



Six Villages Mosquito Net Coverage and Usage Survey Report

Compiled by

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Performance and Impact Unit – Concern Universal

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1.0 Executive Summary

This is a report on a survey that was conducted in six randomly selected villages (3 in Balaka district and 3 in Dedza district) in Malawi to determine mosquito net coverage after universal net distribution that was done by Ministry of Health. The survey was a joint exercise undertaken by Concern Universal and Balaka and Dedza District Councils through their District Health Offices. Both quantitative and qualitative methods were used to collect data from the two districts and a total of 559 households participated in the survey.

1.1 Key Findings

The total population in the 559 households that participated in the survey was 2462 with an average of 4.4 members per household which is close to the average number of persons per household nationally which is 4.6 persons¹. The 559 households that participated in the survey had a total of 1224 sleeping spaces and a total of 736 nets available. Based on the total number of sleeping spaces, this represented 60% net coverage. There were a total of 61 nets that were of poor condition as defined by Against Malaria Foundation criteria and needed replacement. If the poor nets are taken into consideration, then coverage would be at 55%. There were a total of 754 households in the six villages and the survey was done in 74% of these households (559 households).

The survey also established that out of the 736 nets available in the households, 535 nets were received during the universal net distribution representing 72.7% of the total nets available. According to records from Balaka and Dedza DHOs, the total number of nets distributed in the six villages were nine hundred and ninety seven (997). The discrepancy may be attributed to two reasons. First, 195 of the total number of households in the six villages (754) were not interviewed as there were no people found during the survey. Secondly, some households may not have declared all the nets they received during the universal net distribution for fear of missing out on any future distribution as some may have regarded the survey exercise as a re registration since the nets were not enough during the first round of distribution.

The criteria used by Ministry of Health to determine number of nets required per household in both districts was one net per two people. The survey found that there was a total population of 2462 in the 559 households. Therefore, the number of nets required based on the Ministry of Health criteria was 1231. This is very close to the number of nets that this survey found were required based on number of sleeping spaces in the 559 households which was 1224. Therefore use of either criteria would ensure universal coverage. However, use of sleeping spaces would be more advantageous as it precisely determines number of nets required in households with uneven number of members.

¹ 2010 Malawi Demographic and Health Survey by National Statistical Office

On net usage, seventy one percent (71%) of the households were found using the hung nets correctly. Forty one percent (41%) of the nets received during the universal net distribution were not being used for various reasons. The majority of the households said there were no mosquitoes during the period of the survey and were waiting for the rainy season when mosquitoes are abundant. On sources of nets available, 72.7 % were received during the universal net distribution, 16.3% were received from health facilities either during pregnancy or when an under five child was sick, 7.3% were bought and 3.7% were a gift from either a relation or other people. Out of 688 nets physically checked, 568 (82.6%) were in very good condition, 59 (8.6 %) were just ok whereas 61 (8.9%) were in poor condition. The high percentage of nets in very good condition is attributed to the fact that 72.7% of the nets available were received during the universal net distribution exercise that was conducted just over a month before this survey.

In conclusion, the survey has shown that the nets distributed in the six villages did not cover all the sleeping spaces in the six villages surveyed. The officials from the District Health Offices in both Balaka and Dedza said that they received 997 nets from Ministry of Health and this was less than the 1535 net they had requested. Based on the findings the following recommendations are made:

1. There is need for more nets to be distributed if universal coverage is to be achieved. Coverage in the six villages was sixty percent (60%) of the sleeping spaces hence there is need for additional nets to cover the remaining 40%.
2. Although there is no significant difference in number of nets required if registration for nets is based on number of sleeping spaces or calculating one net per two people, using the former criteria help to be more precise and is here recommended. This is so especially to determine number of nets required in households with uneven number on members.
3. There is need to conduct thorough education and sensitization campaigns on mosquito net usage when distributing to communities as a high percentage of households that received universal nets are not using them or using the nets incorrectly. However, further study on net usage is also being recommended here to understand why communities would not use nets when they have them.
4. There is also need to have better records i.e. people who receive nets should also sign for them. This would help account for all the nets that were delivered in a particular distribution area
5. DHO's should do regular random follow-ups to check on net presence and usage

2.0 Survey Background

Recently, Government of Malawi through the Ministry of Health conducted a universal mosquito net distribution in Malawi. This exercise was done in close coordination with The Global Fund against Malaria, TB and HIV & AIDS and with the support of a number of partners including Against Malaria Foundation who concentrated their support in Ntcheu District in order to achieve universal coverage. The mosquito nets in Ntcheu were distributed based on the sleeping spaces available in each household but in the

rest of the country they were distributed according to the number of residents in each household. There are concerns that the number of nets distributed was insufficient to ensure universal coverage and that there may therefore be some gaps in coverage of the mosquito nets across the country. It is against this background that Against Malaria Foundation has asked Concern Universal in Malawi to conduct a randomized village survey to assess mosquito net coverage in 6 randomly selected villages in two districts. This information will be used to inform further district and national level action to close any identified net gap.

2.1 Main Objective of the Survey

The main objective of the survey was to assess the coverage and usage of mosquito nets in 6 villages in two districts in Malawi after the universal net distribution done by Government of Malawi through the Ministry of Health and other partners with the aim of determining if there are any gaps that may justify further net distribution.

2.2 Specific Objectives

1. Assess the number of nets available against sleeping spaces per household within randomly selected six villages in Dedza and Balaka in order to determine if there are any existing gaps on mosquito net coverage
2. Assess usage and condition of mosquito nets in the households within the six villages
3. Make necessary recommendations on way forward as regards universal net coverage and usage

2.3 Methodology

Both qualitative and quantitative methods were used to collect data from the households in 6 villages in Dedza and Ntcheu. The main data collection tool was a household questionnaire/form that was administered at each household within the six villages. Secondly, physical inspection was done on sleeping spaces available in each household, number of nets available, their condition and whether they were received during the universal net distribution.

2.4 Sampling and Sample Size

The survey was conducted in a total of 6 villages (3 villages in Dedza and 3 villages in Balaka). A total of 559 households from the 6 villages participated in the survey. To come up with the six villages, firstly 3 Traditional Authorities were randomly selected in each of the two districts. Then one village was also randomly selected in each of the 6 TAs which gave a total of six villages sampled in the two districts as shown below:

Table 1: The six villages where the survey was conducted and number of households interviewed

District	Traditional Authority (TA)	Village	Total Number of Households	Number of Households Interviewed
Balaka	STA Amidu	Mtenga	180	105
	STA Chanthunya	Nyanyala	185	124
	Kachenga	Jenya	69	66
	Total for Balaka		434	295
Dedza	Kaphuka	Kapichira	76	64
	Tambala	Mwamvu	78	76
	Kamenyagwaza	Chinyamula	166	124
	Total for Dedza		320	264
		Total households for both Balaka & Dedza	754	559

2.5 The Survey Team

The survey was undertaken jointly by Concern Universal and the Dedza and Ntcheu District Councils through their district health offices (DHOs) with District Malaria Coordinators and Insecticide Treated Nets Coordinators from each of the two districts as the contact person. In CU, Performance and Impact Unit had the primary responsibility with support from CU staff namely Health and Nutrition Coordinator for Local Development Support Programme in Dedza and Community Led Total Sanitation Coordinator in Balaka. The DHOs from the two districts identified suitable health surveillance assistants (HSAs) who worked as enumerators.

There were six data collection teams in total with one team assigned to each of the six villages.

2.6 Time Frame

The survey was conducted during the week beginning August 13 – 17, 2012. Preparations started prior to that week with consultations with the two District Councils through their DHOs, development of the survey tools, training of enumerators and pre-testing the tools before the actual data collection was conducted.

3.0 Survey Findings

Section 3 presents the main findings of the survey with subsections on coverage, usage, types, sources and condition of the mosquito nets available in the surveyed households.

3.1 Coverage of Mosquito Nets

The survey was conducted in 559 households in Dedza and Balaka districts. The total population of the households that participated in the survey is 2462 with an average of 4.4 members per household. This is close to the average number of persons per household nationally which is 4.6 persons². The survey found that there are 1224 sleeping spaces in the 559 households, with an average of 2.2 sleeping spaces per household. The two tables below show breakdown of the sleeping spaces, one as summary and the other disaggregated by district:

Table 2: Breakdown of sleeping spaces in the 559 households surveyed

		Number of households	Total sleeping spaces	Percentage
Number of sleeping spaces in a household	1	157	157	28.1
	2	205	410	36.7
	3	147	441	26.3
	4	39	156	7.0
	5	8	40	1.4
	6	2	12	.4
	8	1	8	.2
	Total	559	1224	100.0

Table 3: Breakdown of sleeping spaces in the 559 households disaggregated by district

		Number of sleeping spaces in a household							Grand Total
		1	2	3	4	5	6	8	
Number of households	Dedza	78	97	62	21	3	2	1	264
	Balaka	79	108	85	18	5	0	0	295
Total households		157	205	147	39	8	2	1	559
Percentage		28.1	36.7	26.3	7.0	1.4	0.4	0.2	100

The survey found that there were a total of seven hundred and thirty six (736) mosquito nets available in the 559 households visited with 1224 sleeping spaces (as indicated in table 2 above and table 3 is showing the breakdown by districts). This means coverage of mosquito nets was at sixty percent (60 %) during the time of the survey and that takes into account all the nets available in the surveyed households regardless of their

² According to the 2008 Malawi Population Census by National Statistical Office

source and condition. However, the survey found that 61 nets in the households were of poor quality and needed replacement. Therefore, if the number of poor nets is taken into account, coverage of mosquito nets was fifty five percent (55 %). The survey findings on coverage of nets are close to the pre and post net distribution data shared by the Balaka DHO as shown in annexes 1 & 2 of this report which indicated that only 62% and 58% of the nets requested at district and the 3 villages were received respectively.

Furthermore, the survey found that out of the 736 nets found in the 559 households surveyed, 535 were received during the universal net distribution representing 72.7%.

It must be noted however that according to annexes 2 & 3 of this report, the two DHOs documented that a total of 997 nets were distributed in the six surveyed villages yet this survey found that 535 nets were received. There may be two possible explanations for this discrepancy. Firstly, not all households in the six villages were interviewed as the survey team did not find people in 195 households out of the 754 households in the six villages. Secondly, it may be that some households were not declaring all the nets they received during the universal net distribution as they may have thought that full declaration would result in them not receiving more nets as the survey may have been construed by some as a re registration process since the nets were not enough during the universal coverage distribution exercise. This is also against the background that communities are now used to handouts.

The table below shows the nets available per village and the number of sleeping spaces in the households.

Table 4: Coverage of mosquito nets in the 6 villages based on number of sleeping spaces

District	Village	Number of Sleeping Spaces	Number of Nets Available	Percentage Coverage
Balaka	Mtenga	237	154	64.9
	Jenya	139	93	66.9
	Nyanyala	271	165	60.9
	Total for Balaka	647	412	63.7
Dedza	Kapichira	151	63	41.7
	Mwamvu	132	84	63.6
	Chinyamula	294	177	59.6
	Total for Dedza	577	324	56.2
	Grand Total for Balaka & Dedza	1224	736	60.1

The table above shows that mosquito coverage was slightly higher in Balaka (63.7%) than Dedza (56.2%) using number of sleeping spaces as a basis for universal coverage. It is interesting to note that the number of sleeping spaces (1224) in the 559 households is almost the same as half of the total population of the households which is 1231(the

total population is 2462). From the survey, it has therefore been found that the two criteria namely use of number of sleeping spaces or distributing one net per two people could have both resulted in everyone in the six villages sleeping under a mosquito net i.e. universal coverage.

3.2 Mosquito Net Usage

The survey also wanted to establish whether the households were using the available nets correctly. This was done by physically checking how a net was being used on a sleeping space and asking a member of the household to demonstrate how they use the net. The interviewer would then form an opinion as to whether that house was using the nets correctly or not based on an agreed standard by the survey team. Nets checked were both those received during the universal net distribution and any other nets available in the household. Seventy one percent (71.1%) of the households were found using the nets correctly against 28.9% that were not using them correctly. The table below provides the details on net usage.

Table 5: Correct net usage

		Frequency	Percentage
Whether household is using net correctly	Yes	324	71.1
	No	132	28.9
	Total	456	100.0

According to the table above, most of the households that had nets were found to be using them correctly.

According to the survey, fifty eight percent (58.8%) of the nets received during the universal distribution were hung whereas forty one percent (41.2%) were not hung. There were a variety of reasons that the households gave as to why they had not hung the nets as shown below:

- ✚ No mosquito occurrences as rains had not started falling
- ✚ They were using other nets
- ✚ Insufficient nets in some households hence did not want to be biased in allocation of the available nets
- ✚ Not knowing how to hang the nets
- ✚ Only one sleeping space hence have more than enough
- ✚ Wanted to renovate the house before the net is hung
- ✚ Too busy to hung

- ✚ Husband not comfortable to hang as would not perform conjugal obligations (cultural perceptions/myths regarding the negatives effects of nets on sexual relations)
- ✚ Net being used as blanket

Most of the reasons presented above demonstrate inadequate knowledge/skills concerning mosquito net usage. There is a need therefore to conduct thorough education/sensitization campaigns when distributing mosquito nets to communities so that they are firstly used and secondly properly and correctly. This should also be followed up on an ongoing basis by NGO and government staff.

3.3 Types, Source and Condition of available nets in the households

The survey wanted to establish the type of nets being used, their source and condition. The two tables below show the types and sources of nets being used by the households in the six villages.

Table 6: Types of nets available in the 559 households surveyed

Type of Net	Frequency	Percentage
Olyset	603	81.9
Permanet	74	10.1
Duranet	34	4.6
PSI Net	4	0.5
Unidentified nets	21	2.9
Total	736	100

Table 7: Sources of the nets available in the households surveyed

Source of net	Frequency	Percentage
From HSA during universal net distribution	535	72.7
Received from health facility during pregnancy/with baby	120	16.3
Bought	54	7.3
Gift from somebody else	27	3.7
Total	736	100

As seen from the table above, the majority of the nets available in the six villages were received during the universal net distribution. Interesting to note too is the number of nets bought by the households (54) which represents 7.3% of total nets. Although a small percentage, it shows that if well sensitized, the people are willing to buy nets themselves which is encouraging and sustainable.

The condition of the nets available in the households was also physically checked. Out of 688 nets physically checked, 568 (82.6%) were in very good condition, 59 (8.6 %) were just ok whereas 61 (8.9%) were in poor condition. A net was classified as very good if it had less than two holes of less than two centimeters, just ok if it had less than 10 small holes and poor if it had more than ten small holes or one big hole larger than ten centimeters. The high percentage of the nets that were in good condition may be attributed to the fact that about 72.7% of the total nets available in the households had just been received during the universal net distribution one month before the survey. However, physical check on the other nets showed that most of them were not in good condition.

4.0 Conclusion and Recommendations

In conclusion, the survey found that there are gaps in the coverage of mosquito nets in all the 6 villages in both districts, Balaka and Dedza. However, there is a variation in the coverage gaps across the 6 villages. The survey also found that the number of nets received in all the six villages were less than the requested figures by the DHOs as per the registration process. The criteria used by the DHOs to determine number of nets required per household was one net per two people. The survey has also shown that there is almost a negligible difference in number of nets required in the six villages whether the criteria used is number of sleeping spaces or one net per two people. One thousand two hundred and twenty four (1224) nets were required if the criteria was number of sleeping spaces whereas one thousand two hundred and thirty one (1231) nets were required if the criteria was one net per two people (total population in the 559 households is 2462).

The main source of the nets found in the six villages was the universal net distribution which accounted for 72.7% of the nets available. This explains why 82 % of all the nets available were of very good condition as they had just been distributed about a month before the survey was conducted. It was also observed that a high percentage (41%) of the universal nets distributed were not being used for various reasons, the main one being that the households are waiting for the rainy season when there will be many mosquitoes.

4.1 Recommendations

Based on the survey objectives, the following recommendations are made:

1. There is need for more nets to be distributed if universal coverage is to be achieved. Coverage in the six villages was sixty percent (60%) of the sleeping spaces hence there is need for additional nets to cover the remaining 40%.
2. Although there is no significant difference in number of nets required if registration for nets is based on number of sleeping spaces or calculating one net per two people, using the former criteria help to be more precise and is hereby recommended by the survey team. This recommended criteria is helpful

in among other reasons to determine number of nets required in households with uneven number on members.

3. There is need to conduct thorough ongoing/continuous education and sensitization campaigns on mosquito net usage when distributing to communities as a high percentage of households that received universal nets are not using them or using the nets incorrectly. However, further study on net usage is also being recommended here to understand why communities would not use nets when they have them.
4. There is also need to have better records i.e. people who receive nets should also sign for them. This would help account for all the nets that were delivered in a particular distribution area
5. DHO's should do regular random follow-ups to check on net presence and usage

Annex 1: Table showing pre and post mosquito nets distribution data for all health facilities in Balaka district

Source: Balaka DHO

	Health Facility	Number of Nets Required	Number of Nets Distributed	Shortfall	% Coverage
1	Balaka Central	38,553	24,090	14,463	62.5
2	Kwitanda	9,187	5,704	3,483	62.1
3	Utale 2	5,831	3,803	2,028	65.2
4	Chiyendausiku	6200	3,803	2,397	61.3
5	Kankao	14,062	8,874	5,188	63.1
6	Phalula	10,931	6,340	4,591	58
7	Namanolo	26,008	16,480	9,528	63.4
8	Phimbi	11,870	9,508	2,362	80.1
9	Utale 1	8,500	5,070	3,430	59.6
10	Ulongwe	8,981	5,704	3,277	63.5
11	Kalembo	14,351	8,874	5,477	61.8
12	Nandumbo	9,986	6,339	3,647	63.5
13	Mbera	28,251	15,846	12,405	56.1
14	Mwima	15,522	9,508	6,014	61.3
	Totals	208,233	129,943	78,290	62.4

Annex 2: Table showing pre and post mosquito nets distribution data for the three survey villages in Balaka

Source: Balaka DHO

	Village	Number of Nets Required	Number of Nets Distributed	Shortfall	% Coverage
1	Jenya	162	125	37	77.2
2	Nyanyala	302	208	94	68.9
3	Mtenga	458	210	248	45.9
	Total	922	543	379	58.9

Annex 3: Table showing pre and post mosquito nets distribution data for the three survey villages in Dedza

Source: Dedza DHO

	Village	Number of Nets Required	Number of Nets Distributed	Shortfall	% Coverage
1	Chinyamula	258	204	54	79
2	Kapichira	157	86	71	54.8
3	Mwamvu	198	164	34	82.8
	Total	613	454	159	74.1

