-75.8)			
Gravidity					
Primigravidae	57	73.7 (60.1-83.9)	p=0.53	(n/a)	
Multigravidae	274	69.3 (62.4-75.5)			
Location of outreach					
Facility	324	70.7 (64.3-76.3)	p=0.15	(n/a)	
Outreach	7	42.8 (12.2-80.1)			
Gestation					
First trimester	24	66.6 (47.4-81.5)	p=0.57	1.0	F0.85
Second	109	66.9 (56.0-76.3)		1.1 (0.4-2.8)	P0.4
Third trimester	198	72.2 (64.7-78.6)		1.5 (0.6-3.6)	
Residence					
Rural	229	69.0 (60.9-76.1)	p=0.26	1.0	F4.2
Semi-urban	71	77.5 (63.3-87.3)		1.5 (0.7-3.3)	P0.01
Urban	31	61.3 (47.1-73.8)		0.3 (0.1-0.8)	
Socio-economics					
Q1 (poorest)	48	62.5 (46.9-75.9)	p=0.75	1.0	F0.4
Q2	76	73.7 (61.4-83.2)		1.6 (0.7-3.4)	P0.7
Q3	73	70.0 (57.6-79.8)		1.1 (0.5-2.5)	
Q4	79	72.2 (60.8-81.3)		1.2 (0.5-2.7)	
Q5 (least poor)	55	69.1 (55.2-80.2)		1.3 (0.5-3.2)	
Time since launch					
<6 mths	76	52.6 (38.0-66.7)		1.0	F7.8
6-12 mths	116	69.8 (58.4-79.1)		2.2 (1.0-5.0)	P0.0006
>12 mths	139	79.8 (71.9-85.9)	0.002	4.9 (2.2-10.9)	

Totals do not always add up due to missing values

The next step in the voucher process is voucher redemption, which measures whether women who received a voucher used it to purchase a net. Summary statistics for voucher redemption from 2 different sources for the 2 years are shown in Table 5. Redemption in 2006 had remained very close to that observed in the 2005 survey at 71.6% for women who were still pregnant in the facility survey, to 82.8% for women who had completed their pregnancies. Because women may hold their voucher for some time before redeeming it, it is not surprising that an indicator measured later in the course of a pregnancy produces a higher rate of redemption. We feel that the measure in household past pregnancies is probably the better measure of redemption rates and is very close to the redemption measure produced by MEDA from their routine voucher data systems of 83% as at November 2006 (source: MEDA monthly report to NMCP, November 2006, spreadsheet dated 13 December 2006).

Table 5 Summary statistics for voucher redemption (use) from Household and Facility surveys, 2006

	Household Past pregnancies			Facility users		
	2005 N=108	2006 N=633	p-value	2005 N=142	2006 N=388	p-value
Used voucher to buy a net	79.6 (68.9-87.4)	82.8 (77.9-86.8)	0.53	69.0 (60.7-76.4)	71.6 (65.9-76.7)	0.54

Overall, 99% of women in the past pregnancy group who had redeemed their voucher said that the voucher was easy to use. Variables associated with voucher redemption for women who have completed their pregnancy are explored in Table 6. This shows a sharply increasing gradient of voucher redemption with socioeconomic status, with women in the least poor quintile over 5 times more likely to have redeemed their voucher. This indicates the ongoing challenge to equity. Table 7 shows reasons for non-use of vouchers amongst women who had completed their pregnancy but still not used their voucher at the time of survey. Not having enough money for the top-up was cited as the reason for non-use in just over half of the cases. Overall 9.5% of all voucher recipients said that they did not redeem the voucher because of a lack of money.

Table 6 Bivariate and multivariate analysis of determinants of voucher redemption Household Past Pregnancies 2006

	Household past pregnancies Bivariate 2006 only			Household past pregnancies multivariate analysis 2006 only	
	N		(pvalue)	Adj Odds Ratio (95% CI)	F (p-value)
Used voucher to buy a net	633	82.8 (77.8,86.9)			
Time since launch					
<6 mths	88	72.7 (59.9,82.6)	0.04	1.0	F=2.7 P=0.07
6-12 mths	267	82.8 (75.8,88.0)		1.8 (0.9-3.3)	
>12 mths	278	86.0 (80.4-90.2)		2.3 (1.1-4.5)	
Socio-economics					
Q1 (poorest)	87	65.5 (52.6-76.5)	0.0001	1.0	F=5.2 P=0.0005
Q2	128	80.5 (70.5-87.6)		2.1 (1.1-4.2)	
Q3	132	84.1 (75.7-90.0)		2.8 (1.4-5.7)	
Q4	167	86.2 (79.5-91.0)		3.1 (1.6-6.0)	
Q5 (least poor)	119	91.6 (85.2-95.4)		5.8 (2.5-13.4)	
Residence					
Rural	361	81.7 (75.5-86.6)	0.70	1.0	F=0.08 P=0.8
Semi-urban	113	85.0 (72.4-92.4)		1.1 (0.5-2.5)	
Urban	50	86.2 (72.3,93.7)		0.9 (0.3-2.5)	
Location of antenatal					
Facility	619	82.7 (77.7-86.8)	0.77	1.0	0.68
Outreach	14	85.7 (57.1-96.4)		1.7 (0.5-5.9)	

Totals do not always add up due to missing values

Table 7 Reasons for non-use of voucher, Household Past pregnancies 2006

Overall N 109	N=109	%
Gave voucher away	1	0.9
Already had a net/don't need a net	9	8.3
No money for the top-up	58	53.2
Lost the voucher	11	10.0
Bought something else	1	0.9
Don't know where to redeem/don't understand voucher	5	4.6
No shops near by selling nets	3	2.7
No voucher nets in shop	12	11.0
Will use later	2	1.8
Other	7	6.4

3.3 The cost of using vouchers

Women incur three types of cost in using the voucher scheme to acquire a net. First, they must add top-up money to the value of the voucher at the time of redemption. Second, they must spend time traveling to the point where they redeem the voucher. And third, they may incur cash costs for travel. These costs are explored in Tables 8 and 9.

Table 8 shows the top-up amounts paid overall, and by size of net, for 2005 and 2006, and compares across the facility users survey and household survey groups (in the case of the household survey current and previous pregnancies are combined). A number of observations can be made from these data. First, there has been an increase in the amount of top-up paid between the two years (18-19%). This is consistent with the observed increase in net prices at the manufacturer level, which is related to increased running and input costs including the effect of higher oil prices and widespread electricity shortages. Second, confidence in these estimates is increased by the observation that the mean top-up increases with net size, and that the two sources of data give very similar results.

Table 8 Mean top-up paid by size of net bought, Facility user and Household survey 2006

	Facility Users					Household [current + prev pregnancies]				
	2005		2006		p-value	2005		2006		p-value
	n	mean	n	mean		N	mean	n	mean	
All voucher nets	103	1019	290	1203	0.005	140	968	643	1149	0.01
3.5x6	11	750	29	1018	0.01	20	660	120	1001	<0.001
4x6	32	823	101	1153	<0.001	53	820	286	1098	<0.001
6x6	31	1335	91	1390	0.6	52	1238	173	1336	0.50
Other size	29	1000	69	1108	0.2	13	961	64	1148	0.4

Totals do not always add up due to missing values

During 2005 there was also a supply of Olyset nets which were made available for voucher sales in Kagera and Kigoma regions. The top-up amount paid for these should have been considerably higher. Table 8a shows that there was no difference in the mean top-up paid in Kibondo and Biharamulo districts (the 2 M&E districts in these regions) compared with the mean top-up in the remaining districts from the 2006 for current and past pregnancies combined in the 2006 survey.

Table 8a Mean top-up paid for voucher net, Household survey 2006, current and past pregnancies combined: Districts which received Olyset nets (Kibondo and Biharamulo) vs other districts

	N	Mean (TSh)	P
Kibondo and Biharamulo districts	65	1164	0.6
All other districts	716	1112	

In addition to the top-up amounts paid, in using their vouchers to purchase a net women face the time and travel costs of getting to the place where the net is sold. Table 9 summarises the time and travel costs of using the voucher for 2005 and 2006. There are no significant differences between the two years. The mean travel time is about 40-43 minutes and mean travel cost between TSh 110 and TSh 135 .

Table 9. Cost of using voucher

	2005	2006	P
Travel time to purchase net (minutes)	40.3 (N=126)	43.3 (n=598)	0.52
Travel cost to purchase net (TSh)	134.8 (n=138)	109.9 (n=643)	0.63

In 2005 there was evidence to suggest that bednets bought with *Hati Punguzo* vouchers were larger than existing nets in households. However, this was not apparent from the 2006 data with the size distribution of nets being the same whether or not they were purchased using a voucher (Table 10). This may be related to the top-up payment increases discussed above.

Table 10 Size of net purchased, by whether or not the net was purchased using a voucher (reported by household head)

	2005				2006			
	Used voucher	N	Did not use voucher	N	Used voucher	N	Did not use voucher	N
3.5X6	12.7 (7.5-20.7)	21	21.2 (19.0-23.5)	1045	19.0 (16.2,22.1)	166	18.6 (16.7,20.7)	1095
4X6	38.8 (30.7-47.5)	64	40.8 (38.4-43.2)	2014	45.0 (41.5,48.6)	394	43.4 (41.0,45.8)	2551
6X6	35.8 (28.2-44.1)	59	21.4 (19.4-23.6)	1056	24.0 (20.8,27.5)	210	22.9 (20.9,25.1)	1347
Other size	12.7 (8.4-18.7)	21	16.7 (14.7-18.9)	824	12 (9.5,15.0)	105	15.1 (13.5,16.9)	888
All		165		4939		875		5881
P-value	0.001				0.25			

Totals do not always add up due to missing values

Pearson design based test for significance of test of whether size correlated with voucher use

3.4 Household ownership of bednets

The change in household ownership of bednets between 2005 and 2006 is summarised in Table 11. Estimates of ownership of any net in 2006 range from 77.4% in the Facility user survey to 56.9% in the Household survey. Both surveys estimate a significant increase in ownership of any net between 2005 and 2006. There was no change in the percentage of households who owned a never treated net. Household ownership of at least one recently treated net doubled from about 14% in 2005 to 29% in 2006.

Table 11 Summary statistics for household ownership of at least one bednet, Household and Facility surveys, 2006

	Household			Facility users		
	2005 (N=6115)	2006 (n=6260)	P	2005 (N=848)	2006 (N=862)	P
Any net	43.9 (40.1 – 47.8)	56.9 (53.3 – 60.5)	<0.001	64.1 (58.7-69.2)	77.4 (72.7-81.5)	<0.001
Never treated	25.4 (23.1-27.9)	27.7 (25.4-30.1)	0.15	n/a	n/a	
Ever treated	23.7 (21.1-26.4)	37.5 (34.7-40.4)	<0.001	n/a	n/a	
Recently treated	17.9 (15.7 – 20.2)	28.9 (26.6 – 31.3)	<0.001	n/a	n/a	

The mean number of bednets per household increased from 0.8 bednets per household in 2005 to 1.1 bednets per household in 2006 (Table 12); and in households with resident pregnant women from 0.9 to 1.2. This suggests that one important contribution of TNVS is to increase coverage of target groups by increasing the number of nets within households.

Table 12. Mean number of bednets per household in Tanzania: all households and households with resident pregnant woman, Household survey 2006

	Mean number of nets	P
All households 2005 (N=6113) 2006 (N=6260)	0.8 (0.7-0.9) 1.1 (1.0-1.2)	<0.001
Households with resident pregnant woman* 2005 (N=1886) 2006 (N=1826)	0.9 (0.8-1.0) 1.2 (1.0-1.3)	<0.001

*Combines data on current and past pregnancies

Tables 13a and 13b show the analysis of potential determinants of household ownership of nets by time, SES and residence using both bivariate and multivariate analysis. Table 13c shows the same analysis for ITNs.

Looking first at the multivariate analysis of determinants of household ownership of any net (Tables 13a and b), data from both the facility user survey and the household survey indicate a strong and very similar (in terms of the magnitude of the ORs) relationship between net ownership and time since launch, with households in districts which had launched 12 months or more prior to the survey

having a 3-4 times higher likelihood of owning a net after adjustment for other factors. Likewise, both surveys indicate a similar association of net ownership with socioeconomic status. In addition, the household survey data (but not facility users) indicates a relationship with residence, with urban households 1.9 times more likely to own a net than rural households.

Comparing the determinants of ownership of a recently treated net with those of any net from the household survey data, time since launch and socioeconomic status have significant effects, but these effects appear to be less sharp for recently-treated net than for any net. For instance, the adjusted odds ratio for ownership of any net in the highest socioeconomic quintile is 8.5, compared with 5.5 for ITN ownership in the same group. Interestingly, there appears to be an effect of location on ITN ownership, but the group with the highest odds of ownership are those who live in semi-urban areas. These differences notwithstanding, the determinants of ownership of any net and of ITNs are remarkably consistent in significance and magnitude.

Table 13a. Bivariate and multivariate analysis of determinants of household ownership of any net, Facility user survey 2006

		Any net 2006		Adj OR 2006 N=862	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	862	77.4 (72.7-81.5)			
Time since launch					
< 6 months	166	54.8 (42.7-66.3)		1.0	
6-12 months	328	81.4 (75.1-86.3)		4.2 (2.3-7.89)	F=12.8
>12 months	368	84.2 (77.2-89.3)	<0.0001	4.4 (2.1-8.9)	(<0.001)
SES					
Q1	166	65.6 (56.0-74.1)		1.0	
Q2	173	67.6 (58.8-75.3)		1.1 (0.7-1.6)	
Q3	178	79.2 (71.9-84.9)		1.9 (1.1-3.2)	
Q4	172	80.8 (72.6-86.9)	<0.0001	2.4 (1.3-4.5)	F=8.4
Q5	173	93.6 (89.0-96.3)		7.6 (3.4-16.7)	(<0.001)
Residence					
Rural	545	73.3 (67.0-78.9)		1.0	
Semi-urban	227	83.2 (75.5-88.8)		1.5 (0.8-2.6)	F=1.3
Urban	90	87.7 (72.9-95.0)	0.03	0.9 (0.3-2.6)	(0.2)

Totals do not always add up due to missing values

Table 13b. Bivariate and multivariate analysis of determinants of household ownership of any net, Household survey 2006

		Any net 2006 N=6260		Adj OR 2006 N=6255	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	6260	56.9 (53.4-60.4)			
Time since launch					
< 6 months	1491	35.6 (27.5,44.6)		1.0	
6-12 months	2094	55.1 (49.8 - 60.2)		2.7 (1.8-4.2)	F=15.7
>12 months	2675	70.2 (64.8 - 75.0)	<0.001	3.7 (2.3-5.9)	P<0.001
SES					
Q1	1220	31.4 (27.2 -35.9)		1.0	
Q2	1280	46.0 (41.8 - 50.3)		1.8 (1.5-2.2)	
Q3	1253	58.9 (54.3 - 63.4)		3.0 (2.4-3.7)	
Q4	1250	64.6 (60.1 - 68.9)		3.9 (3.0-4.9)	F=47.7
Q5	1252	83.2 (79.7 - 86.2)	<0.001	8.5 (6.1-11.7)	P<0.001
Residence					
Rural	4146	49.3 (45.0 - 53.7)		1.0	
Semi-urban	1460	66.0 (57.9 - 73.3)		1.6 (1.1-2.4)	F=6.1
Urban	654	84.7 (78.6 - 89.3)	<0.001	1.9 (1.2-2.9)	P=0.002

Totals do not always add up due to missing values

Table 13c. Bivariate and multivariate analysis of determinants of household ownership of recently treated net, Household survey 2006

		Recently treated net 2006 N=5962		Adj OR 2006 N=5958	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	5962	28.9 (26.6-31.3)			
Time since launch					
Not launched		(n/a)		(n/a)	
< 6 months	1449	14.3 (10.3-19.6)		1.0	
6-12 months	1999	24.9 (21.7-28.3)		2.2 (1.5-3.1)	F=22.1
>12 months	2514	40.0 (36.1-43.9)	<0.001	3.5 (2.4-5.1)	P<0.001
SES					
Q1	1174	12.5 (10.1-15.3)		1.0	
Q2	1230	19.3 (16.6-22.4)		1.6 (1.2-2.1)	
Q3	1188	28.2 (24.9-31.7)		2.5 (2.0-3.3)	
Q4	1190	34.0 (30.4-37.8)		3.4 (2.6-4.4)	F=53.4
Q5	1176	49.7 (45.1-52.3)	<0.001	5.5 (4.2-7.3)	P<0.001
Residence					
Rural	3969	23.2(20.6 - 26.0)		1.0	
Semi-urban	1378	35.0 (30.0- 40.2)		1.4 (1.1-1.9)	F=4.0
Urban	615	50.0 (43.5 -56.6)	<0.001	1.2 (0.8-1.6)	P=0.02

Totals do not always add up due to missing values

Information about bednet use is presented for pregnant women, children under 5 years, children under 1 year and all household members. For all groups except past pregnancies the question asked was “Did you sleep under a mosquito net last night”. In the case of previous pregnancies, it was

only possible to ask “While you were pregnant, did you sleep under a mosquito net?” so that the questions from the two different pregnant groups are not directly comparable and have therefore not been aggregated. In addition, previously pregnant women were only asked whether their net had been ever treated, and not the date of treatment.

3.5 Coverage of bednets: currently pregnant women

Information about the change in coverage of bednets in currently pregnant women is summarised in Table 14. Among facility users coverage of any net increased from 48% to 62% and ITN coverage increased from 31% to 42% from 2005 to 2006 (a 35% increase). From the household survey, coverage of any net increased from 25% to 34%, and of ITN from 11 to 18%, an increase of 64%. In both cases the observed changes are large and are statistically significant. As shown in Table 3b there are important differences between the two pregnant populations: importantly both groups show significant increases in ITN coverage over time.

Table 14. Summary statistics for bednet use last night by currently pregnant women, Household and Facility surveys 2006

	Facility users			Household currently pregnant		
	2005 N=848	2006 N=862	p-value	2005 (n=779)	2006 (n=584)	p-value
Any net	47.7 (43.4-52.0)	61.9 (56.9-66.7)	<0.001	25.2 (21.3-29.5)	33.9 (29.0 – 39.2)	0.004
Ever treated				13.4 (10.7-16.5)	22.7 (19.0-27.3)	<0.001
Never treated				11.8 (9.4-14.7)	11.1 (8.4-15.0)	0.7
Recently treated net	30.9 (26.8-35.2)	41.9 (37.2-45.9)	0.003	10.7 (8.5-13.4)	17.6 (14.2 – 21.7)	0.001

Tables 14a and 14b show the analysis of determinants of using any net or a recently treated net last night from the Facility survey. Tables 14c and 14d show the breakdown of determinants of using any net or a recently treated net last night from the Household survey for currently pregnant women.

In the case of any net use, the results are very similar between the facility and household survey groups. For both, the multivariate analysis shows socioeconomic status and time-since-launch to be significant determinants of net use. In the case of facility data, gestation of pregnancy is also a significant determinant, with women in the third trimester 4.6 times more likely to be sleeping under a net than those in their first trimester. For current pregnancies, location is also important, with women living in urban areas 3 times more likely to sleep under a net than those in rural areas.

For ITN use, the results are also similar between the two groups. For both the facility survey and the household survey SES has a significant effect but the size of the odds ratio is less than for any net, indicating a less steep gradient in socioeconomic status. Time since launch is also a statistically significant predictor of ITN use in both groups.

Table 14a. Bivariate and multivariate analysis of determinants of use of any bednet last night for currently pregnant women, Facility user survey 2006

		Any net 2006 N=862		Adj OR 2006 N=862	
	N	% (95% CI)	P	OR (95% CI)	F (p)
All	862	61.9 (56.9-66.7)			
Age					
<20 years	145	67.5 (58.0-75.8)		Not modelled	
20-29 years	469	62.9 (57.3-68.1)			
30-39 years	210	56.6 (48.5-64.4)			
40+ years	24	70.8 (49.9-85.5)	0.14		
Gravidity					
Primigravidae	202	64.3 (56.0-71.8)		Not modelled	
Multigravidae	660	61.2 (55.9-66.2)	0.4		
Trimester					
First	28	39.2 (22.2-59.3)		1.0	17.5 p<0.0001
Second	342	57.6 (50.7-64.1)		2.4 (1.1-5.0)	
Third	492	66.2 (60.6-71.4)	0.003	4.6 (2.1-9.7)	
Residence					
Rural	545	57.4 (50.9-63.6)		1.0	0.65 p=0.5
Semi-urban	227	66.0 (56.7-74.3)		1.24 (0.8-1.8)	
Urban	90	78.8 (65.3-88.1)	0.01	1.1 (0.6-2.0)	
SES					
Q1	170	48.8 (39.5-58.0)		1.0	13.3 p<0.0001
Q2	162	52.6 (43.9-61.0)		1.1 (0.7-1.7)	
Q3	178	58.9 (50.9-66.5)		1.4 (1.0-2.1)	
Q4	179	64.5 (55.5-72.6)		2.1 (1.3-3.2)	
Q5	173	84.3 (78.0-89.1)	<0.001	5.4 (3.2-8.8)	
Time since launch					
< 6 months	166	42.1 (32.5-52.4)		1.0	9.7 p=0.0001
6-12 months	328	63.1 (56.1-69.5)		1.9 (1.3-2.9)	
>12 months	368	69.8 (61.5-77.0)	0.0001	2.4 (1.5-3.7)	

Totals do not always add up due to missing values

*Age and gravidity not included in multivariate analysis since no difference observed in bivariate

Table 14b. Bivariate and multivariate analysis of determinants of use of a recently treated bednet last night for currently pregnant women, Facility users survey 2006

	Recently treated net 2006 N=862			Adj OR 2006 N=862	
	N	% (95% CI)	P	OR (95% CI)	F (p)
All	862	41.5 (37.2-45.9)			
Age					
<20 years	145	40.6 (32.6-49.2)	0.84	Not modelled	
20-29 years	469	43.2 (38.2-48.4)			
30-39 years	210	40.0 (32.9-47.4)			
40+ years	24	41.6 (23.9-61.8)			
Gravidity					
Primigravidae	202	43.0 (35.9-50.5)	0.60	Not modelled	
Multigravidae	660	41.0 (36.4-45.8)			
Trimester					
First	28	17.8 (7.6-36.3)	<0.001	1.0	31.1 p<0.0001
Second	342	34.2 (28.5-40.3)		2.6 (1.0-6.7)	
Third	492	47.9 (42.6-53.2)		6.0 (2.5-14.3)	
Residence					
Rural	545	39.0 (33.6-44.8)	0.09	1.0	0.20 p0.81
Semi-urban	227	42.7 (34.7-51.0)		1.0 (0.7-1.5)	
Urban	90	53.3 (42.6-63.7)		0.9 (0.5-1.5)	
SES					
Q1	170	29.5 (22.8-37.2)	<0.001	1.0	11.9 p<0.0001
Q2	162	30.6 (23.6-38.7)		1.1 (0.7-1.6)	
Q3	178	41.5 (34.0-49.4)		1.6 (1.1-2.4)	
Q4	179	41.8 (34.0-50.0)		1.6 (1.1-2.4)	
Q5	173	63.5 (56.3-70.2)		4.1 (2.7-6.5)	
Time since launch					
< 6 months	166	29.5 (21.0-39.6)	0.006	1.0	2.90 p0.05
6-12 months	328	39.9 (33.6-46.6)		1.3 (0.8-1.8)	
>12 months	368	48.3 (41.6-55.1)		1.6 (1.1-2.4)	

Totals do not always add up due to missing values

*Age and gravidity not included in multivariate analysis since no difference observed in bivariate

Table 14c. Bivariate and multivariate analysis of determinants of use of any bednet last night for currently pregnant women, Household survey 2006

	Any net 2006 N=584			Adj OR 2006 N=584	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	584	33.9 (29 – 39.2)			
Trimester					
First	167	29.9 (22.0-39.2)	0.39	1.0	F=0.19
Second	210	34.3 (27.3-42.0)		1.1 (0.7-1.9)	P=0.67
Third	207	36.7 (30.4-43.4)		1.4 (0.8-2.3)	
Gravidity					
Primigravidae	88	36.4 (26.8 – 47.1)	0.59	1.0	F=0.03
Multigravidae	496	33.5 (28.3 – 39.1)		1.0 (0.6-1.6)	P0.87
Residence					
Rural	410	28.3 (22.5 – 34.9)	<0.001	1.0	F=3.7 P=0.03
Semi-urban	128	37.5 (27.8 – 48.3)		1.3 (0.7–2.2)	
Urban	46	73.9 (57.7 – 85.5)		3.2 (1.4–7.3)	
SES					
Q1	97	16.5 (9.9 – 26.1)	<0.001	1.0	F=6.9
Q2	119	22.7 (15.6-31.7)		1.4 (0.7–2.7)	P<0.01
Q3	136	29.4 (21.8 – 38.3)		1.9 (1.0–3.5)	
Q4	131	41.2 (32.1 – 51.1)		3.0 (1.5–5.8)	
Q5	101	60.4 (49.3 – 70.5)		5.0 (2.5–9.9)	
Time since launch					
< 6 months	147	17.0 (10.7-25.8)	<0.001	1.0	F=4.8 P<0.01
6-12 months	223	32.3 (25.0 – 40.5)		2.4 (1.2–4.6)	
>12 months	214	47.2 (37.6 – 57.0)		3.1 (1.5–6.3)	

Totals do not always add up due to missing values

Table 14d. Bivariate and multivariate analysis of determinants of use of a recently treated bednet last night for currently pregnant women Household survey 2006

	Recently treated net 2006 N=584			Adj OR 2006 N=584	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	584	17.6 (14.2 – 21.7)			
Trimester					
First	167	13.1 (8.1-20.7)	0.11	1.0	F=0.5 P=0.5
Second	210	17.1 (12.2-23.5)		1.3 (0.7-2.4)	
Third	207	21.7 (16.7-27.6)		1.9 (1.0-3.7)	
Gravidity					
Primigravidae	88	17.1 (10.8 – 25.8)	0.86	1.0	F=0.3 P=0.6
Multigravidae	496	17.7 (14.1 – 22.1)		1.2 (0.6–2.0)	
Residence					
Rural	410	14.6 (10.8 – 19.6)	<0.001	1.0	F=0.8 P=0.4
Semi-urban	128	18.0 (12.3 – 25.6)		1.1 (0.6–1.0)	
Urban	46	43.5 (26.3 – 63.4)		1.8 (0.7–4.7)	
SES					
Q1	97	9.3 (5.1 – 16.4)	<0.001	1.0	F=3.7 P<0.01
Q2	119	8.4 (4.6 – 14.8)		0.8 (0.3–1.7)	
Q3	136	16.9 (11.3 – 24.6)		1.8 (0.8–4.0)	
Q4	131	19.1 (13.3 – 26.6)		1.9 (0.8–4.0)	
Q5	101	35.6 (25.6 – 47.2)		3.7 (1.6–8.4)	
Time since launch					
< 6 months	147	6.6 (3.5 – 12.5)	0.001	1.0	F=4.7 P=0.01
6-12 months	223	15.7 (11.3 – 21.3)		2.6 (1.1–5.8)	
>12 months	214	27.1 (19.7 – 36.0)		3.7 (1.6–8.7)	

Totals do not always add up due to missing values

Figure 3 examines specifically the changes in bednet use over time within each location for the household survey. There have been significant increases in net use within rural areas. However, the proportionate increase was smaller than in either semi-urban or urban areas.

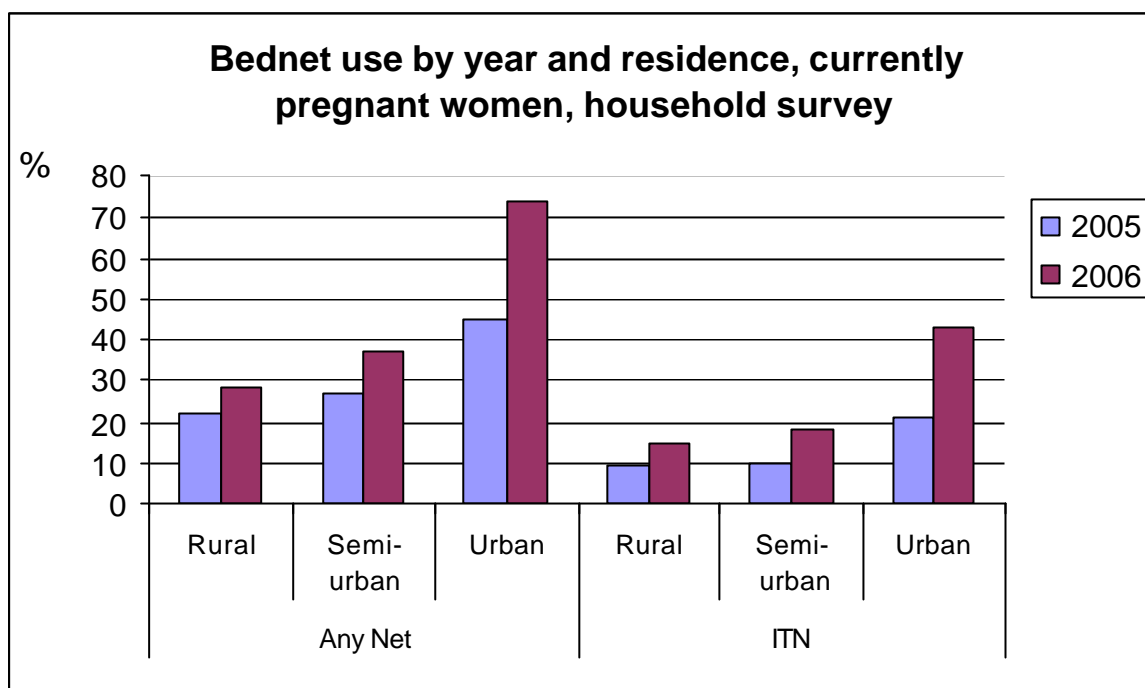


Figure 3

Rural:Urban Ratios: 2005 Any net 0.49, ITN 0.38; 2006 Any net 0.45, ITN 0.34

3.6 Coverage of bednets: past pregnancies

As stated earlier, bednet use in pregnancy is measured twice in the household survey: First for currently pregnant women on the night before survey, and secondly use of a net during pregnancy for women who had a live birth during the 18 months prior to survey.

Table 16 shows the summary statistics for bednet use at any time during a previous pregnancy. Again, a significant increase is observed in the percent of women who say they used any net, or an ever treated net, between 2005 and 2006 (to the order of 37% increase and 76% increase respectively).

Table 16. Summary statistics for bednet use at any time during pregnancy, previous pregnancies, Household survey 2006

	2005 (N=1251)	2006 (N=1294)	p-value
Any net	37.6 (33.4 – 42.1)	51.8 (47.5 – 56.0)	<0.001
Ever treated	21.0 (18.0 – 24.2)	37.1 (33.4 – 41.0)	<0.001

3.7 Coverage of bednets: children under 5

Table 17 presents information about net coverage among children and all household members. As for current pregnancy this question relates to use of a net the night prior to the survey, and is reported by the mother or guardian of the child in the case of child coverage estimates, and by the household head in the case of all household members. Data on ever-treated and never-treated nets are shown in Table 17a

Table 17 Summary statistics for bednet use by children and all household members, night preceding survey, Household survey 2006

	Any net			Recently treated net		
	2005 [N] % (95% CI)	2006 [N] % (95% CI)	p	2005 [N] % (95% CI)	2006 [N] % (95% CI)	p
Children < 5	[5567] 27.5 (24.2– 31.1)	[5815] 40.9 (37.3-44.6)	<0.01	[5567] 15.3 (13.1-17.8)	[5815] 28.4 (25.7–31.3)	<0.001
Children < 1	[1175] 32.7 (28.4-37.5)	[1265] 47.8 (43.5-52.1)	<0.01	[1175] 16.0 (13.3-19.1)	[1265] 27.7 (24.5-31.0)	<0.001
All household members	[31160] 23.4 (20.5-26.5)	[30273] 31.8 (28.8-35.0)	<0.01	[31160] 9.8 (8.3 – 11.7)	[30263] 15.6 (14.0–17.1)	<0.001

Table 17a Summary statistics for bednet use by children and all household members, night preceding survey, Household survey 2006

	Ever treated					Never treated				
	2005	N	2006	n	p	2005	N	2006	N	p
Children < 5	15.4 (13.1 – 17.9)	5567	28.4 (25.6-31.4)	5815	<0.01	12.2 (10.6-14.1)	5567	12.5 (10.8-14.4)	5815	0.
Children < 1	19.2 (16.0 – 22.8)	1175	36.1 (32.4-40.0)	1265	<0.01	13.6 (11.1 – 16.3)	1175	11.7 (9.7-14.1)	1265	0.
All household members	12.8 (10.9 - 14.9)	31160	20.5 (18.5 – 22.6)	30273	<0.01	10.3 (9.1 – 11.7)	30273	10.8 (9.5-12.3)	30263	0.

Between 2005 and 2006 there was a significant increase in coverage for all groups. Overall 40.9% of children under 5 slept under any net, and 28.4% slept under a recently treated net in 2006 – a 49% and 86% increase compared with 2005, respectively.

The analysis of the determinants of use by children under 5 is shown for any net (Table 18a) and ITN (Table 18b). For both outcomes, residence, time since launch, and SES are significant and substantively independent important predictors of net use.

Table 18a Use of any bednet by children under 5, bivariate and multivariate analysis, household survey, 2006

		Any net, children < 5 2006 N=5815		Adj OR 2006 N=5815	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	5813				
Residence					
Rural	4125	33.2 (29.2 – 37.5)		1.0	
Semi-urban	1235	52.2 (44.1 – 60.1)		1.8 (1.3 -2.6)	F=13.0
Urban	455	80.0 (70.2 – 87.2)	<0.001	2.9 (1.8 -4.7)	P<0.001
SES					
Q1	965	22.6 (18.5 – 27.3)		1.0	F=27.1
Q2	1224	29.2 (24.8 – 34.0)		1.4 (1.0 – 1.8)	P=<0.001
Q3	1280	38.1 (33.6 – 42.9)		2.0 (1.5 -2.6)	
Q4	1272	45.4 (40.2 – 50.6)		2.6 (1.9 – 3.5)	
Q5	1072	68.8 (63.8 – 73.3)	<0.001	5.4 (3.6 – 7.6)	
Time since launch					
< 6 months	1584	20.4 (14.6 – 27.7)		1.0	
6-12 months	2170	40.5 (35.2 – 46.1)		2.9 (1.9-4.6)	F=19.7
>12 months	2061	57.0 (50.2 – 63.4)	<0.001	4.3 (2.7-6.8)	P<0.001

Totals do not always add up due to missing values

Table 18b Use of a recently treated bednet by children under 5, bivariate and multivariate analysis, household survey, 2006

		Recently treated net, children < 5 2006 N=5813		Adj OR 2006	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	5813				
Residence					
Rural	4125	16.6 (14.3 – 19.3)		1.0	
Semi-urban	1235	27.6 (22.5 – 33.3)		1.6 (1.1 – 2.1)	F=4.9
Urban	455	44.2 (36.8 – 51.9)	<0.001	1.5 (1.0 – 2.0)	<0.001
SES					
Q1	965	9.8 (7.3 – 13.2)		1.0	
Q2	1224	14.0 (11.2 – 17.4)		1.4 (1.0 – 2.1)	
Q3	1280	18.4 (15.5 – 21.9)		1.9 (1.4 -2.7)	
Q4	1272	25.4 (21.7 – 29.4)		2.9 (2.0 – 4.1)	
Q5	1072	37.6 (33.3 – 42.1)	<0.001	4.0 (2.8 – 5.9)	F=17.8 P<0.001
Time since launch					
< 6 mnths	1584	10.0 (6.5-14.5)		1.0	
6-12 mnths	2170	19.0 (15.6 – 22.7)		2.1 (1.3-3.5)	F=18.6
>12 mnths	2061	32.1 (28.1 – 36.1)	<0.001	3.7 (2.4 – 5.8)	P<0.001

Totals do not always add up due to missing values

3.8 Coverage of bednets: children under 1

Overall, 48% of children under one year of age slept under any net the night prior to the survey, and 28% under an ITN (Table 17). Analysis of the variables associated with net use among children under 1 is shown for use of any net (Table 19a) and ITN (Table 19b). As with coverage of other target groups, the multivariate analysis indicates significantly higher coverage levels in urban compared with rural areas, higher compared with lower socioeconomic status, and a longer period of time since launch. The gradients in place of residence and socioeconomic status appear to be slightly less steep for ITNs compared with any net.

Table 19a Use of any bednet by children under 1, bivariate and multivariate analysis, household survey, 2006

	N	Any net, children < 1 2006		Adj OR 2006	
		N=	% (95%CI)	P	OR (95% CI)
All	1265		47.8 (43.5-52.1)		
Residence					
Rural	905		41.6 (36.7-46.7)	<0.001	F=6.3 P<0.001
Semi-urban	270		57.4 (47.7-66.5)		
Urban	90		81.1 (63.9-91.2)		
SES					
Q1	215		27.4 (21.4-34.4)	<0.001	F=16.7 P<0.001
Q2	275		34.2 (28.1-40.9)		
Q3	279		46.6 (40.0-53.3)		
Q4	286		56.3 (49.0-63.3)		
Q5	210		76.7 (69.2-82.7)		
Time since launch					
< 6 months	357		24.6 (17.6-33.3)	<0.001	F=18.6 P<0.001
6-12 months	464		50.4 (44.0-56.8)		
>12 months	444		63.7 (56.2-70.6)		

Totals do not always add up due to missing values

Table 19b Use of a recently treated bednet by children under 1, bivariate and multivariate analysis, household survey, 2006

		Recently treated net, children < 1 2006 N=		Adj OR 2006 N=	
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	1265	27.6 (24.5-31.0)			
Residence					
Rural	905	23.1 (19.5-27.1)	<0.001	1.0	F=3.0 P=0.04
Semi-urban	270	34.4 (27.4-42.3)		1.5 (1.2-2.2)	
Urban	90	53.3 (42.4-64.0)		1.6 (1.0-2.6)	
SES					
Q1	215	12.5 (8.5-18.1)	<0.001	1.0	F=10.6 P<0.001
Q2	275	17.4 (12.8-23.2)		1.4 (0.8-2.5)	
Q3	279	27.2 (22.0-33.1)		2.4 (1.4-4.1)	
Q4	286	34.2 (28.2-40.8)		3.5 (2.1-5.8)	
Q5	210	48.1 (40.9-55.3)		4.9 (2.8-8.6)	
Time since launch					
< 6 months	357	13.4 (8.8-19.9)	<0.001	1.0	F=14.4 P<0.001
6-12 months	464	26.0 (21.4-31.3)		2.2 (1.3-3.7)	
>12 months	444	40.7 (35.1-46.6)		3.8 (2.3-6.4)	

Totals do not always add up due to missing values

3.9 Coverage of bednets: all household members

Household heads were asked to indicate which household members had slept under each net in their household the previous night, giving an indication of bednet coverage among the general population. A summary of these results was shown in Table 17. Analysis of the determinants of net use by all household members is shown in Tables 20 and 21 and the results follow the same pattern as for other sub-groups, with significant associations between the use of any net and ITNs and location, socioeconomic status and time since launch.

Table 20 Use of any bednet by all household members, bivariate and multivariate analysis, household survey, 2006

		Any net, all household members 2006 N=30255	Adj OR 2006 N=30255		
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	30255				
Residence					
Rural	20263	23.4 (20.3–26.9)	<0.01	1.0	F=10.0 P<0.01
Semi-urban	6727	41.1 (34.5–48.1)		1.8 (1.3 -2.5)	
Urban	3283	64.7 (56.6–72.0)		2.0 (1.3–2.9)	
SES					
Q1	5297	12.7 (10.5–15.4)	<0.01	1.0	F=52.4 P<0.0001
Q2	5926	20.4 (17.5–23.6)		1.7 (1.4–2.1)	
Q3	6249	29.7 (26.2–33.5)		2.7 (2.2–3.3)	
Q4	6468	33.8 (30.0–37.8)		3.2 (2.6–4.0)	
Q5	6315	58.7 (54.1–63.1)		6.5 (5.0–8.6)	
Time since launch					
< 6 mths	7596	15.6 (10.9–21.7)	<0.01	1.0	F=17.0 P=<0.01
6-12 mth	10894	26.7 (22.8–30.9)		2.1 (1.3-3.3)	
>12 mths	11776	47.0 (41.3-52.7)		3.6 (2.3-5.7)	

Totals do not always add up due to missing values

Table 21 Use of a recently treated bednet by all household members, bivariate and multivariate analysis, household survey, 2006

		Recently treated net, All household members 2006 N=30255	Adj OR 2006 N=30255		
	N	% (95%CI)	P	OR (95% CI)	F (p)
All	29016				
Residence					
Rural	19657	11.0 (9.3–12.8)	<0.001	1.0	F=5.5 P0.004
Semi-urban	6362	20.4 (16.7–24.7)		1.6 (1.2-2.1)	
Urban	2997	33.4 (28.3–39.0)		1.3 (0.9–1.9)	
SES					
Q1	5187	4.9 (3.7–6.4)	<0.001	1.0	F=4.1 P=0.003
Q2	5775	8.9 (7.2–11.0)		1.8 (1.3-2.5)	
Q3	5985	13.2 (11.1–15.6)		2.7 (2.0–3.6)	
Q4	6212	17.2 (15.0–20.0)		3.6 (2.7–4.9)	
Q5	5857	31.1 (28.1–34.4)		6.2 (4.6–8.6)	
Time since launch					
< 6 months	5826	7.3 (4.9 – 10.7)	<0.001	1.0	F=19.6 P<0.001
6-12 months	9312	11.4 (9.4-14.0)		1.6 (1.2-2.5)	
>12 months	15135	24.6 (21.4 – 28.1)		3.3 (2.1-5.0)	

Totals do not always add up due to missing values

3.10 District level coverage data

District-level changes in bednet coverage from 2005 to 2006 are explored in Table 22, which presents data by district for children under five (reported by their mother/guardian) and similarly Table 23 for all household members (reported by the household head).

Overall, coverage of any net increased in all but 2 districts, and these changes were statistically significant in 7 districts. ITN coverage increased in all but 1 district, and statistically significant increases were also seen in 7 districts. The confidence intervals for many of these estimates remain quite large, which is why relatively few of the differences are statistically significant. Nonetheless, many of the changes are large in absolute magnitude: coverage of any net more than doubled in Kibondo, Mbulu and Tandahimba districts; and increased by more than 10 percentage points in 12 districts. For ITNs, coverage of under-fives more than doubled in 8 districts (Dodoma Rural, Rufiji, Igunga, Karatu, Kibondo, Mbulu, Simanjiro and Tandahimba) and increased by more than 10 percentage points in 5 districts.

For all household members, there were also large increases in net and ITN use in many districts. ITN use, in particular, more than doubled in 9 districts (Dodoma Rural, Rufiji, Karatu, Kibondo, Mbulu, Nachingwea, Simanjiro, Sumbawanga and Tandahimba).

Of particular interest is the change in ITN use among under-fives in those districts where there was distribution of free nets integrated with the immunization campaign in August 2005 (Rufiji and Nachingwea) and in December 2005 (Tandahimba). Large and statistically significant increases in any net and ITN coverage in all three of these districts. However it is important to note that because of the presence during this time of the voucher scheme (all had launched mid-2005 and therefore had been operating for about 12 months at the time of the 2006 survey) it is not possible to attribute all of the increase in net use among under-fives to the free net campaign. Twelve months after the free net distribution, coverage of ITNs among this group was estimated to be 38% in Rufiji, 29% in Nachingwea and 50% in Tandahimba.

Table 22 – By district: coverage among under 5s, changes 2005 to 2006 (any net, recently treated net), Household survey 2006

	Any net			Recently treated net		
	2005 (n=5567)	2006 (n=5815)	P	2005 (n=5567)	2006 (n= 5815)	P
Districts launched > 12 months prior to 2006 survey						
Tanga	82.0 (71.0-89.3)	90.4 (84.0–94.4)	0.01	43.3 (31.8-55.5)	51.6 (39.4-63.7)	0.39
Dodoma R	12.8 (5.2-28.1)	19.1 (13.2-26.9)	0.33	4.3 (2.8-6.5)	12.0 (7.2-19.2)	<0.01
Kilombero	74.2 (67.1-80.2)	84.2 (69.8-92.5)	0.20	29.8 (20.2-41.6)	46.2 (37.3-55.4)	0.02
Rufiji	34.0 (20.1-51.4)	71.4 (60.3-80.4)	<0.01	16.2 (8.7-28.0)	38.0 (30.7-46.0)	<0.01
Bagamoyo	60.8 (45.6-74.2)	56.4 (39.2-72.3)	0.60	26.7 (17.0-39.2)	33.7 (21.6-48.30)	0.44
Singida U	23.7 (11.4-43.0)	45.4 (34.2-57.1)	0.06	14.1 (6.6-27.6)	28.0 (20.8-36.7)	0.07
Tabora R	61.0 (40.3-78.4)	73.8 (52.2-87.9)	0.36	39.2 (26.2-53.8)	37.4 (28.5-47.2)	0.8
Nachingwea	25.5 (16.2-37.7)	47.1 (31.5-63.3)	0.01	6.0 (3.0-11.9)	28.5 (19.2-40.2)	<0.01
Same	33.2 (13.2-61.70)	42.4 (22.5-65.1)	0.53	14.7 (6.5-30.0)	23.0 (11.2-41.6)	0.35
Districts launched 6-12 months prior to 2006 survey						
Bunda	37.0 (24.9-51.0)	50.4 (37.7-63.2)	0.08	16.1 (8.6-28.3)	21.6 (14.5-30.9)	0.28
Igunga	10.7 (5.4-20.1)	19.2 (13.3-26.9)	0.07	1.5 (0.5-4.4)	8.8 (5.3-14.1)	<0.01
Karatu	13.3 (5.9-27.1)	25.6 (16.2-37.9)	0.11	5.7 (2.3-13.6)	11.5 (7.4-17.5)	0.15
Kibondo	9.4 (4.6-18.4)	23.6 (17.1-31.5)	<0.01	3.5 (0.8-13.6)	8.9 (6.3-12.4)	0.18
Magu	37.7 (24.8-52.6)	57.4 (49.5-65.0)	0.01	22.0 (13.8-33.1)	31.7 (23.8-40.8)	0.07
Tandahimba	29.2 (20.2-40.1)	81.4 (75.0-86.4)	<0.01	8.4 (4.5-15.0)	49.5 (38.2-60.8)	<0.01
Biharamulo	27.7 (17.9-40.2)	39.2 (27.9-51.8)	0.18	7.5 (3.7-14.4)	11.5 (8.4-15.6)	0.24
Districts launched <6 months prior to 2006 survey						
Ludewa	8.5 (3.8-18.1)	11.9 (3.2-35.3)	0.61	5.1 (1.5-15.8)	5.5 (1.8-15.6)	0.93
Mbulu	4.6 (1.4-14.3)	14.3 (7.2-26.4)	0.04	1.5 (0.3-7.1)	6.7 (3.2-13.5)	0.05
Meatu	27.9 (19.3-38.5)	31.2 (22.4-41.6)	0.54	10.4(6.7-15.8)	13.9 (7.4 – 24.8)	0.3
Simanjiro	18.4 (8.3-36.0)	30.8 (12.8-57.3)	0.36	7.4 (3.0-17.0)	17.1 (7.1-35.5)	0.20
Sumbawanga	10.3 (3.8-25.1)	10.1 (4.8-19.8)	0.95	3.2 (0.8-11.7)	4.5 (1.6-11.9)	0.68
All districts	27.5 (24.2-31.1)	40.9 (37.3-44.6)	<0.01	12.2 (10.3-14.4)	21.1 (18.9-23.5)	<0.01

Table 23 – By district: coverage among all household members , changes 2005 to 2006 (any net, recently treated net), Household survey 2006

	Any net			Recently treated net		
	2005 (n=31164)	2006 (n=30273)	P	2005 (n=31164)	2006 (n=30273)	P
Districts launched > 12 months prior to 2006 survey						
Tanga	66.3 (56.2-75.2)	70.7 (64.7-76.0)	0.41	35.5 (24.7-48.0)	40.9 (34.6-47.6)	0.51
Dodoma R	7.8 (2.9-19.3)	13.5 (8.6-20.6)	0.23	2.5 (1.7-3.8)	8.5 (5.1-13.8)	<0.01
Kilombero	65.6 (56.6-73.6)	73.3 (63.5-81.2)	0.21	25.7 (19.8-28.4)	37.2 (28.4-47.0)	0.04
Rufiji	20.6 (12.1-32.8)	53.8 (46.3-61.2)	<0.01	8.8 (5.0-14.9)	30.3 (27.0-33.8)	<0.01
Bagamoyo	40.6 (27.2-55.6)	42.2 (28.0-57.9)	0.81	15.7 (9.4-25.0)	21.4 (12.2-33.8)	0.20
Nachingwea	25.5 (18.1-34.8)	42.4 (27.6-58.8)	0.02	9.4 (5.9-14.6)	21.7 (14.7-33.2)	<0.01
Same	28.3 (13.0-51.0)	33.3 (17.6-53.9)	0.39	11.6 (5.4-22.8)	16.4 (8.6-29.0)	0.02
Singida U	23.0 (11.0-41.8)	29.7 (19.1-43.1)	0.15	12.6 (5.6-25.7)	15.1 (9.6-23.0)	0.57
Tabora	54.8 (37.2-71.3)	61.5 (46.3-74.7)	0.11	32.2 (21.3-45.4)	29.9 (24.4-36.1)	0.58
Districts launched 6-12 months prior to 2006 survey						
Bunda	30.2 (19.6-43.4)	39.0 (28.8-50.3)	0.22	10.8 (5.8-19.3)	15.5 (11.0-21.3)	0.16
Igunga	8.2 (3.2-19.4)	10.3 (7.3-14.4)	0.68	2.3 (0.7-7.7)	3.8 (2.4-5.7)	0.50
Karatu	9.5 (4.2-19.9)	13.4 (8.5-20.5)	0.41	3.4 (1.4-8.0)	7.0 (4.1-11.6)	0.10
Kibondo	7.4 (3.6-14.6)	12.9 (9.7-16.9)	0.09	2.2 (0.6-8.3)	5.7 (4.4-7.4)	0.13
Magu	27.5 (18.8-38.4)	39.8 (33.3-46.6)	0.04	12.4 (7.7-19.5)	20.6 (16.1-26.0)	0.02
Tandahimba	17.9 (12.9-24.3)	45.5 (41.4-49.6)	<0.01	3.5 (2.3-5.4)	26.1 (22.7-30.3)	<0.01
Biharamulo	20.7 (13.0-31.3)	28.5 (19.3-40.0)	0.08	5.7 (2.8-11.3)	5.8 (3.8-9.0)	0.95
Districts launched < 6 months prior to 2006 survey						
Ludewa	6.7 (2.6-16.2)	12.8 (3.2-39.4)	0.39	3.9 (1.1-13.0)	5.0 (1.4-16.0)	0.81
Mbulu	3.8 (1.3-11.1)	9.7 (4.6-19.4)	0.08	1.2 (0.3-5.1)	4.4 (2.2-8.5)	0.02
Meatu	19.6 (15.5-24.6)	20.9 (15.8-27.0)	0.75	7.4 (5.0-10.9)	9.0 (5.6-14.0)	0.60
Simanjiro	15.7 (6.8-32.4)	27.7 (11.9-52.0)	0.09	6.8 (2.7-15.6)	15.1 (6.5-31.5)	<0.01
Sumbawanga	6.1 (2.4-14.9)	8.9 (4.5-16.8)	0.28	1.4 (0.3-4.4)	4.2 (1.9-9.1)	0.02
All districts	23.4 (20.5-26.5)	31.8 (28.8-35.0)	<0.01	9.8 (8.2-11.7)	15.6 (14.0-17.3)	<0.01

Districts where a significant increase in coverage of ITNs amongst under 5s and all household members was observed are highlighted in Figures 4 and 5.

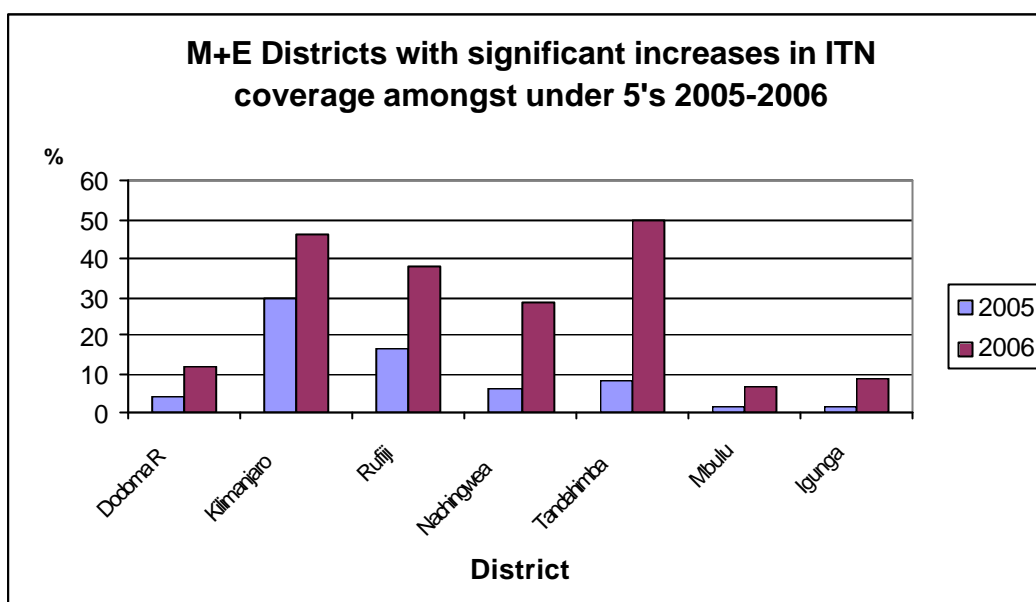


Figure 4

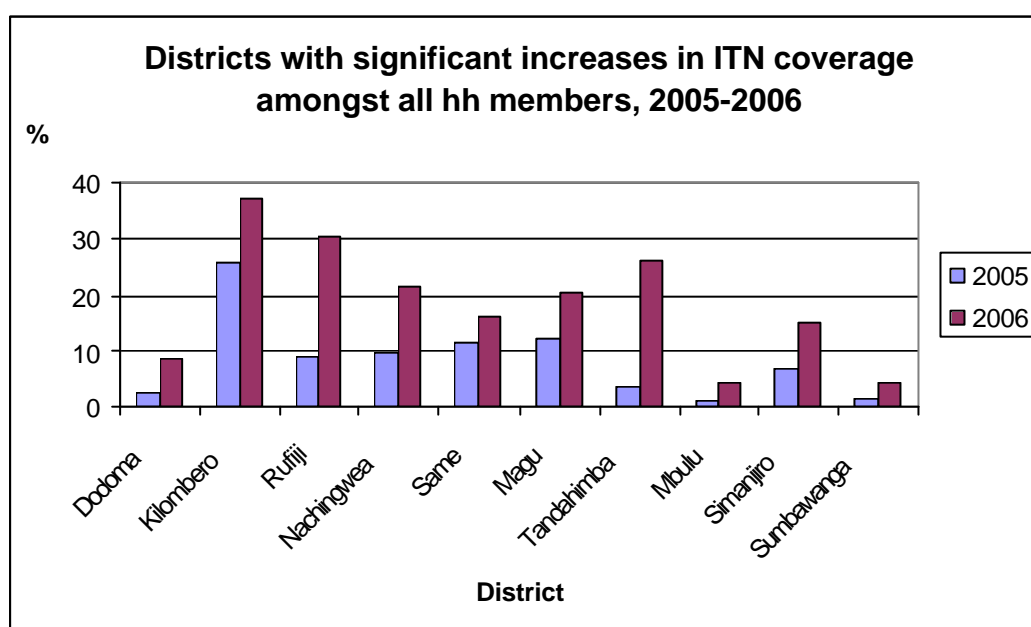


Figure 5

3.11 Insecticide treatment of bednets

Nets treated with insecticide have been shown to be approximately twice as effective in preventing mortality in children compared with untreated nets, although untreated nets if intact can also provide some degree of protection against malaria. A “100% bundling” policy – i.e. that all nets sold in Tanzania should be packaged with a sachet of insecticide – has been in place since 2002. The household survey asked a series of questions of household heads about the nets in their homes. These questions included whether the net had come packaged with a sachet of insecticide; whether it had ever been treated with insecticide; and the date of last treatment. In addition, respondents were asked whether the net had been purchased using a Hati Punguzo voucher, and, in Tandahimba and Nachingwea, whether the net had been received free during the free nets distribution.

Of the 6939 nets reported in households, 875 (12.6%) were reported to have been acquired using a Hati Punguzo voucher. The effect of the free net distribution in Tandahimba and Nachingwea can

be seen from the finding that of the 798 nets identified in households in these 2 districts, 351 (44%) were received during the free net distribution.

Summary information on the insecticide treatment indicators is shown in Table 24. In 2006, 51% of nets were reported to have arrived packaged with insecticide, 58% were ever treated and 45% recently treated. All three indicators had increased significantly over 2005 levels.

Table 24 Insecticide treatment of nets, summary, Household survey 2006

	2005 (n=5220)	2006 (n=6939)	P
Packaged with insecticide*	32.7 (30.4-35.1)	50.9 (47.9-53.8)	<0.0001
Ever treated	49.0 (46.0-52.0)	58.2 (55.8-60.5)	<0.0001
Recently treated	38.9 (35.7-42.1)	44.8 (42.5-47.1)	0.004

*of all nets owned by households

Table 24a shows that the proportion of nets sold with insecticide increased over time, with only 23% of nets over 3 years old packaged with insecticide compared with 73% in the most recently purchased nets. The fact that 27% of recently-purchased nets are still reported to be received without insecticide is of concern and should be investigated further. Although there were relatively few “don’t know” responses to this question (around 5%), the answers are subject to some error due to recall errors (referring to past events) and respondent errors (the person who answered the question may not have been the one who had purchased the net).

Table 24a Proportion of nets packaged with insecticide treatment of nets by age of net, Household survey 2006

	<6mths	6-12mths	13-24mths	25-35mth	36+mths
N =6126	1049	1875	1153	154	1895
Yes	72.5 (68.5-76.2)	64.0 (59.9-67.9)	50.9 (46.1-55.7)	32.5 (25.0-40.9)	23.1 (20.2-26.3)

*6126 nets (of 6939) had information on estimated age of net

**P for difference <0.001

Tables 25a and 25b explore the determinants of net treatment. For both ever treated and recently treated nets time since launch, voucher use, and age of net are shown to be statistically associated with net treatment. Both Table 25a and 25b show that the peak in treatment is for nets which are between 6 and 12 months old, suggesting that not everyone is treating their net as soon as they receive it. Although we did not investigate this issue directly, this results is consistent with anecdotes that people believe they are purchasing a pre-treated net and that the net only needs re-treating after 6-12 months. Socioeconomic status is significantly associated with having ever-treated a net, but not with recent treatment after adjustment for other factors. Even where the effect of socioeconomic status is statistically significant, the gradient is much less steep than seen for net ownership and use by target groups, with the highest SES group only 30% more likely than the lowest group to have ever treated a net.

Table 25a Ever treatment of bednets, bivariate and multivariate analysis, Household survey 2006

	Ever treated		Ever treated – 2006 only	
All	N= 6726	p	Adj OR (95%CI)	F (p)
By SES			N=5968	
Q1	53.5 (46.7-60.1)		1.0	
Q2	53.2 (47.8-58.4)		0.8 (0.6-1.1)	
Q3	56.5 (52.6-84.0)		1.0 (0.7-1.3)	
Q4	57.9 (54.0-61.8)		1.0 (0.8-1.4)	F=3.45
Q5	61.9 (58.3-65.3)	0.02	1.3 (1.0-1.9)	P=.009
By residence:				
Rural	56.3 (53.0-59.7)		1.0	
Semi-urban	59.6 (54.3-64.6)		1.1 (0.8-1.4)	F=1.2
Urban	60.9 (56.4-65.1)	0.28	0.8 (0.6-1.1)	P0.2
By time since launch:				
<6 months	52.1 (45.3-59.1)		1.0	
6-12 months	51.8 (47.8-57.7)		1.0 (0.7-1.4)	F=8.6
>12 months	63.0 (58.4-64.2)	0.001	1.6 (1.2-2.1)	P=<0.001
By voucher status				
Didn't use voucher	56.4 (53.8-58.9)		1.0	F=43.7
Used voucher	71.8 (67.7-75.5)	<0.001	2.1 (1.7-2.7)	P=<0.001
By age of net:				
<6 months	51.8 (47.6-56.1)		1.0	
6-12 months	69.3 (66.0-72.3)		2.3 (1.9-2.8)	
13-24 months	65.3 (61.5-69.0)		2.0 (1.6-2.5)	
25-35 months	56.6 (46.7-65.9)		1.5 (1.0-2.3)	F=22.6
36+ months	48.4 (44.6-52.2)	<0.001	1.0 (0.8-1.3)	P<0.001

Totals do not always add up due to missing values

Table 25b Recent treatment of bednets, bivariate and multivariate analysis, Household survey 2006

	Recently treated		Recently treated – 2006 only	
All	6030		Adj OR (95%CI)	F (p)
By SES			N=5438	
Q1	37.6 (31.1-44.5)		1.0	
Q2	38.8 (33.7-44.2)		0.8 (0.6-1.2)	
Q3	42.0 (37.7-46.5)		1.1 (0.8-1.6)	
Q4	45.4 (41.5-49.3)		1.3 (1.0-1.8)	F=0.79
Q5	49.3 (46.0-52.7)	<0.001	1.7 (1.2-2.3)	P=.53
By residence:				
Rural	43.1 (39.7-46.5)		1.0	
Semi-urban	46.0 (41.7-50.3)		1.0 (0.8-1.3)	F=0.9
Urban	47.4 (42.9-52.0)	0.28	0.9 (0.6-1.2)	P=0.3
By time since launch:				
<6 mos	38.8 (33.8-44.0)		1.0	
6-12 mos	39.7 (35.6-43.8)		1.1 (0.8-1.5)	F=7.1
>12 mos	49.0 (45.8-52.3)	<0.001	1.6 (1.2-2.2)	P=0.001
By voucher status				
Didn't use voucher	42.2 (39.7-44.7)		1.0	F=41.5
Used voucher	64.0 (59.6-68.1)	<0.001	2.0 (1.6-2.6)	P=<0.001
By age of net:				
<6 months	48.0 (43.7-52.4)		1.0	
6-12 months	63.1 (59.7-66.3)		2.0 (1.6-2.5)	
13-24 months	47.2 (43.2-51.3)		2.0 (1.6-2.5)	
25-35 months	40.0 (30.4-50.3)		1.0 (-.8-1.3)	F=19.9
36+ months	28.8 (25.7-31.9)	<0.001	0.5 (0.4-0.7)	P=<0.001

Totals do not always add up due to missing values

3.12 Insecticide retreatment kits

As part of the drive to improve coverage of insecticide treated nets, mothers of infants who attend RCH for routine vaccinations are offered a retreatment kit (IRK). Theoretically this IRK can be used to retreat the net purchased with a voucher during pregnancy. Mothers of children under 1 who had already attended RCH clinic at least once with that child were asked whether they had received an IRK. 24.4% of mothers in households with at least one net reported that they had received an IRK, and of these, 69% reported that they had used the kit to treat their net. Table 26 below shows the breakdown of coverage of IRKs by SES, residence and time. Only time since launch is significantly related to IRK receipt with higher coverage in those areas which have been operating for longer.

Table 26. Coverage of IRKs in <1's (who had already attended clinic at least once), Household survey 2006

	Receipt of IRK	
All	(N=781) 24.4 (20.6-28.6)	
By SES		
Q1	22.7 (15.2-32.6)	0.6
Q2	24.4 (16.7-34.4)	
Q3	26.0 (19.5-33.9)	
Q4	27.2 (21.3-34.1)	
Q5	20.2 (14.0-28.4)	
By residence:		
Rural	26.9 (22.2-32.1)	0.16
Semi-urban	20.9 (14.1-29.9)	
Urban	15.1 (7-29.5)	
By time since launch:		
<6 mos	8.9 (5.2-14.6)	<0.001
6-12 mos	21.6 (16.6-27.5)	
>12 mos	32.6 (26.1-39.9)	

3.13 Antenatal care coverage, timing of first use and use of IPT

The 2005 survey data showed evidence that in areas where *Hati Punguzo* was first launched the mean gestation at first attendance at RCH clinic was slightly earlier than other sampled districts. This has been examined again in 2006 and there is no evidence to suggest that there has been a shift towards earlier RCH attendance. Table 27 compares data on timing of first RCH visit across three data sources (household, facility users and facility services). The most directly comparable sources are the household and facility users surveys, which both asked about the weeks of gestation at the time of the first RCH visit.

Health facilities record information in a slightly different format, indicating the number of women whose first visit is at less-than 20 weeks gestation compared with those at more-than 20 weeks. The facility-based information in Table 27 if anything shows a slight decrease in the proportion of attenders whose first visit took place at less than 20 weeks of gestation, from 40% to 34.9%.

Table 27 Reported gestation at first RCH visit, Household and Facility surveys 2006

	Household (current pg)		Facility users		Facility records		
	Mean wks (95% CI)	N	Mean wks (95% CI)	N	% attending < 20 weeks	% attending > 20 weeks	N
2005	20.3 (19.5-21.0)	772	20.1 (19.7-20.6)	846	40.1 (39.4-40.9)	59.8 (59.0-60.5)	17351
2006	21.0 (20.3-21.7)	584	20.2 (19.8-20.6)	862	34.9 (34.3-35.4)	65.0 (64.5-65.5)	35239
P	0.14		0.84			<0.01	

It was observed in the Facility users survey that in areas where HP had been launched for more than 12 months there was a significant change towards earlier first RCH attendance compared to all other areas from 20.6 weeks to 19.6 weeks (F 6.0, p0.01). A similar result was reported in 2005 and this may be a bias associated with early implementation districts rather than a Hati Punguzo effect.

There is no consensus in the literature about the correct definition of coverage of IPT in pregnancy, partly because different surveys ask the questions differently. Table 28 presents summary information for 2 indicators: first, whether a woman reported receiving any drug to prevent malaria in pregnancy; and second, whether the woman confirms, unprompted, that the drug she received is SP or Fansidar. Naturally, coverage of the first is higher as it is defined more liberally. Further analysis of factors associated with IPT coverage is undertaken using the more liberal definition for consistency with results presented in 2005.

Table 28. IPT coverage in pregnancy (self-reported) using 2 definitions of IPT (2005 and 2006)

	IPT definition 1: received any drug to prevent malaria in pregnancy		IPT definition 2: confirmed (unprompted) received SP/Fansidar	
	2005	2006	2005	2006
Received at least 1 dose of IPT	71.7 (68.1-75)	68.6 (64.9-72.1)	48.6 (44.4-52.9)	47.5 (43.8-51.3)
Received at least 2 doses of IPT	38.2 (34.7-41.8)	35.2 (31.7-38.8)	27.2 (23.8-30.9)	24.6 (21.6-27.9)

Table 28a shows information about use of RCH services and receipt of IPT in pregnancy using the more liberal definition of IPT. Overall RCH attendance remains high at 98% of women who gave birth in 2005/6. From the analysis in Table 28 it can be seen that coverage with one dose of IPT is unchanged between the two years (p=0.56) at around 70%, and 35% for 2 doses. In the 2006 data, receipt of IPT (first and second dose) is associated with socioeconomic status, but not with residence. Time since launch is statistically significant but with no clear upwards trend for the first dose, while longer time since launch is associated with higher coverage of the second dose of IPT.

Table 28a RCH and IPT coverage during pregnancy (self-reported)

		2005			2006	
	N	Pg with live birth in prev 12 mos (N=1251)	p	N	Pg with live birth in prev 12 mos (N=1240)	P
Attended RCH at least once during pg						
	1228	98.1 (97.0-98.8)		1264	97.7 (95.7-98.9)	
Received at least 1 dose of IPT						
All	1206	71.7 (68.1-75.0)		1240	68.6 (64.9-72.1)	
Residence:						
Rural	849	69.5 (65.0-73.7)	0.04	882	67.7 (63.2-71.9)	0.35
S - urban	261	77.4 (71.4-82.1)		268	69.0 (62.5-74.9)	
Urban	96	76.0 (66.5-83.5)		90	76.7 (64.9-85.4)	
By SES:						
Q1	162	70.3 (61.2-78.1)	0.03	207	61.8 (54.0-69.1)	0.001
Q2	224	64.3 (57.7-70.3)		268	65.7 (59.4-71.5)	
Q3	272	71.3 (64.9-76.9)		263	65.4 (59.0-71.3)	
Q4	287	73.1 (67.0-78.5)		291	71.5 (65.2-77.0)	
Q5	261	77.8 (71.8-82.7)		211	79.2 (73.0-84.2)	
By time since launch						
<6 mos	1192	71.6 (68.0-75.0)	0.55	768	65.0 (60.2-69.4)	0.005
6-12 mos	14	78.6 (52.9-92.5)		349	76.0 (70.7-80.4)	
>12 mos	0	-		123	70.7 (60.5-79.1)	
Received at least 2 doses of IPT						
All	1206	38.2 (34.7-41.8)		1240	35.2 (31.7-38.8)	
Residence:						
Rural	849	37.1 (33.0-41.5)	0.3	882	33.5 (29.3-37.9)	0.22
S- urban	261	39.0 (32.0-46.5)		268	38.8 (31.4-46.8)	
Urban	96	45.8 (34.3-57.8)		90	41.1 (32.2-50.6)	
By SES:						
Q1	162	32.7 (25.0-41.4)	0.28	207	27.1 (21.2-33.8)	0.04
Q2	224	37.9 (31.4-44.9)		268	36.9 (30.6-43.8)	
Q3	272	37.9 (31.1-45.0)		263	33.1 (27.1-39.6)	
Q4	287	36.9 (31.6-42.5)		291	37.5 (31.2-44.2)	
Q5	261	43.7 (37.0-50.6)		211	40.3 (34.5-46.4)	
By time since launch						
<6 mos	1192	37.9 (34.4-41.5)	0.14	768	32.1 (28.0-36.5)	0.02
6-12 mos	14	62.3 (28.3-89.1)		349	38.7 (32.6-45.0)	
>12 mos	0			123	43.9 (35.1-53.0)	

Totals do not always add up due to missing values

3.14 Infrastructure availability

In Table 29 the most important finding to note is the increase in stock of vouchers in sampled facilities on the day of survey from 68.8% in 2005 to 92.5% in 2006. Availability of antenatal cards – required for recording purposes – remained stable. Of additional interest is the significant decrease in availability of SP for IPT in pregnancy. This may be a reflection of the change in first line treatment in 2006 for malaria and could potentially worsen in 2007.

Table 29. Infrastructure availability (equipment, drugs) in RCH facilities*

	2005	2006	p
Overall N of clinics	190	188	
	%	%	
<i>Basic stock</i>			
Antenatal Cards	84.2 (78.2-88.7)	82.9 (76.8-87.7)	0.73
Child vaccination cards	84.7 (78.8-89.2)	81.9 (75.6-86.8)	0.39
Functional fridge	92.6(87.7-95.6)	95.7 (91.6-97.8)	0.14
Disposable syringes	97.8 (94.4-99.2)	97.8 (94.2-99.2)	0.98
Electricity	43.1 (36.2-50.3)	42.5 (35.6-49.7)	0.8
SP	84.7 (78.8-89.2)	74.4 (67.6-80.2)	0.005
Vitamin A	88.9 (83.5-92.7)	94.6 (90.3-97.1)	0.03
Ferrous/ folate	77.3 (70.8-82.8)	73.4 (66.5-79.2)	0.30
Mebendezole	69.4 (62.5-75.6)	81.9 (75.6-86.8)	0.002
TT Vaccine	87.3 (81.7-91.4)	92.0 (87.1-95.1)	0.11
BCG	86.3 (80.6-90.5)	89.8 (85.6-93.4)	0.24
DPT	77.3 (70.8-82.8)	85.6 (79.8-90.0)	0.03
Hb estimation	16.8 (12.1-22.9)	23.9 (18.3-30.6)	0.04
<i>Hati Punguzo</i>			
Vouchers**	68.8 (57.5-78.2)	92.5 (87.7-95.5)	<0.001
IRKits**	25.9 (17.3-36.9)	77.6 (71.0-83.0)	<0.001
HP posters**	87.0 (77.4-92.9)	77.6 (71.0-83.0)	0.05
Ngao posters	23.1 (17.6-29.7)	23.9 (18.3-30.6)	0.81
<i>HP Trained personnel**</i>			
Trained staff per launched clinic	2.1 [162/77]	1.7 [330/187]	
Percent of all staff who were HP trained in launched clinics	51% [162/317]	34% [330/983]	

*Stock only reflects availability on day of survey

**Launched facilities only (2005: 77, 2006: 188)

3.15 Information and awareness

Table 30 shows information about awareness of HP among different target groups – household heads, currently pregnant women in the household survey and currently pregnant women at the facility. In all cases, awareness has increased since 2005. As would be expected, awareness is lowest (but still in excess of 70%) among household heads and highest among currently pregnant RCH users. Determinants of awareness are examined in Table 31. Time since launch and socioeconomic status are both associated with awareness. Awareness is higher among urban residents in the case of household heads and pregnant women in the household survey; the same is found in the facility users survey but the results are not statistically significant. Pregnant women

who have attended RCH already have higher awareness of HP than those who have not yet attended.

Table 30. Awareness of HP – Summary

	2005	2006	P
All			
Household heads	40.6 (37.9-43.2) (n=6198)	71.2 (69.0-73.3) (n=6260)	<0.001
Currently pg women (hh survey)	44.0 (40.2-47.9) (n=777)	81.2 (77.1-84.6) (n=584)	<0.001
Facility users	45.7 (39.3-52.2) (N=848)	88.1 (85.0-90.7) (N=862)	<0.001

Table 31. Awareness of HP, 2006, bivariate analysis

	Household survey		Household survey		Facility users survey	
	Household heads		Currently pg women		RCH users	
	% (CI) N=6260	p	% (CI) N=584	p	% (CI) N=862	p
All	71.2 (69.0- 73.2)		81.2 (77.1- 84.6)		88.2 (85.1-90.8)	
By time since launch:						
< 6 mos	62.7 (56.7-68.4)	<0.001	66.7 (56.2-75.7)	<0.001	86.1 (77.5, 91.7)	0.23
6-12 mos	69.0 (65.5-72.3)		81.6 (75.1-86.7)		86.2 (80.2-90.7)	
>12 mos	75.3 (75.2-79.5)		90.6 (85.9, 93.9)		91.0 (87.1-93.8)	
By SES						
Q1	41.1 (37.3,45.1)	<0.001	63.9 (52.2,74.2)	<0.001	75.9 (67.1-82.9)	<0.001
Q2	63.5 (60.5,66.4)		78.2 (69.3,85.0)		83.2 (76.3-88.4)	
Q3	78.9 (76.2,81.4)		81.6 (74.5,87.1)		91.5 (86.2-94.9)	
Q4	84.1 (81.6,86.3)		87.8 (80.5,92.6)		94.7 (89.6-97.4)	
Q5	87.6 (85.1,89.8)		92.1 (84.9,96.0)		95.3 (89.9-97.9)	
By residence						
Rural	69.3 (66.6-71.8)	0.01	78.8 (73.5,83.3)	0.05	88.4 (84.1-91.6)	0.17
Semi-urban	73.0 (68.1-77.3)		85.2 (77.8,90.4)		85.4 (79.6-89.8)	
Urban	79.2 (74.6-83.2)		91.3 (79.7,96.6)		94.4 (84.9-98.0)	
By RCH attendance						
Attended	Not applicable		89.4 (85.0,92.7)	<0.001	Not applicable	
Not yet			70.4 (63.7,76.2)			

Information about the source of information about Hati Punguzo was also collected from household heads (Table 32) and pregnant women (Table 33).

Table 32 Source of information about Hati Punguzo, Household heads, 2006 only

	Where first heard N = 4462 % (95% CI)
RCH or health facility	33.4 (31.21 – 35.6)
Shop	1.1 (0.75 – 1.5)
Family member	3.8 (3.2 - 4.5)
Neighbour	7.3 (6.5 - 8.2)
Radio	46.2 (43.8 - 48.6)
Performance by theatre group/ roadshow	5.9 (4.7 - 7.2)
Others	0.8 (0.5 – 1.1)
Village government	1.5 (1.1 – 2.1)
Newspaper	0

Amongst the 88% of Facility users who had heard about Hati Punguzo there were two clear sources of information: the health facility they had attended and the radio, accounting for 85% of first hearings. Conversations with neighbours and family members accounted for the majority of the remainder of first hearings. The household survey also found health facilities and radio to be the dominant source of information. Together these data suggest that expenditure on cultural performances and other mass media such as newspapers may be having little impact.

Table 33 Source of information about Hati Punguzo, currently pg women, Household survey and Facility survey, 2006 only

	Facility users		Currently pregnant HH
	Where first heard (N=761 women who had heard)	Where ever heard (N=761)	Where first heard N=479 (those who heard)
RCH or health facility	44.0 (39.8-48.2)	83.0 (79.2-86.2)	52.2 (47.0-57.2)
Shop	0.5 (0.1-1.7)	2.9 (1.8-4.5)	0.8 (0.3-2.1)
Family member	3.4 (2.2-5.1)	8.8 (6.8-11.3)	1.8 (1.0-3.5)
Neighbour	6.5 (4.8-8.8)	17.6 (15.1-20.4)	6.0 (4.1-8.7)
Radio	41.5 (37.4-45.8)	53.2 (48.7-57.6)	33.4 (28.8-38.2)
Performance by theatre group or roadshow	2.3 (1.8-4.5)	6.9 (5.1-9.2)	4.1 (2.6-6.4)
Others	0.9 (0.4-2.1)	2.3 (1.4-3.7)	0.8 (0.3-2.2)
Village government	1.3 (0.2-9.4)	0.5 (0.2-1.3)	0.6 (0.2-1.9)
Newspaper	0	0.6 (0.2-1.5)	0

We also investigated whether there were any important differences in source of information about Hati Punguzo by place of residence, but a tabulation of source separately for rural, semi-urban and urban households revealed no significant differences (results not shown). This analysis was undertaken for both household heads and for currently pregnant women.

In Table 34 it is surprising to see that, as for 2005, in 2006 a relatively small percentage of pregnant women (12-15%) were able to report the redemption value of the voucher against a bednet.

Table 34 Hati Punguzo knowledge and understanding among currently pregnant women, Household and Facility survey 2006

	Household survey – currently pregnant women			RCH users – currently pregnant women		
	Heard of HP	Know eligibility	Know value	Heard of HP	Know eligibility	Know value
All	81.2	61.8 (56.6-66.8)	12.4 (8.1-18.5)	88.2	80.0 (76.2-83.4)	15.2 (12.5-18.2)
Time since launch						
<6 mths	66.6 (56.2-75.7)	55.1 (42.4-67.2)	2.7 (1.1 – 6.4)	86.1 (77.5-91.8)	71.0 (61.5-79.1)	20.4 (14.5-28.0)
6-12 mths	81.6 (75.1-86.7)	65.9 (56.3-74.3)	1.8 (0.7-4.7)	86.2 (80.2-90.7)	78.3 (1.0-84.2)	13.1 (8.7-19.2)
> 12 mths	90.6 (85.9-93.9)	61.2 (54.2-67.8)	8.0 (4.6 – 13.5)	91.0 (87.1-93.8)	85.6 (81.1-89.1)	14.6 (11.3-18.7)
p	<0.001		0.004	0.23	0.008	0.18

4. Discussion and conclusions

Main findings and implications

Hati Punguzo now operates at a national scale, having reached all districts in Tanzania by May 2006. In order to capture the national level of effects of the programme, the Monitoring and Evaluation plan set out to collect information from a nationally representative sample of 21 districts. As such, the findings in this report present a detailed picture of the current state of implementation and the achievements of the Hati Punguzo programme. In order to present the changes over time we have elected to compare the point estimates of all indicators for 2005 and 2006, and to present multivariate analysis of the 2006 results. Further analysis of the combined data for 2005 and 2006 will be undertaken and presented to TNVS partners as it is completed.

One year after the baseline survey significant changes have been seen in programme processes and outcomes. Large and statistically significant increases in coverage of nets and ITNs have been observed in all target groups. Focusing on ITN coverage as measured in the household survey, coverage is now highest amongst children (28.4% of under fives and 27.7% of under ones), followed by 17.6% of pregnant women. Household ownership of at least one ITN also doubled over 12 months, and the mean number of nets per household has also increased. ITN use is higher among these vulnerable groups than for all household members (15.6%) suggesting that the health education information about the risks of malaria to pregnant women and children are being understood.

Coverage as measured among the population of pregnant health facility users is considerably higher than from the household survey (Table 14). This can be explained by a number of factors including over-representation of urban residents in the facility user group; over-representation of women from early-launch districts; the greater gestation time of women in the facility user group; and the greater likelihood that the facility survey capture women with positive health seeking behaviour. These issues notwithstanding, we believe that the comparison of the two different data sources contributes to the validation of the survey data, particularly through checking that the differences between the group of facility users and the general household survey are of the expected direction

For all population groups, use of any net and of ITNs is positively and significantly associated with socioeconomic status as measured through the asset index and location, with urban households still considerably more likely to be using ITNs. This suggests a continued problem of equity of access, and that not all population groups are able to take advantage of the subsidy provided through the voucher system.

Almost all districts saw year-on-year increases in coverage of any net and ITNs among under-fives, and these differences were statistically significant in one-third of districts. The increases in coverage were especially pronounced in the three districts where free nets were distributed in August 2005 (Rufiji, Tandahimba and Nachingwea). However, it is important to consider that not all of this improvement in net coverage can be attributed to the free net campaign, as the voucher scheme and other ITN activities were operating at the same time. In addition, it is notable that only 12 months after nets were distributed to all children < 5, ITN coverage of under-fives is now less than 50%.

We continue to observe a large gap between use of any net and use of ITNs. Overall, 45% of nets reported to be in households had been recently treated. Around half of all nets had been packaged with insecticide (75% of those purchased within the previous 6 months). Yet the peak in treated nets is observed for nets which are 6-12 months old, suggesting a delay between purchase and initial treatment. Although one study found that households treated their net within a few days of purchase¹, the results of this survey suggest ongoing challenges of encouraging people to treat their nets.

The information provided from the facility, exit and household surveys about voucher processes indicate improvements on a number of fronts since last year. First, 93% of facilities had vouchers in stock the day of the survey, up from 69% in 2005. This has been observed despite operational problems experienced by MEDA during the period of the survey.

Second, the proportion of women receiving a voucher increased from around 50% (depending on the population in which this indicator was measured) in 2005 to about 70% in 2006. The most consistently significant factor associated with voucher receipt is time-since-launch, with women in districts which launched more than 12 months prior to the survey having a higher likelihood of receiving a voucher. Socioeconomic status is associated with voucher receipt in the facility user survey (with those in the highest quintile having an odds ratio of 2.3 compared with those in the lowest group), but not in the household survey. Finally, from the household survey there is evidence that urban women are less likely to receive a voucher than rural women. One reason why place of residence is significant in the household data while socioeconomic status is significant in the facility survey may be the high degree of collinearity between the two variables. In essence, the two datasets paint the same picture of continued problems of accessibility of vouchers, but they highlight them differently.

One hypothesised reason for lower than optimal voucher coverage, which arose from earlier qualitative work, had been that women who attended RCH services from outreach clinics would be less likely to receive a voucher (because, for example, there was not a voucher register available to take on outreach visits – reference the qualitative report). Responses to the new question added in the 2006 survey about the location of receipt of RCH services (outreach vs fixed facility) suggested that only 2.1% of women received their RCH services through outreach, which is not a large enough group to explain the still-moderate level of voucher coverage. However, we do have

¹ IHRDC and LSHTM (2003) Consumer-oriented research on the effect of bundling nets with treatment kits.

residual concerns about whether this variable is able to capture the complex care-seeking patterns which exist, with women moving back and forth between fixed and mobile services.

Voucher redemption rates have remained constant at around 80-83%, which is very close to the rate measured by MEDA from their routine monitoring records. The congruence of the estimated redemption rate from the past pregnancies in the household survey with this external source of data also provides support for the overall validity (i.e. lack of bias) of the sample. The rate of redemption measured during pregnancy among facility users (i.e. before the exposure time is completed) also remained stable at around 70%. The vast majority of women who had used their voucher to purchase a net said that it was easy to use. There is, however, a significant relationship between voucher redemption and socioeconomic status, with poorer women less likely to redeem their voucher than the least poor.

Over the year between the 2 surveys we observed an 18% increase in the top-up amount paid by women to redeem their voucher. This figure is consistent with analysis of time trends in net prices undertaken as part of the OPR of the DFID/RNE funded SMARTNETS project. No change was observed in the mean travel time or travel costs associated with voucher redemption. Contrary to the 2005 survey results, there is no indication that voucher nets are larger than non-voucher nets. This could be a result of the general increase in the price of nets.

These findings about Hati Punguzo processes, together with the significant relationship between ITN coverage and the amount of time HP has been implemented, suggest that it takes about 6-12 months for a new intervention to “bed down” in the health system and be delivered at adequate levels. Differences in the nature of the population in the early vs. late launch districts (later launching districts being poorer and more rural, both of which are negatively associated with net use) mean that the effect of time is unlikely to be linear. It is therefore not necessarily the case that the levels of coverage observed in the early implementing districts will be seen in the late implementers after the same amount of time. Nonetheless, the fact that there is an independent effect of time on ITN use in all of the population subgroups even after controlling in multivariate regressions for socioeconomic status and rural location, suggests that we can expect significant improvements in both ITN outcomes and voucher processes as the system becomes institutionalised in the most recently launched districts.

From both the facility user and household surveys, it is clear that the most important sources of information about Hati Punguzo are RCH facilities and radio, accounting for more than 80% of responses to the question about where people first heard of Hati Punguzo. Awareness of the scheme and knowledge of eligibility improved between the two surveys but knowledge of the redemption value of the voucher remains low, with only about 12% of currently pregnant women able to correctly state the value of the voucher.

One aim of the M&E activities has been to examine whether HP has had any effect on the delivery and receipt of reproductive health services. For example, it might be hypothesised that the offer of a voucher would encourage women to attend RCH services earlier in their pregnancy, thereby exposing them earlier to other beneficial interventions such as intermittent preventive treatment (IPT) and voluntary counselling and testing for HIV/AIDS. From the evidence comparing the two surveys, there does not seem to be any change in the gestation at first antenatal visit which has stayed constant at 20 weeks (though there was a difference observed by time-since-launch which is more likely to be due to other differences between the early and late launch districts). Similarly, there is no change in the coverage of IPTp between the two years and if anything, coverage may have fallen marginally (a result which is probably independent of Hati Punguzo and more likely to have come about because of the change of first-line drug).

One final area which deserves comment is the cumulative nature of the various stages of the voucher system, and how these translate into effective coverage of ITNs among target groups. The process involves a number of steps: a woman must first attend RCH services; she must then be given a voucher; the voucher must be redeemed; and the woman must sleep under the net purchased with the voucher; and the net must be treated. The cumulative nature of these stages means that their effects are multiplicative: the expected coverage is the product of the probabilities of each stage occurring. We would therefore expect from the results of the 2006 survey to see the following relationships:

% of women attending RCH = 98% (Household survey, past pregnancies)

% of those who attend RCH who receive a voucher = 70% (household survey, current pregnancies)

% of those who receive a voucher who redeem it = 83% (household survey, past pregnancies)

% of those who redeem a voucher who sleep under the net = 85% (facility survey)

% of nets that are treated = 45% (household survey)

Effective coverage = 98% X 70% X 83% X 85% X 45% = 22%

In this illustration of a Hati Punguzo community effectiveness model it is assumed that coverage at the outset of voucher activities is zero. In reality, the voucher scheme should produce additional coverage over time. However, an important contribution of this cumulative coverage model is to identify the different areas where improvements are needed in order to increase the coverage achieved which in the case of the analysis presented above are insecticide treatment of nets and voucher coverage.

Study limitations and strengths

Every attempt was made to minimise potential bias between the survey years from baseline in 2005 to follow-up in 2006. Sampling, timing and implementation of the survey remained the same for both years. However, in interpretation of the results there remain a number of limitations that must be considered. First, the surveys were cross sectional and as such only measure indicators such as ITN coverage at a point in time: seasonal changes in ITN use cannot be accounted for. Secondly, some districts had already launched Hati Punguzo at the time of the 2005 baseline survey and as such do not provide a true baseline for district level comparison with 2006. The result of this would have been to underestimate the relationship between Hati Punguzo implementation and key outcomes. The effect of this on analysis at national level is ameliorated by adjustment for time since launch of the voucher scheme in each district. Thirdly, because there were other ITN interventions going on at the same time as Hati Punguzo (such as, for example, continued activities by the SMARTNET project, free net distributions in some districts, etc), it is not possible to attribute all of the changes in coverage to Hati Punguzo. For the present analysis we focus on the changes in coverage over time. Further analysis will focus on trying to estimate with greater precision the programme effect on coverage by controlling for potential confounding variables. Finally, there is the problem for inference about impact of Hati Punguzo on coverage which arises because of the non-random nature of the phased roll-out of the scheme. Because there are factors which differ systematically across districts and which are correlated with determinants of ITN use, the simple measure of exposure used here (time since launch) may be a biased proxy for the impact of the scheme. By including known confounders such as socioeconomic status and rural/urban location in our multivariate models we try as far as possible to minimize this source of bias, but it cannot be ruled out completely.

The main strengths of the M&E design are the careful implementation of representative surveys which, as noted above, were undertaken in such a way as to be as similar as possible between the two rounds; and the triangulation across multiple data sources (household, facility and exit surveys). This latter is an extremely important method for ensuring the validity of the main conclusions.

Appendix 1: Procedures for sampling M&E districts and households

1. A random sample of 21 districts was drawn, stratified according to official *Hati Punguzo* launch date.
2. In each district, 10 wards (“clusters”) were selected with probability proportionate to size, using 2002 national census data. The same data were used to select one kitongoji by simple random sampling. A substitute kitongoji was selected at the same time in case access to the first one was restricted for any reason (e.g. it contained a prison).
3. On arrival at the kitongoji the survey team went to the “centre” of the kitongoji and threw a pen to choose a random direction. They walked in the direction indicated until they reached the edge of the kitongoji, mapping all the households and numbering them. One of these was randomly selected to be the first household. The pen was spun again and households along the line of the direction indicated by the pen were selected until a total of 30 households were identified. In case of repeated absence or refusal to participate there was no substitution, and all non-participating households were verified by the supervisor.

Appendix 2: Results of socioeconomic status index analysis

In both the exit and household surveys socioeconomic status was measured as an index made up of education of household head, housing conditions, asset ownership, and whether the house was rented or not. Weights for the variables were derived using principal components analysis, and the index was generated from the first principal component, which summarises the largest amount of information common to the variables.

For the household survey, the housing conditions included were toilet, roof, and whether the house was connected to electricity; the assets were radio, bicycle, mobile phone; and education of household head was classified as none, 1-6 years (incomplete primary), or 7+ years (complete primary +). The first principal component explained 28.9% of the variation, which is similar to the results from other studies in Tanzania. Table A.1 shows the characteristics of all sampled households and the principal components weight.

For the exit survey, the housing conditions included were toilet, roof, connection to electricity and cement flooring; the assets were radio, bicycle, mobile phone; and education of the respondent was classified as none, 1-6 years (incomplete primary), or 7+ years (complete primary +). The first principal component explained 34.6% of the variation. Table A.2 shows the results for the exit survey.

Principal components analysis generates a continuous variable. Households are then divided into 5 equal sized groups (quintiles) according to the value of their score, ranging from the poorest (quintile 1) to the least poor (quintile 5). Table A.3 and Table A.4 show the socioeconomic characteristics of the households in each of the quintiles for household and exit respectively.

Table A.1 Individual household socioeconomic characteristics and principal components weights, household survey

	Percent of households with item	Principal components weight
Education of household head		0.35
None	28.2	
1-6 years	16.8	
7+ years	55.0	
Rent house	9.7	0.24
Toilet		-0.02
None	12.4	
Pit latrine	83.6	
Flush	4.0	
Have radio	56.6	0.36
Have mobile phone	15.1	0.48
Have bicycle	48.1	0.25
Have electricity	8.0	0.44
Type of roof		0.44
Thatch/grass	53.7	
Iron sheets/tile/other	46.3	

Source: 2006 TNVS Household Survey

Table A.3 Characteristics of households in each socioeconomic quintile, household survey

	Q1 (n=1172)	Q2 (n=1201)	Q3 (n=1164)	Q4 (n=1170)	Q5 (n=1548)
Education of hh head:					
None	73.2	27.9	30.2	12.1	4.9
1-6	26.8	18.8	26.4	11.7	4.3
7+	0	53.3	43.5	76.2	90.8
Rent house	0	2.6	7.0	10.8	23.7
Toilet					
None	24.6	13.2	15.1	9.2	3.0
Pit latrine	75.0	86.6	84.3	89.2	83.0
Flush	0.4	0.2	0.6	1.5	14.0
Radio	0	25.8	71.7	83.2	91.8
Mobile	0	0	0.9	5.4	56.3
Bicycle	23.3	17.2	45.9	72.3	74.2
Electricity	0	0	0	0.5	31.8
Roof:					
Thatch/grass	91.2	75.4	64.8	6.6	5.4
Iron/tiles/other	8.8	24.6	35.2	93.4	94.6

Appendix 3: Questionnaires

A. Facility survey

SECTION 1: IDENTIFIERS

	Variable Code		Variable Code
Date _ _ / _ _ / _ _ _ _		GPS Longitude _ _ _ : _ _ _ _ _ _ _ _	
District _ _ _		GPS Latitude _ _ _ _ : _ _ _ _ _ _ _ _	
Cluster _ _ _		Facility Ownership _ (1)Government (2)Mission (3)NGO	
Facility Type _ (1)Dispensary (2)Health Centre (3)Hospital		Interviewer ID _ _ _	
What is the status of the facility for the Hati Punguzo scheme? (1)Not yet started (2)Trained but not distributing yet (3)Trained and distributing			_

SECTION 2. EQUIPMENT, DRUGS AND VACCINES

Walk around the RCH with a member of staff and personally check the availability of the following:

Section 2.1 Equipment

Q2.1	Does the facility have the following equipment and materials on the day of survey?	(1)Yes (2)No	Variable Code
a.	Accessible and working adult scale?		
b.	Accessible and working baby scale?		
c.	Working watch or timing device?		
d.	Supplies to mix ORS, cups and spoons		
e.	Source of clean running water (eg bucket+plug)		
f.	Child vaccination cards		
g.	Antenatal cards		
h.	Bed for examining pregnant women		
i.	Fetalscope		
j.	Haemoglobin colour scale/Tallquist		
k.	Clinsticks for testing sugar		
l.	Stethoscope		
m.	Blood pressure machine		
n.	Albusticks		
o.	Single use needles and syringes for vaccinations		
p.	Functional sterilizer, cooker or stove		
q.	Functional fridge		
r.	Cold packs and cold boxes		
s.	TNVS vouchers		If no skip to 2.1u
t.	<i>If TNVS vouchers are present: How many vouchers are there today?</i>		
t2	<i>If TNVS vouchers are not present and the facility has launched HP: For how many days have you had no vouchers?</i>		
u.	Hati Punguzo IRKits		
v.	Height stick		
w.	Working electricity supply		
x.	The last time you needed emergency transport for a patient what transport did you use? (1)Ambulance (2)other official vehicle (3)Public transport (4)Patient's own vehicle (5)Bicycle (6)None was available		

Section 2.2: Current availability of drugs

Check the drug stocks. Answer the following questions based on what you see.

Q2.2	Does the facility have the following drugs available on the day of visit?	(1)Yes (2)No	Variable Code
a.	Sulphadoxine Pyrimethamine for IPT		
b.	Vitamin A		
c.	Ferrous/Folate		
d.	Paracetamol		
e.	Aspirin		
f.	Mebendazol		

Section 2.3: Current availability of vaccines

Check the vaccine stocks. Answer the following questions based on what you see.

Q2.3	Does the facility have the following vaccines in stock?	(1)Yes (2)No	Variable Code
g.	BCG vaccine		
h.	OPV vaccine		
i.	DPT vaccine		
j.	Measles vaccine		
k.	TT vaccine		
l.	Were <i>any</i> (polio) vaccines indicated as unusable by the Visual Vaccine Monitor?		

SECTION 3 FACILITY SERVICES

Discuss with the head of facility to determine which services are routinely offered and the health workers who usually have responsibility for specific tasks.

Section 3.1 Services available

Q3.1			Variable Code
a.	How many days per week is the facility open?		
b.	What services are routinely offered at this facility? (1)Yes (2)No Antenatal registration and counselling	(1)Yes (2)No	
c.	Vaccination		
d.	VCT for pregnant women		
e.	Family planning		
f.	Child health		

g.	How many days per week are antenatal health services provided? (write number of days)		
	On which days do you provide routine antenatal services?		
G1	Monday (1)Yes (2)No		
G2	Tuesday (1)Yes (2)No		
G3	Wednesday (1)Yes (2)No		
G4	Thursday (1)Yes (2)No		
G5	Friday (1)Yes (2)No		
h.	How many days per week are health education services provided? (write number of days)		
	If Trained and distributing Hati Punguzo:		
j.	What was the date when the first voucher was issued in this clinic? (dd/mm): write 99 if don't know dd	_ _ / _ _	
k.	Does this clinic offer outreach antenatal services? (1)Yes (2)No		If (2) skip to S. 3.2
l.	If yes: How many times in the last six months did you provide the outreach service? (write number)		
l.1	How many villages receive outreach services from your clinic? (write number)		
l.2	How many pregnant women do you normally see each month at all the outreach places in total? (write number)		
m.	During the last outreach service did you offer the following services? (1)Yes (2)No		
n.	Distribute IPT		
o.	Distribute Hati Punguzo		
p.	About how many pregnant women were seen at the last outreach service? (write number)		
q.	Would you say the majority had heard of Hati Punguzo or they had not heard before you went there? (1)Heard about it (2)Not heard about it (3)Don't know		
r.	How many of the women you saw at the last outreach have received Hati Punguzo already? (write number) – NOTE to Silas - cannot be more than p		
s.	Why would you not give a pregnant woman at outreach Hati Punguzo? (1)she can't afford to use the voucher (2)she lives too far from a shop (3)she doesn't want a voucher (4)not enough vouchers in clinic (5)no book to take on outreach (6)other (specify) (7)wote wanapata		

Section 3.2 Characteristics of health workers by responsibility

Ask the in-charge to tell you the following about the staff at the RCH. Emphasise that you want to know who NORMALLY provides each service – even if it is not in their job description. Repeat that the information given is anonymous.

Q3.2		Clinical officer	Nurse	RCH Aide	Medical Attendant	Recorder	VHW	Other (sp.)	Total
a.	No. in facility								
b.	No. providing antenatal care								
c.	No. doing health education								
d.	No. providing VCT services								
e.	No. doing								

	registrations								
f.	No. providing f/p services								
g.	No. providing child services								
h.	No. trained in Hati Punguzo								
i.	How many are working today?								
j.	How many are away on training today?								
J1.	How many off sick today?								
J2.	How many on leave today?								

Section 3.3 Supervision

Ask the In-Charge about supervision visits received over the last six months, plus details about the last visit. For questions h-n: while actual number of minutes may not be remembered encourage respondent to think about less or more than 5 minutes, less or more than 10 minutes, and relative time spent on each activity. If an activity is not part of the service at that clinic write 99 in the minutes column.

Q 3.3			Variable Code
a.	Where you present at the last supervision visit? (1)Yes (2)No		
b.	How many times during the last six months did the facility receive a supervisory visit? (write number)		If 0 skip to Sect 4.
	Now please think about the last supervision visit. Which supervisors came on the last visit?	(1)Yes (2)No	
c.	DMO		
d.	Other Medical doctor		
e.	RCH co-ordinator		
f.	Vaccine official		
g.	Mfamasia		
h.	Other (specify)_____		
	During the last supervision visit did your supervisors spend time with any service providers to discuss:	(1)Yes (2)No (3)Don't know	Minutes
i.	Family planning services		
j.	Vaccinations		
k.	Health education		
l.	Physical examination of antenatal women		
m.	Physical examination of children		
n.	VCT		
o.	Hati Punguzo		

SECTION 4 FACILITY RECORDS MODULE

Section 4.1 Ledger (Book 4)

Ask the health worker responsible for records to help you identify records for all visits and drug deliveries to the health facility. Use these records to answer the questions below. If not enough information is available to answer a question, mark -1 (not enough information).

Q4.1			Variable Code
a.	During the last four months: how many times did the facility take delivery of sulphadoxine pyrimethamine for IPTp?		
b.	During the last four months: how many times did the facility take delivery of iron/folate?		
c.	During the last four months: how many times did the facility take delivery of TNVS vouchers?		If 0 skip to Q4.2
d.	Hati punguzo: Total quantity issued in June		
e.	Hati punguzo: Total quantity issued in May		

f.	Hati punguzo: Total quantity issued in April		
g.	Hati punguzo: Total quantity issued in March		

Section 4.3 MTUHA (Book 2)

Ask to see MTUHA book 2 with records from January 2004 to June 2006. Look for Table 27A and Table 25A. You need to record the number of children under 5 years who were diagnosed with malaria, and total attendees under 5, for each month. If records are not available for any month enter -1.

a.	2004 JANUARY	Malaria cases, children<5		Attendees, children<5	
b.	2004 FEBRUARY	Malaria cases, children<5		Attendees, children<5	
c.	2004 MARCH	Malaria cases, children<5		Attendees, children<5	
d.	2004 APRIL	Malaria cases, children<5		Attendees, children<5	
e.	2004 MAY	Malaria cases, children<5		Attendees, children<5	
f.	2004 JUNE	Malaria cases, children<5		Attendees, children<5	
g.	2004 JULY	Malaria cases, children<5		Attendees, children<5	
h.	2004 AUGUST	Malaria cases, children<5		Attendees, children<5	
i.	2004 SEPTEMBER	Malaria cases, children<5		Attendees, children<5	
j.	2004 OCTOBER	Malaria cases, children<5		Attendees, children<5	
k.	2004 NOVEMBER	Malaria cases, children<5		Attendees, children<5	
l.	2004 DECEMBER	Malaria cases, children<5		Attendees, children<5	
m.	2005 JANUARY	Malaria cases, children<5		Attendees, children<5	
n.	2005 FEBRUARY	Malaria cases, children<5		Attendees, children<5	
o.	2005 MARCH	Malaria cases, children<5		Attendees, children<5	
p.	2005 APRIL	Malaria cases, children<5		Attendees, children<5	
q.	2005 MAY	Malaria cases, children<5		Attendees, children<5	
r.	2005 JUNE	Malaria cases, children<5		Attendees, children<5	
s.	2005 JULY	Malaria cases, children<5		Attendees, children<5	
t.	2005 AUGUST	Malaria cases, children<5		Attendees, children<5	
u.	2005 SEPTEMBER	Malaria cases, children<5		Attendees, children<5	
v.	2005 OCTOBER	Malaria cases, children<5		Attendees, children<5	
w.	2005 NOVEMBER	Malaria cases, children<5		Attendees, children<5	
y.	2005 DECEMBER	Malaria cases, children<5		Attendees, children<5	
aa.	2006 JANUARY	Malaria cases, children<5		Attendees, children<5	
ab.	2006 FEBRUARY	Malaria cases, children<5		Attendees, children<5	
ac.	2006 MARCH	Malaria cases, children<5		Attendees, children<5	
ad.	2006 APRIL	Malaria cases, children<5		Attendees, children<5	
ae.	2006 MAY	Malaria cases, children<5		Attendees, children<5	
af.	2006 JUNE	Malaria cases, children<5		Attendees, children<5	

Section 4.2 MTUHA (Book 6)

Ask the health worker assisting you to let you see all the MTUHA book 6 available in the clinic. In some clinics there are separate books for different villages. You first need to find out how many MTUHA book 6 there are. Do they cover the period March to June 2006? Now tell the PDA how many books there are. The PDA will then ask you the following questions FOR EACH of the books separately.

		<20 weeks	>20 weeks	Variable Code
Q4.2	In June:			
a.	What is the total number of visits to the health facility for antenatal services?			
b.	How many of these antenatal attendees received a voucher?			
c.	How many of these antenatal attendees received IPTp1?			
d.	How many of these antenatal attendees received			

	IPTp2?			
e.	How many of these antenatal attendees received iron?			
	In May:			
f.	What is the total number of visits to the health facility for antenatal services?			
g.	How many of these antenatal attendees received a voucher?			
h.	How many of these antenatal attendees received IPTp1?			
i.	How many of these antenatal attendees received IPTp2?			
j.	How many of these antenatal attendees received iron?			
	In April:			
k.	What is the total number of visits to the health facility for antenatal services?			
l.	How many of these antenatal attendees received a voucher?			
m.	How many of these antenatal attendees received IPTp1?			
n.	How many of these antenatal attendees received IPTp2?			
o.	How many of these antenatal attendees received iron?			
	In March:			
p.	What is the total number of visits to the health facility for antenatal services?			
q.	How many of these antenatal attendees received a voucher?			
r.	How many of these antenatal attendees received IPTp1?			
s.	How many of these antenatal attendees received IPTp2?			
t.	How many of these antenatal attendees received iron?			
u.	Which member of staff assisted?			
v.	<p><i>Ask the member of staff who gives out Hati Punguzo</i> Why do you sometimes not give a pregnant woman a voucher? <i>(write response)</i> (1)She still can't afford to buy a net (2)She lives too far from the shops (3)She does not need it because she already has a net (4)Other (specify)_____ (5)all are given</p>			

SECTION 5. HEALTH EDUCATION/PROMOTION

Section 5.1 Observation of health promotion materials on display

		(1)Yes (2)No	Variable Code
Q5.1	On the day of survey were there posters displayed which addressed the following:		
a.	Hati Punguzo		
b.	Ngao		
c.	IPT – SP		
d.	STI		
e.	Nutrition		
f.	HIV		
g.	Family Planning		
h.	Childhood illnesses (measles, polio, neonatal tetanus)		

Section 5.2: Observation of key messages delivered during health education sessions with pregnant women

Ask for permission to observe a health education session – either group or individual. If possible select to observe a group session. For each topic below write down whether it was discussed.

Q5.2			Variable Code
a.	What type of health education session was observed? (1)Group (2)Individual (3)Did not observe		If (1) go to b. If (2) go to c. If (3) go to e.
b.	Were the attendees of the group session (1)Pregnant women only (2)Mothers of children <5yrs only (3)Mixed		Now go to f.
c.	In the individual session observed: What number visit to the RCH was it for the pregnant woman?		
d.	In the individual session observed: Was it the woman's first pregnancy?		Now go to f.
e.	Why did you not observe a health education session? (Specify) _____		Now go to 5.3
	Where the following topics discussed in the health education session:	(1)Yes (2)No	
f.	Aims and Importance of Attendance at RCH (eg services available, timing of visits)		
g.	Individual birth plan (eg where to deliver, emergencies, finances, transport)		
h.	Breastfeeding		
i.	Nutrition (eg importance in pregnancy, what foods to eat)		
j.	Malaria (eg causes, consequences, treatment, ITNs and IPT)		
k.	HIV (eg risk factors, consequences, VCT, ARV)		
l.	Anaemia (causes, consequences, detection, treatment)		
m.	Was a specific mention made of Hati Punguzo?		
n.	Was there an explanation of who Hati Punguzo was meant for and who could get one?		
o.	Was there an explanation of the value of Hati Punguzo?		
p.	Were the pregnant women told which shops they could use Hati Punguzo to buy a bednet in their area?		

Section 6 Observation of actual delivery of interventions

Q6	At which point were the following given to the pregnant woman? (1)Registration (2)Counselling (3)Health education (4)Other (5)Not		Variable Code
a.	IPT		
a.1	If IPT was 'Other' specify: _____		
b.	Hati Punguzo		
b.1	If Hati Punguzo was 'Other' specify: _____		
c.	What was the total number of visits to the health facility for antenatal services by the end of the day of survey?	<20 wks >20 wks	

B. Facility users survey

SECTION 1: IDENTIFIERS

	Variable Code		Variable Code
Date _ _ / _ _ / _ _ _ _		District _ _ _	
Ward/Cluster _ _ _		Kitongoji _ _ _	
Facility Code _ _ _		Facility Type _	
Interviewer ID _ _		Respondent ID _ _ _	

SECTION 2: SOCIO ECONOMIC BACKGROUND OF RESPONDENT

Explain to the respondent that the first questions are about her background.

Q2			Variable Code
a.	What is your birth date? (dd/mm/yyyy) (if don't know 01/07/2099)	_ _ _ / _ _ _ / _ _ _ _	
b.	What is your age now? (write years)		
c.	How many years at school have you completed? (write number of years)		
d.	Have you ever been married? (1)Yes, currently married (2)Yes but not anymore (3)Living with partner but not married (4)Never		
	How many people live in your household? (including yourself)		
e.	Adults > 18 years		
f.	Children 5-17 years		
g.	Children <5 years		
h.	Which District do you live in? (1)this District (2)other District		
i.	Which Region do you currently live in? (1)this Region (2)other Region		
i1	Do you rent this house? (1) yes (2) no (3)=Other (specify)		
g.	Does the household you live in have a cement floor? (1)Yes (2)No		
h.	Does the household you live in have a tin/tiled roof? (1)Yes (2)No		
i.	Does your household have an electricity supply? (1)Yes (2)No		
j.	Is there a landline telephone in your household? (1)Yes (2)No		
k.	What kind of toilet facilities does your household have? (1)Flush (2)Pit/latrine (3)No facility/bush/field (4)Other		

	Does anyone living in your household own a: (1)Yes (2)No		
o.	Radio		
p.	Television		
q.	Bicycle		
r.	Pikipiki		
s.	Car/truck		
t.	Mobile phone		
u.	Bednet		
v.	How many bednets are there altogether? (write number)		

SECTION 3.1: PREGNANCY HISTORY

Explain to respondent that you would now like to ask some questions about her pregnancy.

Q3.1			Variable Code
a.	What is your current gestation? (in weeks)		
b.	Which number pregnancy is this? (write number)		
c.	In total how many live births have you had? (write number)		If 0 skip to Sect. 3.2
d.	What was the birth date of your last born child? dd/mm/yyyy (if don't know: 01/07/2009)	_ _ / _ _ / _ _ _ _	
e.	<i>If ever been pregnant before:</i> Which week of pregnancy did you first visit the RCH for your last pregnancy? (enter how many weeks gestation)		

SECTION 3.2 THIS PREGNANCY

Ask to see clinic card to verify information

Q3.2			Variable Code
a.	How many times have you attended the RCH for antenatal services so far this pregnancy (including today)?		
b.	What was your gestation at the first visit? (write number of weeks)		
c.	(If > 1 visit): What was your gestation at the second visit?		
d.	(If > 2 visits): What was your gestation at the third visit?		
e.	(If > 3 visits): What was your gestation at the fourth visit?		
f.	Have you ever been given iron prophylaxis from the RCH? (1)Yes (2)No		
f1.	At which visit were you given iron prophylaxis? (1)1 st (2)2 nd (3)3 rd (4)4 th		
g.	Have you ever been given IPTp1 (first dose) from the RCH? (1)Yes (2)No		
g1.	At which visit were you given IPTp1 (first dose)?		

	(1)1 st (2)2 nd (3)3 rd (4)4 th		
h.	Have you ever been given IPTp2 (second dose) from the RCH? (1)Yes (2)No		
h1.	At which visit were you given IPTp2 (second dose)? (1)1 st (2)2 nd (3)3 rd (4)4 th		
i.	Have you ever been given ARV? (1)Yes (2)No		
j.	Have you ever been given TT vaccine from the RCH? (1)Yes (2)No		
k.	Have you ever been given a voucher from the RCH? (1) Yes (2)No		
k1.	At which visit were you given a voucher? (1)1 st (2)2 nd (3)3 rd (4)4 th		
l.	After how many weeks should you visit the clinic again? (1)1-2 (2)3-4 (3)5-6 (4)7-8 (5)9-10 (6)10+ (7)don't know		
m.	Overall do you feel fit and healthy throughout this pregnancy? (1)Yes, very (2)OK (3)Not very (4)Not at all		
n.	Did you have the chance to ask the RCH staff any questions about your pregnancy or delivery today? (1)Yes (2)No (3)No questions to ask		If 3 skip to q.
o.	What was the most important question to you? *Codes at bottom of section		
p.	Did you receive enough information about this question from the clinic staff? (1)Yes (2)No		
q.	If not first visit to this clinic: Do you think the clinic is busier or quieter than the last time you attended? (1)Busier (2)Quieter (3)Same (4)Don't know		

Codes for Q3.2 0

(1)Concerning delivery; (2)Concerning preparations (3)Immediately after delivery (4)Caring for the baby (5)Purpose of the measurements (6)Request for a test (7)Breastfeeding issues (8)Experiencing abnormal discharge (9)Weight issues (10)Tiredness (11)Oedema (12)Stomach disturbances (heartburn, movement, pain) (13)Appetite (14)Heart palpitations (15)IPT (16)Hati Punguzo (17)Other

SECTION 4: VOUCHER KNOWLEDGE, USE AND ITN OWNERSHIP

Remind the respondent that all the information she provides is very valuable to try to improve services and that her name or address is not written anywhere so whatever she tells us she can never be identified. Ask her to answer as honestly as she can.

Section 4.1 ITN use

Q4.1			Variable Code
aa	Before you were pregnant did you normally sleep under a bednet? (1)Yes (2)No		
a.	Have you ever slept under a bednet during this pregnancy? (1)Yes (2)No		If no skip to g.
b.	Was it a treated net? (1)Yes (2)No (3)Don't know		
c.	This pregnancy, during which month of gestation did you first sleep under a bednet? (write month 1-9)		
d.	Did you sleep under a bednet last night? (1)Yes (2)No		If no skip to g.
e.	Did you ever treat this net with insecticide? (1)Yes (2)No		If no skip to g.
f.	When was the last time this net was treated with insecticide? (write day/month/year)		
g.	Who else normally shares your bed? (1)Child<5yrs (2)Child>5yrs (3)Husband (4)No-one (5)Other		

t.	Do you still have the voucher? (1)Yes (2)No		If yes skip to w.
u.	<i>If no:</i> What happened to it? (1)Stolen (2)Burnt (3)Lost it (4)Sold it (5)Gave it away (6)Other		
v.	<i>If Other explain</i> _____ _____		Now skip to sect 5
w.	<i>If yes, still has the voucher:</i> Do you plan to use the voucher to buy a net for someone? (1)Yes for myself (2)Yes for my family (3)Yes for someone else (4)No		If Yes (1-3) skip to section 5
x.	If doesn't plan to use: Why don't you plan to use the voucher? (1)Already have a net (2)Don't like bednets (3)No money (4)Other (specify)_____		

SECTION 5. KEY MALARIA IN PREGNANCY KNOWLEDGE INDICATORS

Ask the respondent the following questions. Do not prompt her with the coded answers – rather wait to see what responses she gives.

			Variable Code
Q5.1	What causes malaria? (1)Mosquitoes alone (2)Mosquitoes and other (3)Other		
Q5.2	What are some of the problems that can happen if a pregnant women gets malaria?	(1)Yes (2)No	
a.	Miscarriage		
b.	Prematurity		
c.	Low birth weight		
d.	Still birth		
e.	Pregnancy anaemia		
f.	Doesn't know any		
Q5.3	Have you heard of the method called IPT which is using SP during pregnancy to protect yourself and your baby from malaria? (1)Yes (2)No		
a.	At the RCH how many times do they advise you to take the tablets during your pregnancy? (1)Once (2)Twice (3)Three times (4)More than 3 (5)Don't know		
b.	Who do you think it is most important to sleep under a treated bednet? (Indicate all her responses)		
	Pregnant women		
	Children under 5 years		
	Others		
	Don't know		
c.	After how many months is it advised to put the insecticide on the bednet again? (<i>write number of months</i>)		

Thank the respondent for taking the time to take part in the survey.

TNVS Household Survey June 2006

Module 1. Household questionnaire

H1	District: (drop down)	<input type="text"/> district
H3	Ward (drop down)	<input type="text"/> ward
H5	Sub village (drop down)	<input type="text"/>
H6	Cluster no	<input type="text"/> cluster
H7	Household no	<input type="text"/> hhno
H8	Interviewer initials	<input type="text"/> int
H9	Date (dd/mm/yyyy)	<input type="text"/> date
H10	Name of household head	<input type="text"/> hhname

H11	Have you read him/her the consent form? 1= yes 2=no	<input type="text"/> readconsent
H12	Does the respondent agree? 1=Yes 2=No IF NO END INTERVIEW HERE	<input type="text"/> respagree
H13	Who is the respondent? 1=Household head 2=Representative	<input type="text"/> whoresp

H14. Please can I ask the names of all the people in your household? **Start with the head of household and older people**

Number of the person	Name of the person	Sex 1=M 2=F	Date of birth (dd/mm/yyyy)	Woman between 15 and 49 years? 1 = Yes 2 = No (born between 1956 and 1991)	Child under 5 years? 1 = Yes 2 = No (Born 2001 to present)	Child under 2 years? 1=Yes 2=No (Born 2005 or 2006)	Name of the mother/guardian (under five years only)	Who cares for this child? 1=Mother 2=Guardian	What does he/she do? (see codes below) (Answer if aged over 14 years i.e. born in 1990 or earlier) Probe for any second occupation	Completed years of education	Did the person sleep in the household last night? 1 = Yes 2 = No	Is pe be in th qu 1= 2=

- Occupation codes:**
1=Farming, fishing, forestry
2=Mining
3=Non-agricultural day-labour
4=Professional/clerical
5=Service (e.g. repair, hairdressing, tailoring)
6=Selling (e.g. vegetables, products)
7=Business
8=Domestic worker
9=Student
10=Not employed

About the household

H15	Do you rent this house? 1 = yes 2=no 3=Other (specify)	<input type="checkbox"/> rent otrent
H16	What kind of toilet facilities does your household have? 1 = Flush toilet 2 = Pit toilet/latrine 3 = No facility/bush/field	<input type="checkbox"/> toilet ottoilet
In this household is there anyone who owns:		
H17	Radio 1= yes 2= no	<input type="checkbox"/> radio
H18	Bicycle 1= yes 2= no	<input type="checkbox"/> bike
H19	Mobile phone 1=yes 2=no	<input type="checkbox"/>

H20	In this house are there ducks or chickens? How many? (write the number; 999 if respondent does not know)	<input type="text"/>
H21	Do you have animals in this household like goat, sheep or cattle-how many? (write the number; 999= she / he do not know.	<input type="text"/>
H22	Is the house connected to electricity 1= yes 2= no	<input type="checkbox"/> electric
H23	What is the main material of the roof: 1= Iron sheets or tiles 2= Thatch/grass or leaves 3= Other (explain)	<input type="checkbox"/> roof otroof

H25	Have you heard of Hati Punguzo, the discount voucher programme to buy a mosquito net at a cheaper price? 1=Yes 2=No (SKIP TO H28)	<input type="checkbox"/> heardvouch
H26	If yes, where did you first hear about the discount voucher? 1 = RCH or health facility 2 = Shop 3 = Family member 4 = Neighbour 5 = Radio 6= Performance by theatre group or roadshow 7 = Others 8 = Village government 8a = Newspaper 9= I don't know	<input type="checkbox"/> heardwhere otheardwhere

H27	Who is eligible to receive a voucher? 1= Pregnant women 2= Child < 1 3= Pregnant woman and child 4=Other (specify)	<input type="checkbox"/> eligible <input type="checkbox"/> oteligible _____ _____
H27a	Can you tell me the value of HP? (write the amount or write 0 if doesn't know)	<input type="text"/>
H47	Do you ever listen to the radio? (1)Yes (2)No If NO go to H54	<input type="checkbox"/> hhradever
H48	How frequently do you listen to the radio? 1) Almost every day, 2) At least once a week, 3) less than once a week? If (b) or (c) go to H50	<input type="checkbox"/> hhradfreq
H49	Ni mara ngapi kwa siku huwa unasikiliza redio (Write number) How many times a day do you listen to the radio? (Write number)	<input type="text"/> hhradday
H50	At what times do you listen to the radio? 1)morning 2)afternoon 3)evening 4) night	<input type="text"/> hhradtime
H51	Which radio stations do you listen mostly? 1) Radio free Afrika 2) Radio Tanzania (Radio ya Taifa 3) Radio Uhuru 4) Radio Clouds 5) Radio Aboud 6) Radio Tumaini 7)Radio Ukweli 8) PRT 9) Others (specify)	<input type="text"/> hhradwhich
H52	If H51==9 (others) specify	_____ hhradoth
H53	Which radio programs you most like to listen? 1) news bulletin 2) sports 3) films 4) Music 5) Others)	<input type="text"/> hhradprog
H54	Do you ever watch community drama or road shows performances? (1)Yes (2)No If (2)No, go to H57	<input type="checkbox"/> hhdraever
H55	Last year, how many times did you watch these shows? (Write number)	<input type="text"/> hhdranum
H56	Did you get any HATI PUNGUZO message from these performances? 1)Yes 2)No	<input type="checkbox"/> hhdrahp

H57	Do you usually read newspapers? 1)Yes 2)No If 2)No, go to H59	<input type="checkbox"/> hhnews																																																																				
H58	How frequently do you read newspapers? 1) Almost every day, 2) At least once a week, 3) Less than once a week?	<input type="checkbox"/> hhnewsfreq																																																																				
H59	Do you usually read posters at health facilities? 1)Yes 2)No If 2) No, go to H61	<input type="checkbox"/> hhpostusu																																																																				
H60	How frequently do you read these posters? 1) Almost every time when seen 2) Only once and not repeated once seen 3) Don't remember	<input type="checkbox"/> hhpostfreq																																																																				
H61	In the past month, have you heard or seen any messages about HATI PUNGUZO? 1)Yes 2)No If 2)No, go to H28	<input type="checkbox"/> hhmthhp																																																																				
H61	<table border="0"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th></th> </tr> </thead> <tbody> <tr><td>a) RADIO.....</td><td>1</td><td>2</td><td>hhmthrad</td></tr> <tr><td>b) NEWSPAPERS.....</td><td>1</td><td>2</td><td>hmthnews</td></tr> <tr><td>c) MAGAZINES</td><td>1</td><td>2</td><td>hhmthmag</td></tr> <tr><td>d) BILLBOARDS</td><td>1</td><td>2</td><td>hhmthbrd</td></tr> <tr><td>e) FOOTBALL MATCH.....</td><td>1</td><td>2</td><td>hhmthfoot</td></tr> <tr><td>f) CONCERT.....</td><td>1</td><td>2</td><td>hhmthcon</td></tr> <tr><td>g) COMMUNITY RALLY /</td><td>1</td><td>2</td><td>hhmthral</td></tr> <tr><td>h) ROAD SHOW</td><td>1</td><td>2</td><td>hhmthroad</td></tr> <tr><td>i) TEE SHIRTS/CAPS</td><td>1</td><td>2</td><td>hhmthroad</td></tr> <tr><td>j) MOBILE VIDEO</td><td>1</td><td>2</td><td>hhmthvid</td></tr> <tr><td>k) TIRE PROTECTOR.....</td><td>1</td><td>2</td><td>hhmthtire</td></tr> <tr><td>l) CALENDAR.....</td><td>1</td><td>2</td><td>hhmthcal</td></tr> <tr><td>m) POSTER</td><td>1</td><td>2</td><td>hhmthpost</td></tr> <tr><td>n) STICKER.....</td><td>1</td><td>2</td><td>hhmthstick</td></tr> <tr><td>o) CLINIC.....</td><td>1</td><td>2</td><td>hhmthclin</td></tr> <tr><td>p) OTHER.....</td><td>1</td><td>2</td><td>hhmthoth</td></tr> </tbody> </table> <p>Where did you hear or see these messages? (do not ask but wait for respondent to mention)</p>		YES	NO		a) RADIO.....	1	2	hhmthrad	b) NEWSPAPERS.....	1	2	hmthnews	c) MAGAZINES	1	2	hhmthmag	d) BILLBOARDS	1	2	hhmthbrd	e) FOOTBALL MATCH.....	1	2	hhmthfoot	f) CONCERT.....	1	2	hhmthcon	g) COMMUNITY RALLY /	1	2	hhmthral	h) ROAD SHOW	1	2	hhmthroad	i) TEE SHIRTS/CAPS	1	2	hhmthroad	j) MOBILE VIDEO	1	2	hhmthvid	k) TIRE PROTECTOR.....	1	2	hhmthtire	l) CALENDAR.....	1	2	hhmthcal	m) POSTER	1	2	hhmthpost	n) STICKER.....	1	2	hhmthstick	o) CLINIC.....	1	2	hhmthclin	p) OTHER.....	1	2	hhmthoth	
	YES	NO																																																																				
a) RADIO.....	1	2	hhmthrad																																																																			
b) NEWSPAPERS.....	1	2	hmthnews																																																																			
c) MAGAZINES	1	2	hhmthmag																																																																			
d) BILLBOARDS	1	2	hhmthbrd																																																																			
e) FOOTBALL MATCH.....	1	2	hhmthfoot																																																																			
f) CONCERT.....	1	2	hhmthcon																																																																			
g) COMMUNITY RALLY /	1	2	hhmthral																																																																			
h) ROAD SHOW	1	2	hhmthroad																																																																			
i) TEE SHIRTS/CAPS	1	2	hhmthroad																																																																			
j) MOBILE VIDEO	1	2	hhmthvid																																																																			
k) TIRE PROTECTOR.....	1	2	hhmthtire																																																																			
l) CALENDAR.....	1	2	hhmthcal																																																																			
m) POSTER	1	2	hhmthpost																																																																			
n) STICKER.....	1	2	hhmthstick																																																																			
o) CLINIC.....	1	2	hhmthclin																																																																			
p) OTHER.....	1	2	hhmthoth																																																																			
H28	How many mosquito nets does your household have? If "0" SKIP TO M1	<input type="checkbox"/> <input type="checkbox"/> numnets																																																																				

		Net # 1	Net # 2	Net # 3
H29	Is the net observed? 1 =Yes 2 = No	<input type="checkbox"/> seennet1	<input type="checkbox"/> seennet2	<input type="checkbox"/> seennet3
H30	How long ago did your household obtain the mosquito net? (Months ago) If more than 3 years, indicate 96 Don't know write 99	<input type="checkbox"/> <input type="checkbox"/> whenbought1	<input type="checkbox"/> <input type="checkbox"/> whenbought2	<input type="checkbox"/> <input type="checkbox"/> whenbought3

H31	Was the net purchased using a voucher/Hati Punguzo? 1=Yes 2=No 9=Don't know	<input type="checkbox"/> usedvouch1	<input type="checkbox"/> usedvouch2	<input type="checkbox"/> usedvouch3
H31a	Did you receive the net (free during the free nets distribution to children) FOR TANDAHIMBA AND NACHINGWEA ONLY			
H32	From what kind of source did your household obtain the mosquito net? 1=Shop 2= Hawker (mobile) 3= Health facility 4= Government or NGO project 5= Other 6= Shifting market (gulio) 7= Gift 9= Don't know	<input type="checkbox"/> wherebought1 otwherebought1	<input type="checkbox"/> wherebought2 otwherebought2	<input type="checkbox"/> wherebought3 otwherebought3
H33	What size is the net? 1=3.5X6 2=4X6 3=6X6 4=Other	<input type="checkbox"/> size1 otsize1	<input type="checkbox"/> size2 otsize2	<input type="checkbox"/> size3 otsize3
H34	What price was paid for this net? (write "0" if gift) (write "9999" if don't know)	TSh. _____ Paidnet1	TSh. _____ Paidnet2	TSh. _____ Paidnet3
H36	Did the net come packaged with a sachet of insecticide? 1=Yes 2=No 9=Don't know	<input type="checkbox"/> withngao1	<input type="checkbox"/> Withngao2	<input type="checkbox"/> withngao3
H37	Has this net ever been treated? 1=Yes 2=No (SKIP TO H39) 3=Not sure (SKIP TO H39)	<input type="checkbox"/> evertreat1	<input type="checkbox"/> evertreat2	<input type="checkbox"/> evertreat3
H38	When was the last time the net was treated? (month/year) (If don't know, write 1 July 2009)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat3
H39	Did anyone sleep under the mosquito net last night? 1 = Yes 2 = No (SKIP TO H41) 3 = Not sure (SKIP TO H41)	<input type="checkbox"/> sleeplstnt1	<input type="checkbox"/> sleeplstnt2	<input type="checkbox"/> sleeplstnt3

H40	<p>Who slept under this mosquito net last night (record the line number of the individual(s) from the household roster H14)</p>	<p>Jina _____</p> <p>Jina _____</p> <p>Jina _____</p> <p>Jina _____</p> <p>Jina _____</p>	<p>Name _____</p> <p>Name _____</p> <p>Name _____</p> <p>Name _____</p> <p>Name _____</p>	<p>Name _____</p> <p>Name _____</p> <p>Name _____</p> <p>Name _____</p> <p>Name _____</p> <p>Name _____</p>
<p>H41</p> <p>H42</p> <p>H43</p> <p>H44</p>	<p>Observe and record the condition of the net. Record the number of holes. Do not include repaired holes. If more than 10 holes of a given size, write "96"</p> <p>Number of holes head size Hand size Finger size</p> <p>Net too torn to count holes 1=Yes 2=No</p>	<p>_____ n1head</p> <p>_____ n1hand</p> <p>_____ n1finger</p> <p>_____ n1torn</p>	<p>_____ n2head</p> <p>_____ n2hand</p> <p>_____ n2finger</p> <p>_____ n2torn</p>	<p>_____ n3head</p> <p>_____ n3hand</p> <p>_____ n3finger</p> <p>_____ n3torn</p>

H46	<p>Are these the people who did not sleep under a net last night? (record the line numbers)</p> <p>If everybody in the household slept under a net leave blank</p>	<p>_____ _____ _____ _____ _____ _____ _____ _____ nosleep1 nosleep2 nosleep3 nosleep4 nosleep5 nosleep6 nosleep7 nosleep8</p>
-----	--	--

Module 2: Women aged 15-49 years

M1	Name of the mother	mothername
M2	ID of the mother (District/cluster/household/person)	_ / _ _ / _ _ / _ _ motherid

M3	Is it possible to interview the woman? 1 = yes (SKIP TO M5) 2 = No	_ intwom1
M4	Why is it not possible to interview? 1=Travelled away 2 = Sick 3 = Other	_ whynot1 otwhynot1

M5	Have you read her the consent form? 1= yes 2=no	_ readconsent
M6	Does the mother agree? 1=yes 2=no IF NO, END INTERVIEW HERE	_ motheragree

Interviewer: If the eligible woman was the respondent to Module 1, skip to M10

M7	Have you heard about the discount voucher programme for buying a net at a cheaper price? 1=Yes 2=No (SKIP TO M10)	_ heardvouch
M8	If yes, where did you first hear about the discount voucher? 1 = RCH or health facility 2 = Shop 3 = Family member 4 = Neighbour 5 = Radio 6= Performance by theatre group or roadshow 7 = Others 8 = Village government 8a = Newspaper 9= I don't know	_ heardwhere oheardwhere
M8a	Where else have you heard about the discount voucher? (tick all that apply) 1 = RCH or health facility 2 = Shop 3 = Family member 4 = Neighbour 5 = Radio 6= Performance by theatre group or roadshow 7 = Others 8 = Village government 8a = Newspaper 9= I don't know	

M9	Who is eligible to receive a voucher? 1=Pregnant women 2= Child < 1 3=Pregnant woman and child 4=Other (specify)	<input type="checkbox"/> eligible oteeligible
M9a	Can you tell me the value of HP? (write the amount or write 0 if doesn't know)	<input type="text"/>
M75	Do you ever listen to the radio? (1)Yes (2)No If NO go to M82	<input type="checkbox"/> femradever
M76	How frequently do you listen to the radio? 1) Almost every day, 2) At least once a week, 3) less than once a week? If (2) or (3) go to M78	<input type="checkbox"/> femradfreq
M77	How many times a day do you listen to the radio? (Write number)	<input type="text"/> femradday
M78	At what times do you listen to the radio? 1)morning 2)afternoon 3)evening 4) night	<input type="text"/> femradtime
M79	Which radio stations do you listen mostly? 1) Radio free Afrika 2) Radio Tanzania (Radio ya Taifa 3) Radio Uhuru 4) Radio Clouds 5) Radio Aboud 6) Radio Tumaini 7)Radio Ukweli 8) PRT 9) Others (explain)	<input type="text"/> femradwhich
M80	If M79==9 (others) specify	<input type="text"/> femradoth
M81	Which radio programs you most like to listen? 1) news bulletin 2) sports 3) films 4) Music 5) Others	<input type="text"/> femradprog
M82	Do you ever watch community drama or road shows performances? (1)Yes (2)No If (2)No, go to M85	<input type="checkbox"/> femdraever
M83	Last year, how many times did you watch these shows? (Write number)	<input type="text"/> femdranum
M84	Did you get any HATI PUNGUZO message from these performances? 1)Yes 2)No	<input type="checkbox"/> femdrahp
M85	Do you usually read newspapers? 1)Yes 2)No If 2)No, go to M87	<input type="checkbox"/> femnews
M86	How frequently do you read newspapers? 1) Almost every day, 2) At least once a week, 3) Less than once a week?	<input type="checkbox"/> femnewsfreq

M87	Do you usually read posters at health facilities? 1)Yes 2)No If 2) No, go to M89	<input type="checkbox"/> fempostusu																																																																				
M88	How frequently do you read these posters? 1) Almost every time when seen 2) Only once and not repeated once seen 3) Don't remember	<input type="checkbox"/> fempostfreq																																																																				
M89	In the past month, have you heard or seen any messages about HATI PUNGUZO? 1)Yes 2)No If 2)No, go to M10	<input type="checkbox"/> femthhp																																																																				
M90	<table border="0" style="width: 100%;"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th></th> </tr> </thead> <tbody> <tr><td>a) RADIO</td><td>1</td><td>2</td><td>femthrad</td></tr> <tr><td>b) NEWSPAPERS</td><td>1</td><td>2</td><td>femthnews</td></tr> <tr><td>c) MAGAZINES</td><td>1</td><td>2</td><td>femthmag</td></tr> <tr><td>d) BILLBOARDS</td><td>1</td><td>2</td><td>femthbrd</td></tr> <tr><td>e) FOOTBALL MATCH.....</td><td>1</td><td>2</td><td>femthfoot</td></tr> <tr><td>f) CONCERT</td><td>1</td><td>2</td><td>femthcon</td></tr> <tr><td>g) COMMUNITY RALLY /</td><td>1</td><td>2</td><td>femthral</td></tr> <tr><td>h) ROAD SHOW</td><td>1</td><td>2</td><td>femthroad</td></tr> <tr><td>i) TEE SHIRTS/CAPS</td><td>1</td><td>2</td><td>femthroad</td></tr> <tr><td>j) MOBILE VIDEO.....</td><td>1</td><td>2</td><td>femthvid</td></tr> <tr><td>k) TIRE PROTECTOR</td><td>1</td><td>2</td><td>femthtire</td></tr> <tr><td>l) CALENDAR.....</td><td>1</td><td>2</td><td>femthcal</td></tr> <tr><td>m)POSTER</td><td>1</td><td>2</td><td>femthpost</td></tr> <tr><td>n) STICKER</td><td>1</td><td>2</td><td>femthstick</td></tr> <tr><td>o) CLINIC.....</td><td>1</td><td>2</td><td>femthclin</td></tr> <tr><td>p) NYINGINE.....</td><td>1</td><td>2</td><td>femthoth</td></tr> </tbody> </table> <p>Where did you hear or see these messages? (do not ask but wait for respondent to mention)</p>		YES	NO		a) RADIO	1	2	femthrad	b) NEWSPAPERS	1	2	femthnews	c) MAGAZINES	1	2	femthmag	d) BILLBOARDS	1	2	femthbrd	e) FOOTBALL MATCH.....	1	2	femthfoot	f) CONCERT	1	2	femthcon	g) COMMUNITY RALLY /	1	2	femthral	h) ROAD SHOW	1	2	femthroad	i) TEE SHIRTS/CAPS	1	2	femthroad	j) MOBILE VIDEO.....	1	2	femthvid	k) TIRE PROTECTOR	1	2	femthtire	l) CALENDAR.....	1	2	femthcal	m)POSTER	1	2	femthpost	n) STICKER	1	2	femthstick	o) CLINIC.....	1	2	femthclin	p) NYINGINE.....	1	2	femthoth	
	YES	NO																																																																				
a) RADIO	1	2	femthrad																																																																			
b) NEWSPAPERS	1	2	femthnews																																																																			
c) MAGAZINES	1	2	femthmag																																																																			
d) BILLBOARDS	1	2	femthbrd																																																																			
e) FOOTBALL MATCH.....	1	2	femthfoot																																																																			
f) CONCERT	1	2	femthcon																																																																			
g) COMMUNITY RALLY /	1	2	femthral																																																																			
h) ROAD SHOW	1	2	femthroad																																																																			
i) TEE SHIRTS/CAPS	1	2	femthroad																																																																			
j) MOBILE VIDEO.....	1	2	femthvid																																																																			
k) TIRE PROTECTOR	1	2	femthtire																																																																			
l) CALENDAR.....	1	2	femthcal																																																																			
m)POSTER	1	2	femthpost																																																																			
n) STICKER	1	2	femthstick																																																																			
o) CLINIC.....	1	2	femthclin																																																																			
p) NYINGINE.....	1	2	femthoth																																																																			

Now I would like to ask you some questions about your health right now.

M10	Have you ever been pregnant? (even if this did not lead to a live birth) 1 = Yes 2 = No	<input type="checkbox"/> everpg
M11	Are you currently pregnant? 1=Yes 2=No (SKIP TO M42)	<input type="checkbox"/> currentpg
M11a	Which number pregnancy is this? (write number)	Gravid
M12	What gestation are you now? (record no. weeks)	<input type="checkbox"/> gestation
M13	Have you already attended the RCH this pregnancy? 1 = Yes 2 = No (SKIP TO M39)	<input type="checkbox"/> attendRCH
M13a	Did you go to a clinic building for RCH services or did you go to outreach services? 1= clinic building 2= outreach	<input type="checkbox"/> outreach

M14	<p>May I see your RCH card? When did your first visit take place? (month/year) Interviewer: record from card if available</p>	<p>_ _ _ /_ _ _ _ _ firstvisit</p>
M15	<p>1=Date recorded from card 2=Date reported by woman</p>	<p>_ _ visitverif</p>
M16	<p>How old was your pregnancy at the first visit? (record no.weeks) Interviewer: record from card if available</p>	<p>_ _ _ gestfirstvis</p>
M17	<p>1=Gestation recorded from card 2=Gestation reported by woman</p>	<p>_ _ gestverif</p>
M17a	<p>Did you receive health messages from health workers during your RCH visits so far this pregnancy? 1)Yes 2)No</p>	<p>_ _ clinicmsg</p>
M17b	<p>Messages were on what? (mark all mentioned) (wait for respondent – do not prompt) (a) Malaria (b)Hati Punguzo (c) HIV/AIDS (d) Family planning (e) Delivery of baby (f) Looking after baby (g)Nutrition while pregnant (h) Dont remember (i) Other</p>	<p>clinmall_ _ clinhp_ _ clinhiv_ _ clinfp_ _ clindeliv_ _ clincar_ _ clinnut_ _ clindk_ _ clinoth_ _ </p>
M18	<p>When you went to the clinic were you given the medicine to prevent malaria? 1= Yes 2= No (Go to M21).</p>	
M19	<p>Which medicine were you have given to prevent malaria? (do not prompt) 1 = SP /fansidar 2= Other medicine 9= do not know</p>	
M21	<p>At the clinic, were you asked if you would like to get SP medicine to prevent Malaria? 1=Yes 2=No</p>	
M22	<p>Why did you not use this medicine 1= I don't like 2= It can abort the pregnancy 3= it_causes_other_problems 4= My husband will not agree 5= Other</p>	
M23	<p>Did an RCH worker give you a discount voucher for buying a mosquito net? (Interviewer: show copy of Hati Punguzo) 1=Yes 2=No (SKIP TO M39)</p>	<p>_ _ recdvouch</p>
M24	<p>Did you have to pay money to somebody at the RCH clinic to get the voucher? 1=Yes 2=No (SKIP TO M26)</p>	<p>_ _ paidvouch</p>

M25	How much did you have to pay? (TSh)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> paidhowmuch
M26	Was the voucher used to buy a net? 1=Yes (SKIP TO M29) 2=No	<input type="text"/> usevouch
M27	Why wasn't the voucher used to buy a net? 1 = I gave the voucher to somebody else 2 = I already had a net 3 = I had no money to buy a net 4 = I lost the voucher 5 = I bought another commodity 6 = I sold the voucher to somebody else 7 = The place to buy a net is too far 8 = I don't know where to buy a net 9=No shop nearby selling nets 10 = Nets too expensive 11 = Other (specify).	<input type="text"/> <input type="text"/> <input type="text"/> Whynotuse Otwynotuse
M28	Do you still have the voucher? 1=Yes (SKIP TO M39) 2=No (SKIP TO M39)	<input type="text"/> stillhave
M29	Who went to buy the net? 1=Self 2=Husband 3=Relative 4=Friend 5=Other	
M30	When was the net bought? If not known, write 1 July 2009	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> whenbuy
M31	Where was the net bought? 1=Shop 2=Machinga 3=Health facility 4=Government or NGO project 5=Market 6=Other (specify) 9=Don't know	<input type="text"/> wherebuy otwherebuy
M32	How long did it take you (or the person who bought the net) to get to the place where you bought the net? (minutes) WRITE 999 IF DON'T KNOW	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> timebuy
M33	How much was paid as transport costs? (TSh) (Interviewer: If paid nothing write 0; write 9999 if don't know)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> transbuy
M34	What size is the net? 1=3.5X6 2=4X6 3=6X6 4 = Other	Size Otsizenet
M35	How much was paid to buy the net (after using discount voucher)?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> costnet
M36	Did you have any other difficulties in using the voucher scheme to buy a net? 1=Yes (specify) 2=No	<input type="text"/> probbuy whatprobbuy <hr/> <hr/> <hr/>

M37	Do you still have the net that you bought with the voucher? 1=yes (SKIP TO M39) 2=No	<input type="checkbox"/> stillhave
M38	If not, what happened to it? 1=Stolen 2=Burnt 3=I lost 4=Isold 5=I gave it to another person 6=I sold it to another person 7 = Other (explain)	<input type="checkbox"/> wherenet otwherenet
M39	Did you sleep under a mosquito net last night? 1=yes 2=No (SKIP TO M42)	<input type="checkbox"/> sleptlast
M40	Have you ever treated this net with insecticide? 1 = Yes 2 = No (SKIP TO M42)	<input type="checkbox"/> evertreat
M41	When was the last time you treated the net with insecticide (month/year)? (If don't know write 1 July 2009)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> lasttreat

Now I would like to ask you some questions about other pregnancies during the past 1 year, i.e. in 2005 and 2006 (**Or check for well-known local event**).

M42	Did you give birth to a live child in the past year (in 2005 or 2006)? 1=Yes 2=No (SKIP TO C1)	<input type="checkbox"/> livebirth
M43	How many children did you give birth to in 2005 and 2006?	<input type="text"/> numbirths
M44	Did you give birth to a child that cried or showed signs of life but unfortunately died later? 1=yes 2=no	<input type="checkbox"/> childdied
M45	What is the total number of live children that you gave birth to during the past year?	<input type="text"/> totlivebirth

M46 I would like to write down all the names of the children that you gave birth to in 2004 and 2005, even if they died.
(Start with the youngest one. For twins, write every child in a separate line. If there was a child was not given a name, write “not given” in the name of the child).

Number	Name of the child (start with the youngest)	Born twins? 1 = Lone 2 = Twins	Sex 1=M 2=F	When was s/he born? (day/month/year)	Is s/he still alive? 1=Yes 2 = No	If s/he is still alive, how old is s/he in months	If the child died, when did s/he die??	Have you had any other children in the 2005 and 2006? 1=Yes 2=No
_ num1	Name1	_ twins1	_ sex1	_ _ / _ _ / _ _ _ _ dob1	_ alive1	_ _ age1	_ _ / _ _ / _ _ _ _ whendied1	_ otherchild1
_ num2	Name2	_ twins2	_ sex2	_ _ / _ _ / _ _ _ _ dob2	_ alive2	_ _ age2	_ _ / _ _ / _ _ _ _ whendied2	_ otherchild2
_ num3	Name3	_ twins3	_ sex3	_ _ / _ _ / _ _ _ _ dob3	_ alive3	_ _ age3	_ _ / _ _ / _ _ _ _ whendied3	_ otherchild3

Now I would like to ask you some questions about your pregnancy with each child born in 2005 and 2006.

		Name (1) _____ Child number (from M46) <input type="checkbox"/> <input type="checkbox"/> Name1	Name (2) _____ Child number (from M46) <input type="checkbox"/> name2	Name (3) _____ Child number (from M46) <input type="checkbox"/> name3
M47	While you were pregnant with NAME, did you sleep under a mosquito net? 1=Yes 2=No (SKIP TO M49)	<input type="checkbox"/> sleepg1	<input type="checkbox"/> sleepg2	<input type="checkbox"/> sleepg3
M48	Had you ever treated this net with insecticide? 1=yes 2=no	<input type="checkbox"/> evertreat1	<input type="checkbox"/> evertreat2	<input type="checkbox"/> evertreat3
M49	While you were pregnant with NAME, did you attend an antenatal care clinic? 1=Yes 2=No (SKIP TO M75)	<input type="checkbox"/> attendRCH1	<input type="checkbox"/> attendRCH2	<input type="checkbox"/> attendRCH3
M49a	Did you go to a clinic building for RCH services or did you go to outreach services? 1= clinic building 2= outreach	<input type="checkbox"/> outreach1	<input type="checkbox"/> outreach2	<input type="checkbox"/> outreach3
M50	How old was your pregnancy at the first visit? (weeks) Interviewer: record from RCH card if available	<input type="text"/> gestfirstvis1	<input type="text"/> gestfirstvis2	<input type="text"/> gestfirstvis3
M51	1=Gestation recorded from card 2=Gestation reported by mother	<input type="checkbox"/> gestverif1	<input type="checkbox"/> gestverif2	<input type="checkbox"/> gestverif3
M52	When you went to the clinic were you given the medicine to prevent malaria? 1= Yes 2= No (GO TO M55)			
M53	Which medicine were you have given to prevent malaria? (do not prompt) 1 = SP /fansidar 2= Other medicine 9= do not know			
M54	When you were pregnant, how many doses did you take of that medicine? (99 = do not know) (GO TO M57)			
M55	At the clinic, were you asked if you would like to get SP medicine to prevent Malaria? 1=Yes 2=No			
M56	Why did you not use this medicine 1= I don't like 2= It can abort the pregnancy			

	3= it causes other problems 4= My husband will not agree 5= Other (specify)			
M57	Did an RCH worker give you a discount voucher for buying a mosquito net? (Interviewer: show copy of Hati Punguzo) 1 = Yes 2 = No (SKIP TO M75)	<input type="checkbox"/> recdvouch1	<input type="checkbox"/> recdvouch2	<input type="checkbox"/> recdvouch3
M58	Did you have to pay money to somebody at the RCH clinic to get the voucher? 1=Yes 2=No (SKIP TO M60)	<input type="checkbox"/> paidvouch1	<input type="checkbox"/> paidvouch2	<input type="checkbox"/> paidvouch3
M59	How much did you have to pay?	<input type="text"/> paidhowmuch1	<input type="text"/> paidhowmuch2	<input type="text"/> paidhowmuch3
M60	Was the voucher used to buy a net? 1=Yes (SKIP TO M63) 2=No	<input type="checkbox"/> usevouch1	<input type="checkbox"/> usevouch2	<input type="checkbox"/> usevouch3
M61	Why wasn't the voucher used to buy a net? 1 = I gave the voucher to somebody else 2 =I already had a net 3 =I had no money to buy a net 4 = I lost the voucher 5 =I bought another commodity 6 =I sold the voucher to somebody else 7 = The place to buy a net is too far 8 =I don't know where to buy a net 9 = No shop nearby selling nets 10 = Nets too expensive 11 = Other (specify)	<input type="checkbox"/> whynotuse1 otwhynot1	<input type="checkbox"/> whynotuse2 otwhynot2	<input type="checkbox"/> whynotuse3 otwhynot3
M62	Do you still have the voucher? 1=Yes (SKIP TO M75) 2=No (SKIP TO M75)	<input type="checkbox"/> havevouch1	<input type="checkbox"/> havevouch2	<input type="checkbox"/> havevouch3
M63	Who went to buy the net? 1=Self 2=Husband 3=Relative 4=Friend 5=Other			
M64	When in the course of your pregnancy was the voucher used to buy the net? 1 = While pregnant 2 = after delivery	<input type="checkbox"/> whenbuy1	<input type="checkbox"/> whenbuy2	<input type="checkbox"/> whenbuy3
M65	When was the net bought? (Month/Year) If not known, write 1 July 2009	<input type="text"/> datebuy1	<input type="text"/> datebuy2	<input type="text"/> datebuy3
M66	Where was the net bought? 1=Shop 2=Machinga 3=Health facility 4=Government or NGO project	<input type="checkbox"/> wherebuy1 otwherebuy1	<input type="checkbox"/> wherebuy2 otwherebuy2	<input type="checkbox"/> wherebuy3 otwherebuy3

	5=Market 6=Other (specify) 9=Don't know			
M67	How long did it take you (or the person who bought the net) to get to the place where you bought the net? (in minutes) Write 999 if don't know	_ _ _ timebuy1	_ _ _ timebuy2	_ _ _ timebuy3
M68	How much was paid as transport costs? (Interviewer: if paid nothing, write 0; Write 9999 if don't know)	_ _ _ _ transbuy1	_ _ _ _ transbuy2	_ _ _ _ transbuy3
M69	What size of net was bought? 1=3.5X6 2=4X6 3=6X6 4=Other	_ sizenet1 otsize1	_ sizenet2 otsize2	_ sizenet3 otsize3
M70	How much did you pay to buy the net (after using the discount voucher)?	_ _ _ _ costnet1	_ _ _ _ costnet2	_ _ _ _ costnet3
M71	Did you have any other difficulties using the voucher scheme to buy a net? 1 = Yes (specify) 2 = No	<input type="checkbox"/> Probbuy1 Whatprob1 _____ _____ _____	_ probbuy2 whatprob2 _____ _____ _____	_ probbuy3 whatprob3 _____ _____ _____
M72	Do you still have the net that you bought with the voucher? 1=yes (SKIP TO M74) 2=no	_ havenet1	_ havenet2	_ havenet3
M73	If not: what happened to it? 1 =Stolen 2 =Burnt 3 =I lost 4 =I sold 5 =I have given to another person 6=I sold it to another person 7 =Other (explain) (SKIP TO M75)	_ wherenet1 otwherenet1	_ wherenet2 otwherenet2	_ wherenet3 otwherenet3
M74	Who sleeps under the net now? (refer to line numbers from household roster H14)	_ _ _ _ _ _ _ _ whosleeps11 whosleeps12 whosleeps13 whosleeps14	_ _ _ _ _ _ _ _ whosleeps2 1 whosleeps2 2 whosleeps2 3 whosleeps2 4	_ _ _ _ _ _ _ _ whosleeps3 1 whosleeps3 2 whosleeps3 3 whosleeps3 4

Module 3

Now I would like to ask you some questions about your infants under 1 year or any children under 1 for whom you are the guardian.

K1	Name of respondent	
----	--------------------	--

		Name (1) Id of child	Name (2) Id of child
K2	Have you taken NAME to the RCH for vaccination? 1=Yes 2=No		
K3	May I see the child health card? Interviewer record: 1=Card seen 2=Card not seen		
K4	Did you receive a Hati Punguzo insecticide retreatment kit? 1=Yes 2=No	<input type="checkbox"/>	<input type="checkbox"/>
K5	Interviewer: is the IRK recorded on the card? 1=Yes 2=No		
K6	How many times did you receive a kit?	<input type="checkbox"/>	<input type="checkbox"/>
K7	Have you used a Hati Punguzo IRK to treat a net? 1=Yes 2=No		

Module 4: Children under 5 years of age:

Interviewer: Ensure that the respondent is a mother/carer of a child under 5 years. If they have not yet given consent to be interviewed, ask for their consent.

I would like to ask you some questions about your children under 5 years or any children for whom you are the guardian

C1	Name of respondent	nameresp
C3	Have you read him/her the consent form? 1= yes 2=no	<input type="checkbox"/> readconsent
C4	Does the respondent agree? 1=Yes 2=No IF NO END INTERVIEW HERE	<input type="checkbox"/> respagree

C5		NAME (1) Name1	NAME (2) Name2	NAME (3) Name3	NAME (4) Name4
C7	How old is NAME? (years) If aged less than one year, write "0"	<input type="checkbox"/> age1	<input type="checkbox"/> age2	<input type="checkbox"/> age3	<input type="checkbox"/> age4
C8	Did NAME sleep under a mosquito net last night? 1 = yes 2 = no (END)	<input type="checkbox"/> sleepnet1	<input type="checkbox"/> sleepnet2	<input type="checkbox"/> sleepnet3	<input type="checkbox"/> sleepnet4
C9	Has the net NAME slept under ever been treated? 1=Yes 2=No (END)	<input type="checkbox"/> evertreat1	<input type="checkbox"/> evertreat2	<input type="checkbox"/> evertreat3	<input type="checkbox"/> evertreat4
C10	When was the last time the net they slept under was treated? (Month/year) 1 July 2009	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> lasttreat4

Thank you very much for answering these questions.

Interviewer: Record the digital position of the household using the GPS

H24	(If <u>no reading available</u> , fill 99.9, 99.9, 9999)	Latitude <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> . <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Longitude <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> . <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
-----	--	--