Sudan long-lasting insecticide-treated nets (LLIN) Tracking System

NMCP / IVM Unit – FMOH

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Acronyms and abbreviations

AMP	Alliance for Malaria Prevention
ANC	Antenatal care
BCC	Behaviour change communication
BPHS	Basic Package of Health Services
CHW	Community Health Worker
COMBI	Communications for Behavioural Impact
EPI	Expanded programme on immunization
EPR	Emergency preparedness and response
FHC	Family Health Centre
FHU	Family Health Unit
FMOH	Federal Ministry of Health
GDP	Gross Domestic Product
GIS	Geographical information system
TGF	The Global Fund to Fight AIDS, Tuberculosis and Malaria
HDI	Human Development Index
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IDPs	Internally displaced persons
IRS	Indoor Residual Spraying
IMCI	Integrated Management of Childhood Illnesses
ITN	Insecticide-treated net
IVM	Integrated vector management
LLINs	Long lasting insecticide-treated nets
LSM	Larval source management
LTA	Long Term Agreement
MCH	Mother Child Health
MDG	Millennium Development Goal
MIS	Malaria Indicator Survey
M&E	Monitoring and Evaluation
MoFA	Ministry of Foreign Affairs
MOH	Ministry of Health
NGO	Nongovernmental organization
NHSSP	National Health Sector Strategy Plan
NMCP	National Malaria Control Programme
PHC	Primary Health Care
PMI	Presidents' Malaria Initiative
POC	People of Concern
PR	Principal Recipient (Global Fund)
PSM	Procurement and Supply Management
RBM	Roll Back Malaria
RH	Reproductive health

SDG	Sudanese Pounds
SMOH	State Ministry of Health
SHHS	Sudan Household Health Survey
SR	Secondary recipient (Global Fund)
SSMO	Sudan Standards and Metrology Organization
TB	Tuberculosis
U5MR	Under-five Mortality Rate
UNDP	United Nations Development Programme
UNHCR	United Nation High Commissioner for Refugees
UNICEF	United Nation Children's Fund
USD	United States Dollar
VMW	Village Midwife
WHO	World Health Organization
WHO-EMRO	World Health Organization, Eastern Mediterranean Regional Office
WHOPES	WHO Pesticides Evaluation Scheme
WCBA	Women of Child Bearing Age
WMR	World Malaria Report

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The LLIN team succeeded in concluding the field visits in a short period of time because of the full and efficient cooperation of the State Ministries of Health, the General Directors, heads of departments, states and localities malaria coordinators and facilities visited in Kassala and Gedarif States.

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The participation and interaction of all partners and stakeholders at the debriefing event organized by the NMCP during the process gave the team excellent comments and ideas that were later noted and incorporated in this document which was developed at the end of the assignment process.

The LLIN Task Force acknowledges with pride the contribution of all the stakeholders in the states, localities and communities who shouldered the brunt of the rigorous malaria field work and the monitoring of malaria interventions, including bed net (LLIN) distribution. They kept consistent and quality documentation for a database that enabled the team to retrieve much needed information and data to facilitate undertaking its terms of reference.

Lastly, but not least, it is difficult to list in detail all persons who collaborated with the project. However, Mr. Ayman Mubarek, the Programme IT specialist, Miss Nawal El Sheikh, the GIS mapping specialist, and the NMCP assistant Miss Hiba Eltahir were instrumental in enabling the team to discharge its duties in a conducive environment, and we present our sincere appreciation for their outstanding support.

Foreword

There has been impressive progress in tackling malaria, a disease that kills over half a million people a year and infects hundreds of millions others, imposing a heavy health care toll and slowing down development. In the fight against malaria, the 2010 Target for "universal coverage" with long lasting insecticide-treated bed nets (LLINs) in places of dire need has yet to be attained despite the enormous progress achieved worldwide. During the last ten years, insecticide-treated net (ITN) use has contributed to significant reductions in malaria morbidity and mortality rates. Sustaining high coverage and use of LLINs have become main goals of all National Malaria Control Programmes (NMCP) in Africa, including Sudan.

The strategy of scaling up distribution and use of LLINs is one of the main malaria control interventions implemented by the Sudan NMCP in close collaboration with Roll Back Malaria (RBM) partners. The progress in malaria control in the country has been well documented in the programme's periodic assessments conducted in 2009 and 2012. While the last Malaria Indicator Survey (MIS) in Sudan in 2012 showed progress in several areas of malaria control, the survey results indicated that challenges remain in increasing net ownership and use country-wide.

Household ownership of at least one bed net was 56%, 51% and 36% for untreated, insecticide-treated (ITN) and long-lasting insecticide-treated bed nets (LLIN) respectively on a national scale. In states targeted for LLIN distribution, one net ownership rates were found to be 67%, 64% and 46% respectively with marginal differences in rural areas and with little difference in wealth index, although poorer households have slightly higher ownership rates than the wealthier in terms of one net/ITN/LLIN.

Net utilization was measured by the number of persons in a house who slept under a net the night before the survey and was found to be 14% untreated bed net, 11% ITN and 10% LLIN respectively on a national scale, while within the targeted states, it was 18%, 15% and 14% respectively.

Out of the total surveyed population, regardless of ownership of mosquito nets, the majority (50%) of respondents cited that they either did not have any nets or not enough nets. Only about 24% of LLINs in the country and 34% in the 12 targeted states have been owned by households for three years or less and only 45% of all nets were found intact without large holes.

The NMCP is currently formulating a plan whereby LLIN mass campaigns are complemented with continuous routine distributions at the antenatal clinic (ANC), Expanded Programme on Immunization (EPI) and mother child clinics so as to prevent any gap in universal coverage. The LLIN Tracking System currently under way will allow for periodic assessments of net ownership and use, as well as durability and survival, giving planners a database to assess LLIN impact on overall malaria control interventions. It is expected that this new system, as part of the overall malaria control strategy, will contribute largely to more efficient and effective prevention measures.

Executive summary

Part 1

1. Use of insecticide-treated nets (ITNs) to control malaria in Sudan has, over the years, been scaled up to cover a very large proportion of the population at risk of malaria. By 2010, ITNs were replaced with long-lasting insecticide-treated nets (LLINs), with a corresponding tangible health impact. The goal is now to achieve universal coverage with LLINs.
2. In early 2015, a Task Force was established to look at monitoring LLIN coverage, use and durability. A large amount of work was carried out to establish a framework for the LLIN Tracking System, an essential aspect of the overall monitoring plan for the strategy of LLIN distribution in Sudan.
3. The context in which the LLIN Tracking System will operate is described, including the climate and vegetation of Sudan, the demographic context, the socio-economic context, the health services and the integrated structure of communicable diseases programmes.
4. Malaria in Sudan has been decreasing, in line with most of sub-Saharan Africa. Progress towards Target 6 of the Millennium Development Goals has been steady. There is, however, still work to be done, and a new project is about to begin with assistance from the Global Fund New Funding Model.
5. In Sudan, malaria endemicity is stratified into six epidemiological strata. Five of these are environmental. Malaria interventions vary, depending on the risk of infection. Interventions include proper case management, disease and vector surveillance, emergency and preparedness response (EPR), larval source management (LSM) and indoor residual spraying. The sixth stratum is for People of Special Concerns (POC): nomads, people working in traditional mining, internally displaced persons (IDPs) and refugees, totalling more than 4.6 million people.
6. Current LLIN distribution follows WHO recommendations for universal coverage, that is, one bed net for every two persons at risk of malaria. Mass distributions have taken place in 12 targeted states, including POC among recipients. There are now plans to distribute LLINs on a routine basis through antenatal care and immunization programmes.
7. Distribution of LLINs follows a specified process from procurement to receipt by households. The process is headed by the National Malaria Control Programme (NMCP) with State Malaria Control Programme (SMCP) staff taking responsibility for training of volunteers to undertake house-to-house registration. The logistical operation of getting LLINs from port to localities is described.
8. Operational coverage of LLINs has increased since 2010. It is expected that, by the end of 2015, overall cumulative operational coverage will reach over 95%. The Malaria Indicator Survey (MIS) in 2012 gave valuable information about net ownership and use, and about malaria knowledge and sources of information.

Part 2

9. The intended LLIN Tracking System for the country is described. The importance and the objectives of the Tracking System are set out, plus a discussion of the need to examine LLIN durability as an essential element of the Sudan malaria programme. The importance of having the proper supports in terms of human resources, viable and effective partnerships and

adequate funding is highlighted. Progress and full functionality of the Tracking System hinge on these factors.

10. The LLIN Tracking System takes us on a journey that follows the LLINs from when an estimate of the LLINs needed for universal coverage is made to the entry of LLINs into the country at Port Sudan, through to their distribution to households, and to the ownership and use of LLINs in households. The assessment of LLIN durability is an important part of the system.
11. The LLIN Tracking System is comprised of seven elements, as follows: (1) Macro-quantification, (2) Procurement and Supply Management (PSM) (3) Process assessment of the campaign, (4) Periodic assessment survey, (5) Bio-efficacy testing, (6) Routine distribution of LLINs through Primary Health Services, and (7) Behaviour change communication.
12. For each of the seven elements, the key questions of top priority for the malaria control programme are provided. This sets the basis for the tracking. Indicators and possible tracking tools have been identified. Samples of some of the tracking tools currently being used are provided as appendices.
13. Mass campaigns involve numerous activities at various levels. Routine monitoring of the campaign processes is vital for assuring the quality of the campaign and for accountability.
14. LLIN ownership and use are key measures whereby IVM/NMCP assesses programme performance. They are included in the country's Performance Framework. With the Tracking System, the periodic assessment survey will be undertaken following LLIN distribution after each mass campaign and periodically thereafter in the 12 target states. This survey will complement the Malaria Indicator Survey (MIS) which is generally held every three years.
15. Knowledge about the durability of LLINs under field conditions in different regions in Sudan will be generated by the periodic assessment survey and bio-efficacy testing that are part of the Tracking System. The durability components to be addressed include attrition, the physical condition of LLINs and insecticidal activity.
16. The routine distribution of LLINs through Primary Health Care services will begin in mid-2015 as a way to mop up LLIN distribution and sustain the universal coverage of LLINs. LLINs will be distributed to pregnant women during antenatal care services and to their new-born child during immunization services.
17. Monitoring behaviour change communication (BCC) is an important element of the Tracking System. Communication is an essential part of the malaria prevention programme, and takes place through advocacy, social mobilization and behaviour change communication. In Sudan the COMBI (communications for behavioural impact) approach is used. The FMOH has produced key generic messages that support the achievement of the desired behaviours.

Part 1: The background: malaria, LLINs and the new Tracking System

1.1 Overview of use of LLINs in Sudan

In 1996, with UNICEF support and a donation from the Netherlands, the Sudan Federal Ministry of Health piloted a small scale malaria control project in Upper Nile, southern Sudan, using ITNs, targeting pregnant women and children under five years of age among a community of internally displaced persons (IDPs).The subsequent epidemiological results revealed a significant reduction of malaria incidence rates (by 56%) among beneficiaries with ITNs compared to those using untreated nets in an adjacent community[1].

Building on those tangible results in reducing malaria incidence, the NMCP embarked on a rigorous scale-up programme of distribution of ITNs in states and areas with high malaria endemicity.

The NMCP's ITN strategy aimed at achieving over 80% of the target vulnerable groups (children under five years of age and pregnant women) sleeping under ITNs by 2008 (Malik et al., 2004) and the strategy was monitored and guided by a national ITN task force. The plan included a Communication for Behavioural Impact (COMBI) Plan, developed in collaboration with WHO-EMRO to phase the scale-up of ITN use beginning in 2003. By the year 2010, ITNs had been replaced with LLINs, and distribution and use in Sudan had been scaled up to unprecedented levels.

The private sector has been encouraged to participate in the ITN strategy through the abolition of taxes and tariffs. The Financial Investment Bank developed Malaria Investment Syndication to provide 500,000 ITNs before July 2004 to be distributed through the private sector as a starting point. Between 2001 and 2004 it was estimated that approximately 550,000 ITNs had been distributed in this way. The tangible health impact was well reflected in the 2010 Sudan Household Health Surveys (SHHS).

In compliance with the WHO recommendation for achieving universal coverage with LLINs, as revised in March 2014[2], the Sudan Malaria Programme adopted this core prevention tool which has become a cardinal strategy to address malaria.

Achieving universal coverage is one goal: *sustaining* universal coverage is a different issue. Field assessment of LLIN status and durability now shift to monitoring of LLIN survival, information required to help decide when to replace LLINs and to determine which brands perform best in a given target population. Among other reasons there are potential procurement implications. The assessment also needs to take into consideration ownership and use, and the general knowledge of the population regarding malaria and malaria prevention. The design and sampling strategy also needs to be examined. The major objective of the monitoring activity now is to obtain a realistic picture of what happens to the population of nets given out via a campaign and, therefore, statistical accuracy and representativeness of the area of interest (state, locality etc.) is much more important

[1] UNICEF/Federal Ministry of Health, Insecticide-treated bed net (ITN) Project, Upper Nile, 1996.
[2] See: www.who.int/malaria/publications/atoz/who_recommendations_universal_coverage_llins.pdf.

than before. The Tracking System that is described in this document should go a long way towards addressing this issue.

1.2 The work of the Tracking System Task Force

The Alliance for Malaria Prevention (AMP), WHO, The Global Fund and UNICEF gave support for the NMCP to plan and undertake the LLIN Tracking System process. An international consultant with enormous expertise and experience, Mrs. Jenny Cervinskas, was contracted to facilitate the technical aspects of the assignment. The Programme established a Task Force comprising informed senior staff headed by the IVM director, Mr. Hmooda, alternating with his Deputy Mr. Siddeg to coordinate and guide the teamwork. Sitting in on the Task Force sessions were the NMCP national coordinator Dr. Fahd Awad, Mrs. Alsit Abbas, Dr. Asma El Tohami, Mrs. Khadeega and Mr. Bashir. National consultant Dr. Abdel Halim El Tahir also joined the team.

Under the guidance of the international and national consultants, the Task Force worked together at the NMCP office in Khartoum. Key documents produced for the NMCP that inform the country's malaria control programming were taken into account. Relevant documents and resources from global organizations and institutions were reviewed. Different experiences from other malaria programmes were identified and discussed. Partners and stakeholders were consulted.

Technical documents describing methods, studies and tools to track LLIN durability were closely examined. The Task Force dedicated considerable effort to develop a tool (a protocol, including a draft questionnaire adapted from a standard LLIN durability questionnaire) for tracking of LLIN ownership, use and durability under the operational conditions of Sudan. Field trips to two states in East Sudan targeted for LLIN distribution (Gedarif and Kassala) were carried out to pilot test the questionnaire. The draft questionnaire was then translated into Arabic, preserving all the formatting and nuances.

After five weeks of hard work, a framework for a LLIN Tracking System was formulated and the main components, or elements, identified. Work was then carried out in the following weeks to describe in detail each of the elements. The elements of the system work together to ensure that LLINs reach the right households, at the right time, in the right amounts, and that universal coverage will be achieved and sustained.

The LLIN Tracking System is an essential aspect of the overall monitoring plan for the strategy of LLIN distribution in Sudan, and complements the national malaria plan. The degree of detail provided is a bridge between the higher-level Performance Framework and the individual monitoring plans that need to be prepared and followed for an effective LLIN programme. The Tracking System is described in detail in Part 2 of this document.

1.3 Sudan general context

The Republic of Sudan currently straddles a landmass of 1.8 million square kilometres in east Africa. The land is drained by the River Nile and its main tributaries: the Blue Nile, Atbara, Al Rahad and Al Dindir from the Ethiopian plateau and the White Nile from the lakes region in Uganda and central

Africa. Its terrain is generally flat, interspersed with mountainous hillocks in the northeast, Red Sea Mountains, the Nuba Mountains in the centre and the Marra plateau in the west, while the Sahara desert dominates the north.

Figure 1: Political map of Sudan showing its 18 states

Climate and vegetation

Sudan's climate is predominantly arid in the central states and the desert to the north; the rainy season varies by region from June to October. Between November and March, however, a Mediterranean-like warm and rainy climate prevails along the Red Sea coast. Dust storms and periodic episodes of drought and flooding are common, and the country is facing soil erosion and desertification. Sudan's geography and ecology clearly influence the population's health and nutritional status, and the vast distances, coupled with inadequate road and transport

infrastructures, adversely affect the equitable delivery of health services and population coverage with LLINs.

The country is inhabited by over 380 ethnic tribes and many variables in the epidemiology of diseases are influenced, invariably, by some of their social, cultural or economic conditions and attitudes. The land tenants and cotton pickers in the irrigated schemes of the Gezira, New Halfa and Al Rahad as well as the farmers and seasonal labourers in the numerous sugar-cane plantations are at high risk of contracting malaria, Schistosomiasis, and other vector-borne and water-borne infections. However, through rigorous disease prevention and control measures, including more recently indoor residual spraying (IRS), the incidence rates of malaria have been kept at insignificant levels (2012 MIS refers).

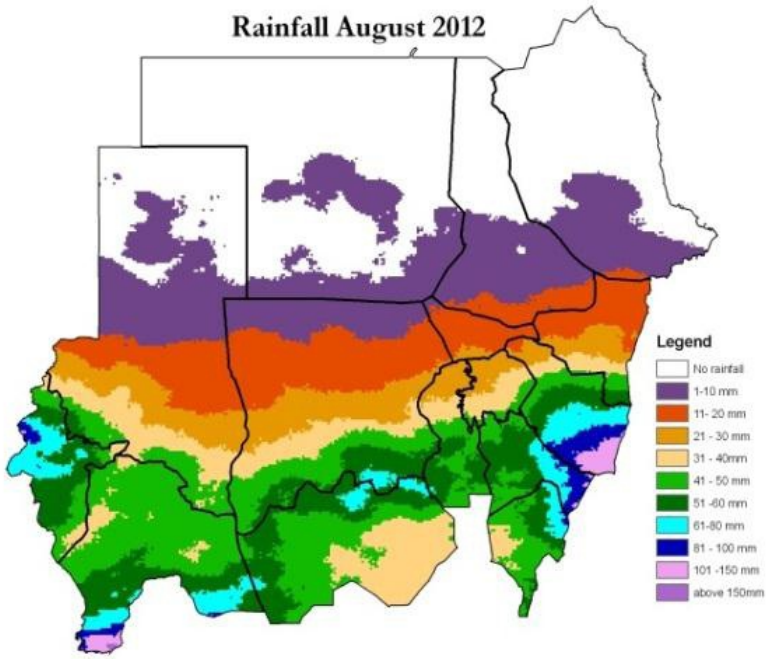


Figure 2: Rainfall distribution along malaria geographical strata (August 2012)

The demographic context

With an annual growth rate of 2.53%, the total population for 2014, as projected from the 2008 census[3], is around 37 million people. Close to 88% of them are settled (32% in urban areas) while 8% are nomadic. Almost 7% of the population is internally displaced, mostly in Darfur and south Kordofan. The rural, sub-rural and nomadic population constitutes 66% of the total population. This population group is settled essentially inside the poor and rich Savannah belt straddling the demarcation border line between Sudan and South Sudan. The major occupation of these groups is subsistence agriculture and animal husbandry. There are also enormous yields of cash crops such as oil seeds, gum Arabic and sorghum for local consumption as well as export to bolster the national

[3] Central Bureau of Statistics (CBS), 2008 Sudan Population and Housing Census.

income. With annual moderate to heavy rainfall, the entire population of over 14 million urban and rural dwellers in the belt is at risk of malaria and other communicable diseases, including Leishmaniasis, Schistosomiasis and Lymphatic filariasis.

The average household size is five persons and life expectancy at birth is 59 years (58 years for males and 61 years for females). Women of child bearing age (WCBA) constitute 24%, pregnant women 4% and children under five years of age 15%.

As of the end of 2014, Sudan comprises 18 states, each divided into localities, totalling 184 localities. Sudan with its multiparty system is a Federal republic, headed by an elected President with statutory powers devolved to the States under the Federal System Act (1994).

The socio-economic context

Sudan is rich in natural resources, including oil, minerals, agriculture and animal resources. The oil sector has been the driving force behind growth, services and utilities, and it has come to play an increasingly important role. However, agriculture remains important in the economy as it employs 80% of the workforce and contributes to about one third of GDP.

Poverty remains widespread within Sudan with 46% of the population living below the poverty line, according to the national definition of poverty (3.8 Sudanese pounds per person per day, or about two USD per person per day). Those who are most affected by poverty are the rural dwellers, particularly women, nomads and internally displaced persons[4]. Sudan is ranked 171st out of 187 countries in the United Nations' Human Development Index (HDI), and education is still a particular problem. Overall, the adult literacy rate in Sudan is 69% and among women aged 15—40 years is 45.2%. The primary enrolment is 46%, with 82% of the cohort entering primary school completing primary school education. The average overall is 3.1 mean years of schooling compared to the 4.2 year average for other countries with low levels of human development[5]. Sixty one percent (61%) of the population has access to improved drinking water source, while 27% have improved sanitation.

Health services delivery and quality

The Government of Sudan made a joint commitment with the international community in September 2000 when 189 Member States of the United Nations assembled and adopted the United Nations Millennium Declaration. The country is striving hard to achieve the eight Millennium Development Goals (MDGs) by 2015, including combating HIV/AIDS, malaria and TB and other infectious diseases.

The primary health care (PHC) package includes as a minimum the promotion of child health (immunization against vaccine-preventable diseases, nutrition counselling and growth monitoring and implementation of the Integrated Management of Childhood Illnesses (IMCI) package); the promotion of reproductive health (safe motherhood, including safe pregnancy, ANC and family planning); the control of endemic diseases (malaria, tuberculosis, HIV/AIDS, Schistosomiasis, etc.); and medication disbursement and treatment of simple diseases and injuries.

Within the public sector, the health infrastructure is organized at primary, secondary and tertiary level. Primary care is provided by Community Health Workers (CHWs) and Village Midwives (VMWs)

[4] Federal Ministry of Health (FMoH), 2010 Mapping of Primary Health Care Services in Sudan
[5] United Nations Development Program (UNDP), Human Development Report, 2013

at the community level, while, at facility level, Family Health Units (FHUs) and Family Health Centres (FHCs) provide PHC packages.

The FHUs are outpatient facilities that provide basic primary health care services such as treatment of common illnesses including the integrated management of childhood illnesses, injections, wound care and some preventive services, such as vaccination of children and antenatal care. These facilities are staffed by a medical assistant and/or a nurse.

The FHCs, which are referral facilities for primary health care units, are of two types: urban and rural. The former located in urban areas have a laboratory and in some cases an x-ray facility. Normally, they are staffed by medical officers and paramedics (i.e. medical assistants), a health visitor, a nutrition educator and a vaccinator. The rural FHCs are outpatient facilities also providing routine laboratory tests for blood and urine, and they are staffed by a medical assistant, a laboratory technician and a nurse.

The rural hospitals are the first referral for secondary care with indoor and diagnostic facilities. There is at least one of these hospitals in each locality, usually having between 30 and 50 beds. Medical officers, acting as medical directors, a range of paramedics and nursing staff provide a variety of services. Those services should include ambulatory and inpatient services for medical, paediatrics, surgical and obstetric/gynaecological cases (basic services and comprehensive Emergency Obstetrics Care). Many of these hospitals have a labour/delivery room and a transport facility for referral of emergencies to the higher levels of care. Rural hospitals operate over 24 hours to receive emergencies and they should be equipped with an x-ray unit, a laboratory for routine blood and urine examinations and a blood bank. They also provide vaccination and child survival services.

Finally, tertiary care is provided by specialized hospitals and institutions affiliated to the main state hospitals, such as renal and heart centres.

In addition, over the last 30 years, a certain number of private (for profit) medical institutions have grown rapidly from a few into hundreds, countrywide. These include sophisticated units in the capital Khartoum, such as the Royal Care, Fedail and Zaytouna hospitals with high international standards, and a number of small and low profile clinics.

Communicable diseases structure

With specific regard to communicable diseases, diverse health programmes, such as the NMCP, HIV/AIDS, Emergency Preparedness and Response (EPR), IMCI, EPI and Reproductive Health (RH) have currently been integrated and streamlined in line with the 2012—2016 National Health Sector Strategy Plan (NHSSP). A sentinel-site based surveillance system is the backbone of the information system that serves all the programmes and has been established in the department of Epidemiology, FMOH, which operates under the jurisdiction of the Federal Public Health Act, 1994.

1.4 Malaria patterns and perspectives in Sudan

- Globally, according to the 2014 WHO World Malaria Report (WMR)[6], the malaria caseload in 97 at risk countries was around 198 million clinical cases, resulting in an average of 584,000 deaths in 2013. Young children under five years of age and pregnant women were its main victims.

[6] WHO, The World Malaria Report (WMR 2014)

Malaria adversely impacts the economic development and reduces the national growth in the form of the GDP by more than 1%[7].

- By 2015, according to the 2014 WMR, if the annual rate of decrease is maintained as during the last 13 years, malaria mortality rates are projected to decrease globally by 55% and by 62% in sub-Saharan Africa. Malaria mortality rates in children under five years of age are projected to decrease by 61% and 67% in the African region.
- The Sudan NMCP has made great strides in 15 years of hard work and dedication to achieve the Abuja Declaration targets and Target 6 of the MDGs *(Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases and the spread of HIV/AIDS)*. The national malaria caseload in 2013 was only 964,698 as reported at the health facility level, with a considerable downturn from a high of almost 10 million clinical cases 20 years prior in 1993, and the incidence rate of malaria cases per 1,000 population declined from a high of 139 in 2001 to a low of one to 10 cases as per Sudan NMCP report that year. It must be borne in mind, however, that the health information system covered only 30% of health facilities.
- The progress thus far achieved has been possible with consistent political and material support from the Sudan Government in addition to the large Global Fund grants (under Rounds 2, 7 and Round 10) as well as international partners' unfailing assistance. The programme is currently poised to start using a new three-year grant within the Global Fund New Funding Model, commencing 2015 and running to 2017 (Round 11).

Malaria epidemiological stratification and strategies

Given the diverse geographical, topographic, climatic and ecological factors of the Sudan landscape, malaria endemicity is stratified into six epidemiological strata. In compliance with WHO's global malaria strategy, the NMCP has consistently focused on proper and prompt diagnosis and case management, integrated vector management (IVM), including scaling up of distribution and use of LLINs and prevention of malaria epidemics. The strata, as outlined by NMCP, are as follows:

- ***Desert fringe stratum*****,** comprising mainly areas (rural and arid zones) in the North above the latitude of 15°, excluding urban, riverine and irrigated scheme strata. These areas are sparsely populated by nomads or pseudo-nomads (estimated population 723,759), and have very low malaria transmission. The risk of infection occurs mainly due to travelling to or from other areas. Malaria epidemic outbreaks are unlikely, but may occur in very limited foci. The main malaria interventions are proper case management, disease and vector surveillance.
- ***Riverine stratum (north of Khartoum****),* an area that extends 20 kilometres on both sides of the River Nile above the latitude of 15° and inhabited by 1.8 million people. It is epidemic prone, with seasonal unstable malaria transmission. The main malaria interventions are case management, EPR and larval source management (LSM) where possible. The application of IRS should be considered here, as these are ideal conditions.
- ***The savannah belt stratum,*** comprising rural areas with rain-fed agriculture and pastoral activities in Greater Darfur, Greater Kordofan, Blue Nile, White Nile, Sennar, Gezira, Gedarif, Kassala and Khartoum States (excluding irrigated schemes stratum), inhabited by over 14.5 million people. It is characterized by year round stable low to moderate malaria transmission. However, seasonal variations exist and the highest risk of infection is mainly during the rainy

[7] United Nations Development Program (UNDP)/World Bank, World Report 2013

season (3—5 months). The main malaria control interventions include case management, LLINs, LSM and EPR.

- ***Irrigated scheme stratum,*** comprising large agricultural schemes (Gezira, Elrahad, Elsuki, New Halfa, Elgenad, Kenana, Asalaia, White Nile Sugar cane, Sennar Sugar cane and Elzedab) and characterized by seasonal moderate to high malaria transmission (6—9 months). The population of this stratum is 4.1 million. The risk of infection is mainly due to flooded irrigated land. The main interventions for this stratum are case management, IRS and/or LLINs (as per feasibility), LSM (intermittent irrigation and probably biological control) and EPR.
- ***Urban stratum,*** comprising all large cities and towns with structured urban settlements and settings, inhabited by 10.5 million people and characterized by low transmission throughout the year with seasonal variations. Basically, malaria in this stratum is man-made (breeding sites mainly due to human practices related to water). The main interventions are case management, LSM, EPR and LLINs in cities with environmental degradation and defunct water systems, as well as for vulnerable groups and areas. The risk of infection may be high in certain foci and in suburban/peri-urban areas.
- ***Stratum for People of Special Concerns (POCs),*** comprising nomads, people working in traditional mining, internally displaced persons (IDPs) and refugees who are found all around the country, totalling around 4.6 million people. The transmission in this stratum depends on the area of settlement and the risk of infection occurs mainly due to their movement between low and high transmission areas. The main interventions are case management, where transmission risk is high, LLINs and space spraying where applicable.

LLIN distribution strategy

Currently, in compliance with the WHO policy for LLIN distribution targeting "universal coverage" of one bed net for every two persons at risk (quantified as a ratio of one LLIN:1.8 persons), the country has undertaken a series of mass distribution campaigns in targeted states. The programme strives to replace used LLINs with new bed nets every three years, in line with the WHO recommendations for countries that do not have country-specific data on net durability.

The LLIN distribution in Sudan targets the entire populations of 12 states representing 65.6% of the total Sudan population. The target states are:

- North Darfur, West Darfur, South Darfur, Central Darfur and Eastern Darfur
- North Kordofan, South Kordofan and West Kordofan
- White Nile, Blue Nile, Gedarif, and Kassala
- People of Special Concern (POC) that include internally displaced persons (IDPs), nomads, people working in traditional mining and refugees

Currently, the LLIN distribution in the country is conducted through a single distribution channel, using mass campaigns supported by the communication for behaviour change impact (COMBI) approach.

Following the WHO guidance on ensuring continuous access to LLINs through various channels, particularly for the most vulnerable populations, the country Global Fund concept note included

routine LLIN distribution through antenatal care, in collaboration with the mother and child health department, targeting new-borns and pregnant women.

LLIN procurement, logistics and distribution process

Through the years, the NMCP has built viable partnerships with the private sector in accelerating the procurement and use of LLINs. It is to be noted that reputable private companies such as Vestergaard Frensen (VF) opened a subsidiary in the country to facilitate the importation of additional LLIN quantities to cover the requirements of non-government organizations (NGOs) and civil societies for their operations in conflict areas which the programme is unable to access for security reasons.

Subject to availability of grant funds against partners' pledges and earmarked budget lines, the NMCP places requests for LLIN consignments, complete with the WHOPES and Sudan Standards and Metrology Organization (SSMO) specifications to UNDP as the principal recipient (PR). The steps in the procurement process are as follows:

- Macro-quantification of the required LLIN quantities for the country is undertaken on an annual basis by NMCP, based on the commodity gap analysis and the LLIN forecast effected by UNICEF and donors for a consecutive three years ahead of deliveries by manufacturer on long term agreements (LTAs)
- NMCP prepares the LLINs distribution plan per the targeted localities, according to the priorities of distribution, focusing on localities without history of distribution and those that completed three years post distribution. The prioritization also takes into consideration the endemicity of the disease, location (rural and semi urban) and settled populations versus POC.
- LLINs arrive in sea port at Port Sudan and are cleared by UNICEF. All taxes and tariffs are exempted by an executive decree, effected by the NMCP with full endorsement by the Ministry of Foreign Affairs (MoFA).
- LLIN consignments are then shipped by UNICEF directly to the targeted states as per approved quantities and stored in State MCP warehouses prior to distribution.
- NMCP receives operational and distribution costs from UNICEF (Global Fund Secondary Recipient (SR)), including inter-state land transport, field work, logistics, social mobilization activities, training, and staff and volunteers' remuneration.
- Having prepared the above steps, the NMCP then informs the State MCPs to arrange for the LLIN distribution campaign through listing the localities and target villages and nominating volunteers to be ready for the campaign orientation.
- SMCP/IVM staff visit the target areas to orientate community leaders to nominate suitable volunteers per each targeted village. The community volunteers are to be thoroughly orientated and trained on the campaign process. The number of volunteers is determined according to population size of villages.
- The Federal team arriving at the scene holds joint meetings with the state and locality teams as well as the community leaders and the State MOH. A one-day orientation of volunteers follows, focused on how to register families and household members (house-to-house) as well as how to distribute LLINs among target families, using the approved formula of one net per two persons.
- A five day house-to-house registration of households is carried out in consultation with community leaders.

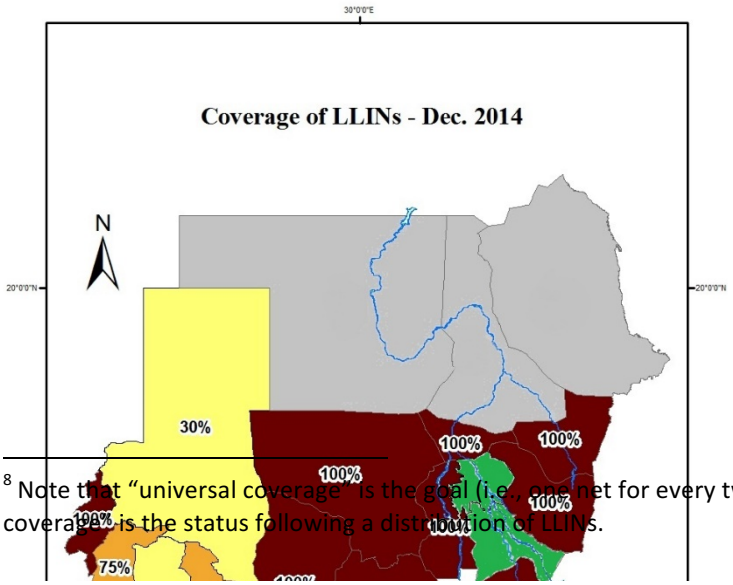
- LLINs are transferred to target villages from the locality warehouse.
- The LLIN mass distribution campaign is fully implemented under the supervision of the respective national, state, locality and community leaders, applying COMBI methodology, using one net for two persons.
- The launch of the LLIN campaign is conducted in a festive ceremony at one of the targeted villages, attended by state dignitaries and representatives from other targeted villages, SMOH, FMOH, NMCP and international partners (UNICEF, WHO and UNDP). The campaign is officially inaugurated by the state governor and a FMOH representative.
- The LLINs distribution commences according to the information on the registration forms in the presence of the villages' community leaders. A leaflet with key messages on LLIN use and retention is provided along with the nets that each household receives.
- During the campaign launch, educational messages are aired through loudspeakers or microphones in each target community. Other ways are also used to communicate key messages to the community members, for example, mobile theatre.
- After completion of the campaign, a final report is prepared using specific NMCP forms.

As for the for proposed distribution channels through the primary health care services, health centres will be assigned in each catchment area according to the Reproductive Health (RH) department system as an extension programme of the community-based PHC services to provide children under five years of age and pregnant women with LLINs.

Current LLIN operational coverage status

- As of 2010, morbidity and mortality rates due to malaria had fallen, but chances for elimination were hampered by financial realities as well as turnover of trained and experienced staff. In 2010, NMCP, in compliance with global targets and policies, had shifted from the strategy of targeting exclusively pregnant women and children under five years of age to universal coverage for the whole community through distributing one LLIN for every two persons in 12 states.
- By 2014, the programme had distributed more than 12 million LLINs in target states and among POCs.
- The overall operational coverage by the end of 2014 was 80% (see Figure 3 map showing LLIN operational coverage status at December 2014)[8].

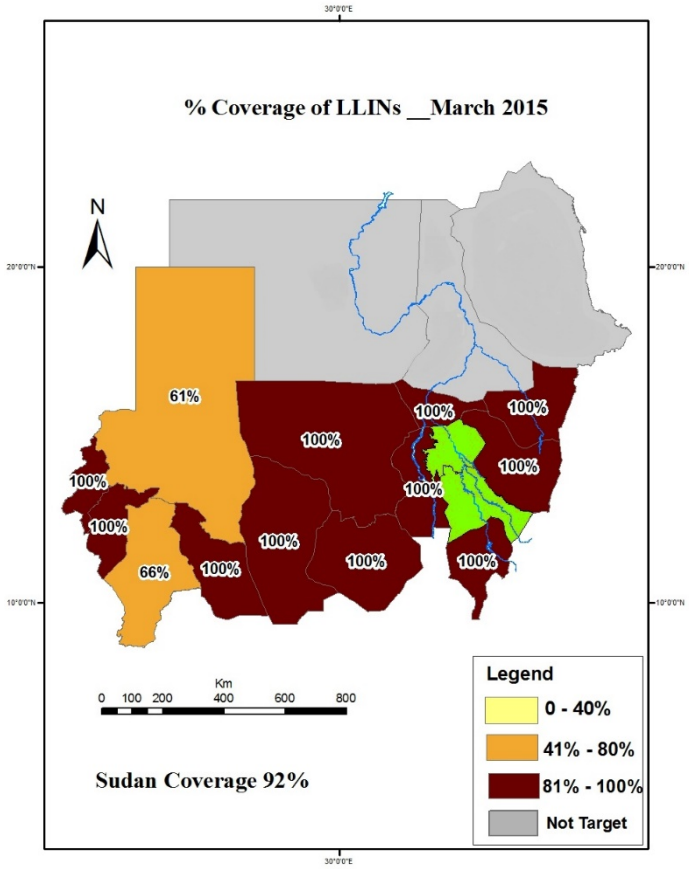
Figure 3: Sudan map showing LLIN operational coverage status (December 2014)



[8] Note that "universal coverage" is the goal (i.e., one net for every two persons at risk), whereas "operational coverage" is the status following a distribution of LLINs.

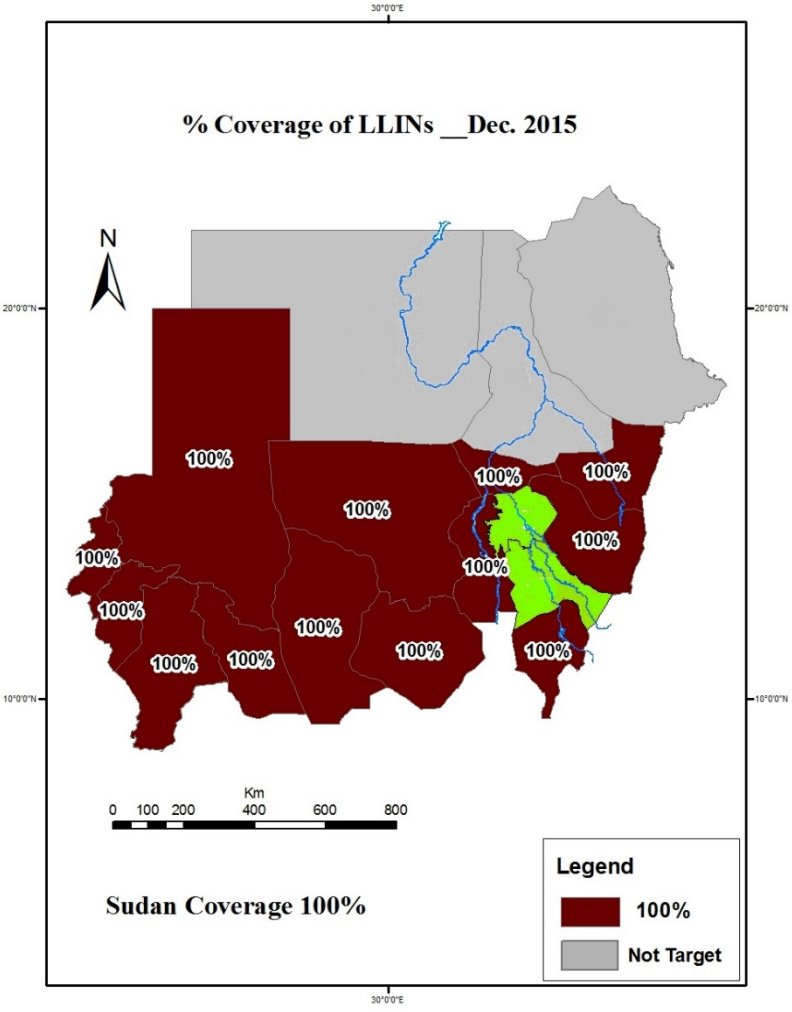
- During January and February 2015, 1.5 million LLINs were distributed in four states in greater Darfur and the overall converge March 2015 was 92% (see Figure 4 map showing LLIN operational coverage status at March 2015).

Figure 4: Sudan map showing LLIN operational coverage status (March 2015)



- In 2015, NMCP is planning to distribute 4,262,414 LLINs, including quantities to replace LLINs distributed in 2012 and to increase coverage in some areas, as well as to maintain coverage through the routine distribution of LLINs through the primary health care system.
- Thus, by the end of 2015, it is expected that the overall cumulative operational coverage will reach over 95% (see Figure 5 map showing expected 100% LLIN operational coverage December 2015).

Figure 5: Sudan map showing expected LLIN operational coverage by December 2015



LLIN results from the Malaria Indicator Survey (2012 MIS)

The 2012 MIS survey reflects the malaria status and progress since the preceding survey conducted in 2009. It assessed the achievements attained in all aspects of malaria control countrywide and also identified the strengths and weaknesses of the current strategies used in malaria control. It reflects the true and exact malaria status in 2012. Some of the key findings are described below.

Net ownership and use

- Household ownership of at least one bed net was 56%, 51% and 36% for untreated, insecticide-treated (ITN) and long-lasting insecticide-treated bed nets (LLIN) respectively on a national scale, while in states targeted for LLIN distribution, one net ownership rates were found to be 67%, 64% and 46% respectively, with marginal differences in rural areas and with no significant difference in terms of the wealth index, although poorer households had a slightly higher ownership rate than the wealthier in terms of one net/ITN/LLIN.
- Household ownership of at least one LLIN is greater than 40% in 11 out of 12 targeted states. However, among two non-targeted states (Khartoum and Red Sea) the ownership rate of one LLIN was greater than 30%.

- Net utilization was measured by the number of persons in a house who slept under a net the night before the survey and found as 14.2% untreated bed net, 11.4% ITN and 10.5% LLIN respectively, on a national scale. Within the targeted states, utilization rates were 18%, 15% and 14% respectively. More people in urban areas slept under an untreated net/ITN/LLIN than in rural areas, while people in the five to 19 year age group were less likely to sleep under an untreated net/ITN/LLIN compared to those from other age groups. ITN use was highest in Central Darfur (40%) and lowest in Khartoum (2.3%). In targeted states, ITN use was 26% among individuals with at least one net.
- Better ITN and LLIN coverage was generally observed in urban areas as well as in Central Darfur and White Nile states.
- Only about 24% of LLINs in the country and 34% in the 12 targeted states have been owned by households for three years or less and only 45% of all nets were found intact without large holes.

Malaria knowledge and sources of information

- Overall, 14% of household members attended a formal or informal malaria-related meeting in the last months. Almost four times as many households in the wealthiest quintile attended such meetings as compared to those in the poorer quintile.
- With regard to accessing malaria information, 24% of all households (29% urban and 21% rural) had seen printed material and signboards related to malaria control and prevention. Northern states reported a significantly higher proportion (60%) of household members who saw malaria related material, while all other states reported rates of 6%, 47% and 63% of households who accessed material on radio, television and newspaper respectively. Twenty-nine per cent (29%) of household members (28% urban and 30% rural) reported that the main medium for accessing malaria information was the radio. This was followed by television (25%) in urban areas.
- Access to media was in favour of those in the wealthiest quintile. In general, 70% of households reported having no knowledge about the essential package for malaria interventions (prompt diagnosis and treatment, consistent use of bed nets). However, the lack of knowledge was

higher in rural areas (75%) compared to urban areas (62%) among those from the poorest households (92%) compared to the wealthiest (49%) in households where the household head had informal education compared to those where the head had higher education (48%).

The next Malaria Indicator Survey (MIS) will be undertaken towards the end of 2015. While conducting LLIN distribution to attain universal coverage, targeting the whole population country-wide, the NMCP has consistently and effectively combined behaviour change communication (BCC) and interpersonal communication, especially in rural areas. The innovative tele-communication gadgetries (SMS, social media, mobile phones and tablets) are widespread in urban, and to some extent rural areas, and are being assimilated in all health programmes. It is not yet known how effective they are.

The malaria programme also makes use of the numerous community mobilization tools, prevalent from time immemorial in the multi-ethnic, multi-cultural Sudanese society, for example, folklore, community theatre and Hakkama shows. These enable communities to harness and pool resources for the welfare of their constituents as is demonstrated, for example, in environmental corrective measures at the community level for malaria vector source reduction, among many other useful interventions.

References and resources

- Central Bureau of Statistics (CBS), 2008 Sudan Population and Housing Census
- Federal Ministry of Health (FMOH), 2010 Mapping of Primary Health Care (PHC) Services in Sudan
- Federal Ministry of Health (FMOH), National Health Sector Strategy Plan (NHSSP) 2012-2016, Nov. 2012
- United Nations Development Program (UNDP), Human Development Report, 2013
- The World Health Organization (WHO), The World Malaria Report (WMR 2014)
- UNDP – World Bank, World Report 2013
- The National Malaria Strategic plan (NMCP), 2010
- World Health Organization. *Estimating population access to ITNs versus quantifying for procurement for mass campaigns.* Geneva, 2014
- Malaria Indicator Survey (MIS), FMOH 2012
- Sudan Household Health Survey (SHHS) 2010

Part 2: The LLIN Tracking System

2.1 Importance of the LLIN Tracking System

The NMCP has identified the need to develop a comprehensive LLIN Tracking System. The LLIN Tracking System will be used to:

- Improve the planning and implementation, as well as timing, of LLIN mass campaign distribution
- Improve the planning, implementation and assessment of effectiveness of the routine distribution of LLINs through the primary health care health services, a distribution strategy that will be introduced in mid-2015
- Adjust LLIN distribution planning through improved anticipation of the timing for replacement of nets in the field
- Measure coverage post-campaign
- Identify geographic areas where added effort is needed to increase LLIN ownership, utilization, care and repair
- Generate knowledge about the serviceable life of bed nets under the operational conditions of Sudan, as well as questions for follow-up regarding behavioural and other aspects of bed net degradation in the field

In particular, the NMCP is interested in the better tracking of bed nets in terms of coverage and use at the household level, and durability of nets in each of the states targeted for universal coverage. This will allow for better targeting of existing resources, and help achieve the goal of universal coverage.

The ownership and use of nets are key measures needed by the NMCP to assess programme performance. The pertinent core indicators are included in the NMCP Performance Framework. These are:

1. Proportion of households with at least one insecticide-treated net
2. Proportion of households with at least one insecticide-treated net for every two people
3. Proportion of population using an insecticide-treated net among the population with access to an insecticide-treated net
4. Percentage of children under five years of age using an insecticide-treated net
5. Number of long-lasting insecticide-treated nets distributed to at-risk populations through mass campaigns
6. Number of long-lasting insecticide-treated nets distributed to targeted risk groups through continuous distribution

While the Malaria Indicator Survey (MIS) generates findings for these (and many other) measures, the MIS surveys are held only every three years, a frequency that does not give a picture of what happens after a mass campaign or allow for a timely identification of problems and a rapid correctional response.

A periodic assessment survey is part of the Tracking System. With this survey, the Tracking System aims to generate population-based representative data post campaign distribution. The measurement of core indicators will be carried out soon after a mass campaign (three months) and also over specified time points up to three years after LLINs have been distributed. This will make it possible for the NMCP to know the status of ownership and use in a timely way and act on the findings if ownership or use is found to be low. Periodic assessment can also allow the NMCP to find out about the condition of bed nets owned by households and factors related to LLIN retention and use.

The durability of a LLIN is based on an assumption that the median serviceable life of a LLIN is three years. However, this assumption can be questioned on a number of levels:

1. Is this a correct assumption for Sudan?
2. Is the serviceable life longer than this, or perhaps, shorter?
3. What happens to the LLINs distributed to the target households through a mass campaign? Are they kept and used by the household?
4. If they are not retained, what are the reasons for this?
5. What is the condition over time of the LLINs distributed through mass campaigns or through routine services?
6. How many LLINs, over time, become damaged or destroyed and thus are not used in the household?
7. What are the reasons for this attrition of bed nets?

At present, the data do not exist to make an evidence-based assumption about the life of a bed net in the operational conditions of Sudan. The answers to the questions listed above will guide the NMCP in making programmatic, technical and policy decisions that are data-driven and country specific for advocacy with the national and state governments, partners and donors.

Monitoring the durability of LLINs is seen as good practice and demonstrates accountability and responsibility. Increasingly, technical, donor and implementing agencies are recommending that the monitoring of LLIN durability should become a routine part of every major LLIN procurement for mass distribution.

Knowledge about the durability of LLINs is needed in order to:

- Estimate the rate of replacement in continuous distribution systems
- Establish the appropriate time interval between campaigns
- Plan appropriate sustained communication and social mobilization strategies and methodologies that can address the key challenges identified

Survivorship and durability is typically viewed as having three components[9]:

1. Attrition
    - proportion of previously received LLINs no longer present

[9] WHO. *Guidelines for measuring the durability of long-lasting insecticidal mosquito nets under operational conditions*. See: whqlibdoc.who.int/publications/2011/9789241501705_eng.pdf

- number of nets lost to damage or destroyed, or given away or sold

2. Physical integrity
   - counting the number of holes in the net
   - counting the number of net holes by their size and location on the net (sides and roof)
3. Bio-efficacy
   - insecticidal effectiveness

2.2 Elements of the LLIN Tracking System

The LLIN Tracking System Task Force has identified seven major elements that need to be in place in the system. These are as follows:

1. Macro-quantification of LLINs
2. Procurement and Supply Chain Management (PSM): tracking the process
3. Process assessment of the campaign
4. Periodic assessment survey
5. Bio-efficacy testing
6. Monitoring of the routine distribution of LLINs through Primary Health Care (PHC) Services
7. Monitoring Behaviour Change Communication (BCC).

Each of these elements is described in the next section of this document. There is overlap between some elements, and a variation in the degree of elaboration of each element in the system. For example, the periodic assessment survey and the bio-efficacy testing are complementary elements of the Tracking System, and both address the issue of LLIN durability.

The appendices provide added information for the elements (e.g., samples of tracking tools currently in use; the periodic assessment survey questionnaire and sample size calculations).

Some of the elements are already in place and functioning well, with the tracking tools fully developed and routinely applied when needed (e.g., macro-quantification; PSM). Other elements are completely new; for example, the periodic assessment survey, and routine distribution through PHC.

2.3 Supporting the LLIN Tracking System

For the LLIN Tracking System to be fully functional and most effective, attention will need to be paid to the following.

Human resources development: The NMCP has a cadre of skilled staff at the national, state and locality levels. The Sennar Malaria Research and Training Centre is a centre of excellence. The LLIN Tracking System will depend on quality work being carried out. There will be additional training needs identified, and the system will both use the existing human resources and build its capacity.

Indicators: Overall, the Tracking System will contribute to measuring the four core indicators that are identified in the NMCP Performance Framework. Appropriate additional indicators will be

selected for each element of the Tracking System. Given the overlap between some elements, there may be an overlap in the main indicators being measured. These indicators should be part of the monitoring plan for each element.

Partnerships: Collaboration across different units in the MOH will be needed, for example, with the Mother Child Health (MCH) unit, and Health promotion. Close communications with UN agencies (e.g., UNICEF, WHO, UNDP, UNHCR) and with NGOs will be important since these groups play an important role in the financing or delivery of programmes to prevent malaria.

Funding: An approach should be taken to ensure that an appropriate percentage of the overall malaria programme budget is reserved for the LLIN Tracking System and its activities.

The next section presents a description of each of the seven core elements of the Sudan LLIN Tracking System.

References

- National Malaria Monitoring and Evaluation Plan 2014—2016
- Sudan NMCP Performance Framework 2015—2017

Element 1: Macro-quantification of LLINs

Key information needs

- How many LLINs are needed to achieve the desired coverage: that is, universal coverage?
- When were previous campaigns held, how many nets were distributed, which brands, where?
- When do we need to do a replacement campaign because the previously distributed nets are three years old and have come to the end of their useful lifespan?
- Do we have gaps in coverage? Are there areas or populations that have not received nets and need to be covered?

Background

It is essential that an estimate be made of the number of LLINs that needs to be procured to achieve and sustain universal coverage. LLINs are procured from an out-of-country source of WHOPES-approved LLINs. This estimation is a complex task that needs to be carried out early in the planning process, as it is part of the concept note for funding of the mass campaign and routine distribution through the PHC services. Quantification involves calculating the quantities of LLINs needed on the basis of the implementation strategy and the number of people who actually need them (AMP Toolkit, Chapter 3).

Estimating the number of LLINs needed

To estimate the number of LLINs needed, a number of factors are considered, shown below:

Factors	Sudan NMCP position and assumptions
States where LLINs are the chosen intervention strategy	12 states: Kassala, Gedarif, Blue Nile, White Nile, South Kordofan, West Kordofan, North Kordofan, South Darfur, West Darfur, North Darfur, East Darfur and Central Darfur
Desired coverage rates	Universal coverage to reach the entire population at risk of malaria (one net for 1.8 persons); i.e., for every 1000 persons, 555 nets are needed
LLINs per household	One LLIN for every two persons in the household, rounding up in the case of odd numbers of people in a household
Household size	Average household size of 5.0 persons per household (Sudan Household Survey)
Starting population	The projected total population size (by target state)
Growth rate	Annual growth rate of 2.53%
At-risk populations	All persons, including the most vulnerable, that is pregnant women (4% of the population), and children under five years of

	age (15% of the population)
People of special concern (POC)	Of the total population, 8% (2.96 million) are nomadic and approximately 6.9% (2.59 million) are internally displaced[10]. The POC category includes IDPs, nomads, people working in traditional mining and refugees (Central Bureau of Statistics (CBS); 2008 Sudan Population and Housing Census)
Time interval between mass campaigns	Three years (based on an assumption that the median serviceable life of a LLIN in Sudan is three years)

Tracking tools

Spreadsheets, commodity gap analysis and the preparation of updated status reports are basic tools that are used. Maps of operational coverage are periodically prepared.

LLIN tracking spreadsheets: The NMCP has developed and maintains a number of LLIN tracking spreadsheets that are used as a main tool to record the timing and number of LLINs distributed in the past and determine the number of LLINs needed ("macro-quantification") for future calendar years. The quantity of LLINs needed is typically forecast for three consecutive years ahead of deliveries by manufacturers on long-term agreements (LTA). With these extensive spreadsheets, a variety of outputs and reports can be produced to meet specific information needs.

Commodity gap analysis: The NMCP conducts a commodity gap analysis periodically. This is done to establish the status of LLIN needs and distribution, seeking greater accuracy regarding the estimated needs and an up-to-date picture about the situation (Appendix 1A). To do this, the following is taken into account:

- How many LLINs have been distributed in the past? What is the gap (the number needed for universal coverage)? How many LLINs are now available for distribution?
- What are the priorities for distribution? Are there localities or areas without a history of distribution?
- Are there population groups that do not have adequate coverage and need to be reached (e.g., POC)?

With this type of analysis, the NMCP is able to prepare an estimate of the number of LLINs needed in each of the localities, by target state. This calculation is used in the distribution plan (see Element 2, Procurement and supply management).

Operational coverage maps: Periodically the NMCP produces maps that show the operational coverage. Operational coverage indicates the percentage of LLINs that have been distributed to meet the needs of the at-risk population so that universal coverage is attained. For 2015, the goal

[10] Population projections for 2014 using an annual growth rate of 2.53%.

is that 100% of the target states will achieve 100% operational coverage of LLINs through mass campaign distributions and, beginning mid-year, LLIN distribution through PHC facilities.

Partners

The Integrated Vector Management Unit (IVM), Environmental Health Department, NMCP, MOH is responsible for estimating the number of LLINs needed for the country. The estimate of the numbers needed is provided to UNDP, the Global Fund PR.

References and resources

- Alliance for Malaria Prevention (AMP) Toolkit, *A toolkit for mass distribution campaigns to increase coverage and use of long-lasting insecticide-treated nets*. Second edition, 2012, Chapter 3, Planning.
- www.who.int/malaria/publications/atoz/malaria_gf_proposal_dev_who_policy_brief/en/index.html (Recommends total population divided by 1.8 to quantify the number of nets to reach universal coverage.)
- WHO. WHO recommendations for achieving universal coverage with long-lasting insecticidal nets in malaria control. September 2013 (revised March 2014). 3 pp. See: http://www.who.int/malaria/publications/atoz/who_recommendations_universal_coverage_llins.pdf

Appendix 1A: Forecasted quantity of LLINs needed

(three consecutive years ahead of deliveries to Sudan by manufacturers on long-term agreements)

LLINS DISTRIBUTED								LLINS NEEDED				
State	**Population2012**	**LLINS 2012**	**Population 2013**	**LLINS 2013**	**Population 2014**	**LLINS 2014**	**Population 2015**	**LLINs needed 2015**	**Population 2016**	**LLINs needed2016**	**Population 2017**	**LLINs needed 2017**
South Kordofan	312,760	173,900	647,068	476,559	343,980	191,100	284,563	158091	696821	387123	370754	205975
North Kordofan	348,017	200,000	518,160	576,800	1,465,445	595,999	374,776	208209	558002	310001	1579510	877506
West Kordofan	46,188	26,100	994,210	646,100	695,160	386,200	49,739	27633	1070655	594809	749269	416260
Kassala	351,912	200,000	786,084	434,400	887,147	489,000	374,701	208167	846526	470292	956199	531222
Gedarif	184,857	100,000	1254535	662400	495,798	279,000	199,071	110595	1350997	750554	534389	296883
Blue Nile	353,084	195,000	602,025	345,000	0	0	359,807	199893	648315	360175	0	0
White Nile	462,510	260,000	1,197,109	677,000	544,598	316,900	498,073	276707	1289155	716197	586988	326104
West Darfur	108,000	60,000	914,111	313,719	446868	248260	116,304	64613	984397	546887	481651	267584
Centre Darfur	0	0	787270	370168	279832	155462	942436	130462	847804	471002	301613	167563
North Darfur	157986	87365	484554	329324	788881	438267	832,727.00	1081601	521812	289895	850284	472380
South Darfur	180000	100000	952718	569807	1402270	779039	2705780	1510727	1025973	569985	1511418	839677
East Darfur	0	0	178115	96000	996276	553487	1,172,489	285716	191810	106561	1073823	596568
Total	**2,505,314**	**1,402,365**	**9,315,959**	**5,497,277**	**8,346,255**	**4,432,714**	**7,910,466**	**4262414**	**10032267**	**5573482**	**8995898**	**4997722**

Element 2: Procurement and supply chain management: tracking the process

Key information needs

- When is the expected arrival date for the LLINs to arrive at the seaport? What is the status of the arrival of nets in the country?
- Where are the LLINs at all points in the movement of the nets from the port to the final distribution points? Are they going where they are needed?
- Is the quantity of the LLINs at each point correct? Has there been any leakage along the way? If yes, why?
- Are there any blockages in the process? If yes, how is the problem being addressed?

Background

This element addresses the performance of the Procurement and Supply Management (PSM) system. The objective is to ensure efficient and timely delivery of LLINs to the final distribution point, and ultimately, to the beneficiaries.

Once LLINs have arrived in country, the focus is on LLIN logistics operations. The movement of the LLINs during every stage of the supply chain, from arrival in the country at Port Sudan to the final distribution point in the localities where nets will be distributed in a mass campaign, needs to be tracked[11]. The final distribution point for those LLINs that will be distributed through the PHC system will be different from the delivery point for nets used in a mass campaign. If monitoring is weak, leakage (loss of nets) can occur.

A central logistics team (CLT) is established, with representatives from the FMOH, UNDP and UNICEF. Logistics teams are also formed at the state and locality levels. Procurement and pipeline monitoring is carried out by the designated partner. Close communication and coordination are important, and if bottlenecks or challenges arise, timely action needs to be taken.

Monitoring the PSM situation requires the CLT to maintain regular contact with those at the state level. Timely dissemination of information about the movement of nets through the LLIN pipeline is essential.

The CLT will need to maintain close contact with the state and locality-level delegated personnel and logisticians and keep them informed about the movement of the LLINs in terms of quantities, and the estimated arrival times from the seaport through the in-country supply chain (AMP Toolkit, Chapter 4, LLIN procurement and pipeline monitoring).

Stages of the PSM pipeline

The movement of the LLINs from Port Sudan to the distribution points in the localities and villages of the target states follows a number of stages. LLINs will need to be securely stored at various points during their transportation from the seaport to the final destination. LLINs will usually be stored at government stores or in some cases in a rented warehouse or facility.

[11] See Element 3: *Process assessment of the campaign* for a description of the process and tools used for campaign distribution.

The stages and steps are briefly described below, with some of the tracking tools identified. In some cases, a copy of the tool used in Sudan is provided in the appendices. See Appendix 2 for a list of tracking tools.

Requisition, procurement and shipment

The steps taken for procurement of the LLINs are based on a detailed procurement plan that takes into account the donor (Global Fund/UNDP) guidelines and rules and regulations concerning procurement. Procurement is also in accordance with the National Pesticides Council (NPC) laws of Sudan.

- A letter of request including identification of the chosen LLIN product and specifications is sent from IVM/NMCP to UNDP (Appendix 2A). The suppliers must be on the list of WHOPES-recommended LLINs registered with the government of Sudan (NPC).
- The quantity of LLINs needed is determined by IVM/NMCP, and the LLIN distribution plan is shared by IVM/NMCP with UNDP-Programme Management Unit (PMU) and UNICEF. See Appendix 2B for a sample LLIN distribution plan for 2015 by state.
- UNICEF Sudan is the secondary recipient (SR) for LLINs procurement. A quality assurance protocol is established for pre-distribution of LLINs. UNICEF Sudan typically works with a procurement agency through LTA. A request for a cost estimate is sent from UNDP-PMU to UNICEF.
- UNICEF starts the process of LLINs procurement. Upon receiving the estimated cost offer from the supplier, they share the offer with IVM/NMCP through UNDP-PMU for final acceptance. Once the offer is accepted by IVM/NMCP, UNICEF starts the preparation for advance payment to the LLINs supplier and dispatch of the shipment.
- UNICEF monitors the shipment of the LLINs from the supplier to its arrival at the final destination in country, Port Sudan.

Customs clearance and receiving

The end point of the international process is the shipment of the requested LLINs to Port Sudan. From this point the national process starts.

- UNDP receives and shares the shipment documents (copies of invoices, packing list and bill of lading) from the shipping company and UNICEF Supply Division in Copenhagen, and shares these with IVM/NMCP to process the domestic clearance.
- UNDP in collaboration with IVM/NMCP obtains documents needed for customs clearance. These include the exemption for goods importation from the Ministry of Foreign Affairs (MoFA), SSMO exemption and clearance permission from the National Pesticides Council. These documents will then be shared with UNICEF Sudan.
- Once LLINs arrive at the seaport, UNICEF, through a clearance agent, finalizes the clearance process as usually UNICEF has a long-term agreement with clearance agents for such type of services.

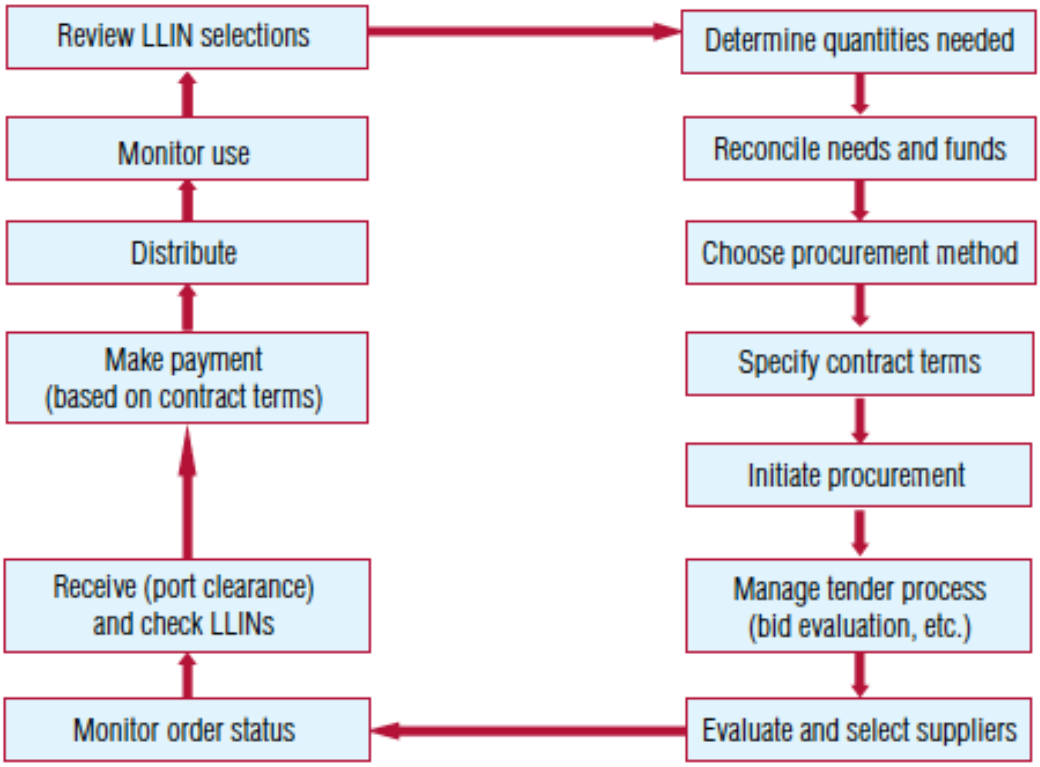


Figure 6: A simplified illustration of the LLIN procurement process (source: AMP Toolkit, p. 4-2)

Transportation and storage

- Once LLINs are cleared at the seaport, UNICEF requests the IVM unit to share the final macro distribution plan which includes information such as the quantities of LLINs needed per targeted localities in the targeted states, and names of the designated personnel at various storage levels and their contact information.
- Taking into account the macro distribution plan, a transportation plan is prepared. UNICEF arranges for transporting the LLINs from the seaport directly to the targeted states. In special cases LLINs may be sent first to warehouses overseen by UNICEF in Khartoum (for Greater Darfur states).
- IVM/NMCP informs SMCP to prepare and arrange storage for the LLINs at state and locality levels, to ensure availability of storage capacity capable of receiving the target quantity of LLINs.
- LLINs are dispatched from the seaport. Information about quantities released to each area and the expected date of arrival of the LLINs at the storage facility is shared with the SMCP. A dispatch/release order form is completed. An issuing order is prepared that shows the quantity of LLINs that need to be transported to the state storage warehouse.
- LLINs are entered in the government warehouse using form Warehouse No. 50 (see Annex 2C). The bin card (custody card) is initiated using Warehouse Form No. 51 (see Annex 2D).
- At state and locality storage levels, the LLINs are received at stores and quantities are checked physically against quantities in the released order form and the LLINs enter in the government warehousing system. The designated person will sign a waybill receipt.
- The waybill receipt will be sent back to UNICEF. Any discrepancy in quantities will be clarified and managed accordingly by UNICEF.

Transportation and distribution to localities and villages

- LLINs are released from the state warehouse to target localities using Warehouse Form No 47 (see Appendix 2E), which is a combined form for items requested and outgoing/released.
- LLINs are then issued from the locality warehouse to the target village using Warehouse Form No 46, Local request for different items (Appendix 2F).
- The LLITNs Distribution Form will be used for house-to-house registration for gathering information about total number of household members, pregnant women, children under five and the number of LLINs needed in each household (Appendix 2G). The information will be used to calculate the needed quantities of LLINs that must be transported to each village. This form serves both to record the number of LLINs needed by each household (done at the time of registration) and during distribution, to verify that the household has received the required number of LLINs (see Element 3: Process assessment of the campaign).
- At the state level, the SMCP staff calculate the LLINs needed for each village or block in the target locality. The following information for each village in each target locality is recorded using a standard form: total number of pregnant women, total number of children under five years of age, total number of household members, total number of households, the total number of LLINs received, and the village's longitude and latitude. See the form "LLINs Distribution Form' (Appendix 2H).
- LLINs are released to the target village under supervision of the locality supervisors and village leaders, using form No. 47 (Appendix 2E*).* In the target village, the LLINs Goods Receipt Note (Appendix 2I) is completed and signed by the designated village volunteer.
- By signing the note, the person is declaring that he/she has received a specified quantity of LLINs for distribution in the village. The amount to be received must match the amount of LLINs to be distributed in the village (as per the number of LLINs that is needed for that village as indicated on the LLINs Distribution Form (Appendix 2G).

Partners

Ministry of Health: NMCP and IVM unit; Ministry of Foreign Affairs; SSMO; National Pesticide Council
Donors: Global Fund/UNDP; UNICEF; Procurement agency (under contract to UNICEF)

Indicators

Possible indicators that can be used to track the procurement and supply management process are shown below:

- ✓ Written procurement procedures prepared
- ✓ Transport plan prepared
- ✓ Percentage of storage sites that received all orders in full and on time
- ✓ Adequate security measures for the storage facilities
- ✓ Sufficient and adequately trained staff are available to operate the warehouse and stores
- ✓ Standard inventory control procedures are in place
- ✓ Warehouse/stores forms available at each level of the LLIN storage facilities
- ✓ Required information on the various warehouse/stores forms properly completed

- ✓ Proportion of storage sites that received all orders in full quantities and on time
- ✓ Proper use of the tracking documents
- ✓ Proper filing of all supply chain documents

Tracking tools

Numerous tracking tools can be used. Some of these are listed below. Two essential tools are used throughout the supply management process: the waybill and stock sheet. They are needed to account for items entering or leaving the storage facility, and to ensure up-to-date maintenance of the inventory system. The names and signatures of the people involved at each step of the supply chain where responsibility for the LLINs is passed from one location to another are recorded.

- ➢ Packing list
- ➢ Bill of lading
- ➢ Customs clearance documents
- ➢ Waybill
- ➢ Warehouse stock sheet (also called custody card or bin card)
- ➢ Goods received note
- ➢ Logistics reports
- ➢ Distribution reports
- ➢ Inventory control reports
- ➢ Stores report from the storage facilities at various levels (state, locality).
- ➢ Supervisors'/monitoring checklists

References and resources

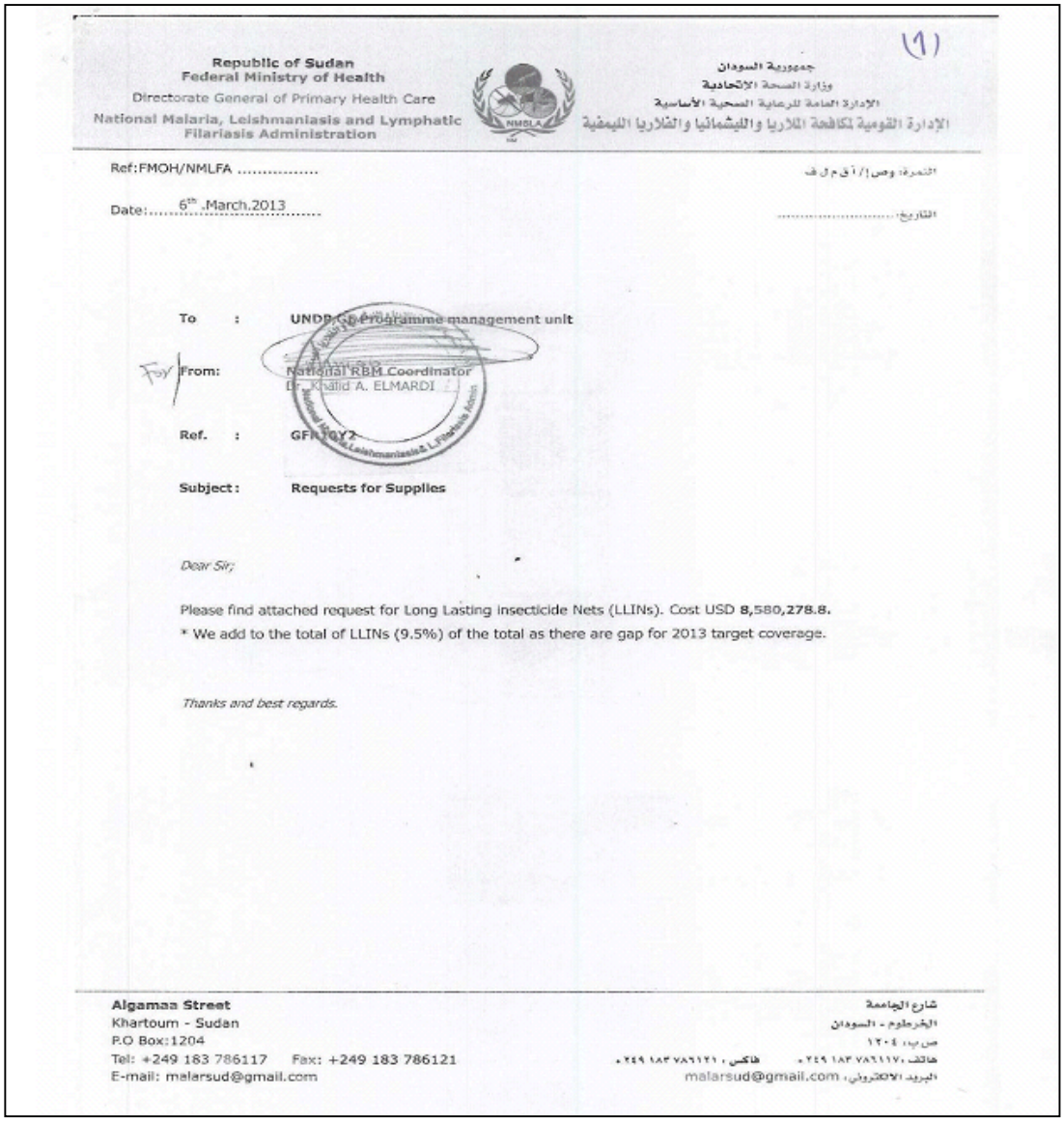
AMP Toolkit. *A toolkit for mass distribution campaigns to increase coverage and use of long-lasting insecticide-treated nets*. Second edition 2012, Chapter 4, LLIN procurement and pipeline monitoring and Chapter 5. Logistics.

Appendix 2: List of forms and tracking tools used in the PSM system

- Request for supplies letter and completed requisition for supplies and equipment form* (Appendix 2A)
- Sample LLIN distribution plan*[12] (Appendix 2B)
- Warehouse Form No. 50*. LLINs enter into government warehouse (Appendix 2C)
- Warehouse form 51*. The custody/bin card is initiated in the government warehouse (Appendix 2D)
- Warehouse Form No. 47*. Combined form for items requested and outgoing (released), from state level to locality level warehouse (Appendix 2E)
- Warehouse Form No. 46*. Issuing order for LLINs to be transferred from locality level store warehouse to village level (a combined request/issuing order) (Appendix 2F)
- LLINs registration/distribution Form* (Appendix 2G)
- LLINs distribution report form * (Appendix 2H)
- Goods receipt note* (to be signed by designated village volunteer) (Appendix 2I)

[12] An asterisk indicates that a copy of this tool is provided as an appendix.

Appendix 2A: Request for supplies letter and completed requisition for supplies and equipment form (page 1)



(1)

Republic of Sudan
Federal Ministry of Health
Directorate General of Primary Health Care
National Malaria, Leishmaniasis and Lymphatic Filariasis Administration

جمهورية السودان
وزارة الصحة الإتحادية
الإدارة العامة للرعاية الصحية الأساسية
الإدارة القومية لمكافحة الملاريا والليشمانيا والفلاريا الليمفية

Ref:FMOH/NMLFA .....

Date: 6th .March.2013

To : UNDP/GF Programme management unit

From: National RBM Coordinator
Dr. Khalid A. ELMARDI

Ref. : GFATM/Y7

Subject: Requests for Supplies

Dear Sir;

Please find attached request for Long Lasting insecticide Nets (LLINs). Cost USD **8,580,278.8.**
* We add to the total of LLINs (9.5%) of the total as there are gap for 2013 target coverage.

Thanks and best regards.

Algamaa Street
Khartoum - Sudan
P.O Box:1204
Tel: +249 183 786117 Fax: +249 183 786121
E-mail: malarsud@gmail.com

شارع الجامعة
الخرطوم - السودان
ص.ب: ١٢٠٤
هاتف: ٧٨٦١١٧ ١٨٣ ٢٤٩+ فاكس: ٧٨٦١٢١ ١٨٣ ٢٤٩+
البريد الإلكتروني: malarsud@gmail.com

Request for supplies letter and completed requisition for supplies and equipment form (pages 2 and 3)

Requisition for Supplies & Equipment/ UNDP

.....

REQUISITION FOR SUPPLIES AND EQUIPMENT /UNDP

Consignee: **NMCP**	Date:	6th .3.2013	Special Shipping Instruction : (if applicable)
Address: **National Malaria and Lieshmaniasis Administration**	Project No.:	GFR10Y2	
	Allotment No:		
Tel. No.: Tel. No.:+249 183786117 , Fax:+249 183786121 P.O.Box.: 1204	Activity code No:		
	AMS code No.		
E-mail address:malarsud@gmail.com	Available fund		
	Date of Request: 6th.3.2013 **Request Order USD:* 8,580,278.8		

Item No.	Complete description of item	Supplier & Date of Catalogue used or PO No.	Code No.	Quantity (state unit)	Unit Price USD	Total Price USD	For UNDP use only costing
1	**LLINs**			2,585,200	3.319	8,580,278.8	
	Color: White.						
	Shape: Rectangular						
	Size: Length*Width* Height (190*180-190)*150.						
	Dinner: 75-100.						
	Insecticides treatment: Deltamethrin or Permethrin.						
	Materials: Polyester or Polyethylene.						
	Packing: 40-100 LLINs per packages						
	Total					8,580,278.8	

IMPORTANT

1. Item should be listed in order of priority.
2. If funds are insufficient to cover all items, procurement will be effected in priority order within available funds.
3. It is essential that you indicate the catalogue number, supplier's name and address.
4. Whenever local purchase is proposed, local quotations from a minimum of three suppliers should be attached. The quotations should indicate all terms and conditions: validity (not less than 60 days), delivery date, warranty, payment terms, country if origin of goods, etc..

Underlined Items Information is for Logistics in Sudan Only.

Requestor and Position	Logistic team / Technician	Team Leader

Updated July 2012

WHO recommended long-lasting insecticidal mosquito nets

Product name	Product type	Status of WHO recommendation	Status of publication of WHO specification
DawaPlus® 2.0	Deltamethrin coated on polyester	Interim	Published
Duranet®	Alpha-cypermethrin incorporated into polyethylene	Interim	Published
Interceptor®	Alpha-cypermethrin coated on polyester	Full	Published
LifeNet®	Deltamethrin incorporated into polypropylene	Interim	Published
MAGNet™	Alpha-cypermethrin incorporated into polyethylene	Interim	Published
Netprotect®	Deltamethrin incorporated into polyethylene	Interim	Published
Olyset®	Permethrin incorporated into polyethylene	Full	Published
Olyset® Plus	Permethrin and PBO incorporated into polyethylene	Interim	Pending
PermaNet® 2.0	Deltamethrin coated on polyester	Full	Published
PermaNet® 2.5	Deltamethrin coated on polyester with strengthened border	Interim	Published
PermaNet® 3.0	Combination of deltamethrin coated on polyester with strengthened border (side panels) and deltamethrin and PBO incorporated into polyethylene (roof)	Interim	Published
Royal Sentry®	Alpha-cypermethrin incorporated into polyethylene	Interim	Published
Yorkool® LN	Deltamethrin coated on polyester	Full	Published

Notes:

1. Reports of the WHOPES Working Group Meetings should be consulted for detailed guidance on use and recommendations. These reports are available on the WHO homepage on the Internet at http://www.who.int/whopes/recommendations/en/en/); and
2. WHO recommendations on the use of pesticides in public health are valid **ONLY** if linked to WHO specifications for their quality control. WHO specifications for public health pesticides are available on the WHO homepage on the Internet at http://www.who.int/whopes/quality/newspecifen.

Appendix 2B: A sample LLIN distribution plan

Federal Ministry of Health

Integrated Vector Management/ IVM unit

Distribution list of LLINs for 2015 request by state

States	Total Request	% coverage after distribution end 2015
Kassala	208,167	100%
Gedarif	110,595	100%
Blue Nile	199,893	100%
White Nile	276,707	100%
South Kordofan	158,091	100%
West Kordofan	27,633	100%
North Kordofan	208,209	100%
South Darfur	865,172	100%
West Darfur	64,613	100%
North Darfur	643,334	100%
Total	2,762, 414	100%
Routine distribution of LLINs through ANC	122,463	100%
Grant total to request	2, 884,877	100%

Appendix 2C: LLINs enter into a government warehouse

اورنيك المخازن نمرة 50
Warehouse No. 50
Unit No.....قسم نمرة /

Statement items added to the custodyبيان الاصناف المضافة بالعهدة/

النمرة السابقة Previous No.	جملة الموجود بالعهدة Quantity in costly	نمرة الطلب Request No.	نمرة الفاتورة Invoice No.	جملة القيمة Total cost		بيان Description	نمرة العينة No.	الكمية المستلمة Quantities received		وارد من Incoming from
				جنيه	قرش			عدد No.	وحدة Unit	

- Storekeeper signatureامضاء امين المخازن/.....
- Dateالتاريخ/..... :

Appendix 2D: The custody/bin card is initiated in the government warehouse

اورنيك مخازن 51 (معدل)
Warehouse form No. 51

Federal Ministry of Healthوزارة الصحة الاتحادية/

National Malaria, Leishmaniasis & Lymphaticالادارة القومية لمكافحة الملاريا والبلهارسيا واللشمانيا/

Custody Cardكرت العهدة/

Item No. /نمرة الصنف/ الحد الادني/ ..... Lower limit.....

Item Name..... .... اسم الصنف/ الحد الاقصى/ Upper limit .....

Item unit/ وحدة الصنف/ ..... نمرة الكرت المتسلسلة /

التاريخ Date	Incoming الوارد/		المنصرف/ Outgoing		الباقي بالعهدة Remaining	وارد من او منصرف الى Incoming from/outgoing to	السنة المالية للاذن Financial year	الامضاء Signature
	المقدار/ Quantity	رقم الاذن /	المقدار /Quantity	رقم الاذن				

Appendix 2E: Combined form for items requested and outgoing (released), from state level to locality level warehouse

اورنيك المخازن نمرة 47
No. 47 Warehouse form

اورنيك مشترك لطلب وصرف الاصناف
Item requested and outgoing form

First Copy صورة اولى/

استعمال مصلحة المخازن فقط

نمرة الطلب/Request No. التاريخ/Date..... الوحدة/Unit..... بالخصم على/Deduction on ..... القسم./ Department..... ترسل الاصناف الى/Item send to								تاريخ استلام الطلب/ Request receiving date تاريخ الصرف/ Outgoing date ..... اورنيك تسليم نمرة / Receiving form date..... نمرة الصرف المتسلسلة/ Receiving form date		
نمرة العينة No.	الصنف Item	الكمية Quantity	وحدة الصرف Unity outgoing	المصدق به Approved quantities	المنصرف Outgoing quantity	الباقي بالعهدة Remaining quantity	نمرة اخر صرفية	سعر الوحدة Unit price	مجموع القيمة قرش Piaster	مجموع القيمة جنيه Pound
الطلب تصدق ..... اسم وامضاء صاحب الطلب Requesting name & Signature								ارسل للصرف ..... مصروفات مصلحية امضاء ..... الجملة تراجع الطلب ..... سجل الطلب بقسم الحسابات ..... المجموع الكلي اسم وامضاء رئيس المصلحة		

Appendix 2F: Issuing order for LLINs to be transferred from locality level store/warehouse to village level (a combined request/issuing order)

اورنيك مخازن نمرة 46
Warehouse form No. 46

Local request for different itemطلب محلي لأصناف مختلفة/

The requesting partyالجهة الطالبة /.....:

Dateالتاريخ/.....:

الكمية المصدقة Issued Quantities	الكمية المطلوبة Requested Quantities	اسم الصنف Item Name
		توقيع الجهة الطالبة/ Requesting party signature: .....

Approved for releaseتصدق بالصرف/.....

Received the item aboveاستلمت الاصناف المذكورة اعلاه/

Signatureامضاء /.....

Appendix 2G: LLINs registration/distribution form

قسم المكافحة المتكاملة لنواقل الامراض

Integrated Vector Management – IVM Unit

إســــــتمـــــارة تـوزيع النامـــــوسيات المشـــبعـــــة

LLINs Registration/Distribution Form

التاريخ :..... الولاية:..... المحلية:..... /القرية

Village/block…….. Locality:…….. State:…… Date:……

رقم No.	اسم رب الأسرة Household head name	عدد النساء الحوامل No. of pregnant women	عدد الأطفال اقل من 5 سنوات No. of children <5 years	العدد الكلي لافراد الاسرة Total No. of household members	عدد الناموسيات المستلمة No. of LLINs received
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
	المجمـــــــوع				

اسم المتطوع :_____ اسم المشرف:_____

التوقيع:_____ التوقيع:_____

- وزارة الصحة الاتحادية - قسم المكافحـــة المتكاملـــة لنواقل الامراض
-

Appendix 2H: LLINs distribution report form

Integrated Vector Management – IVM Unit

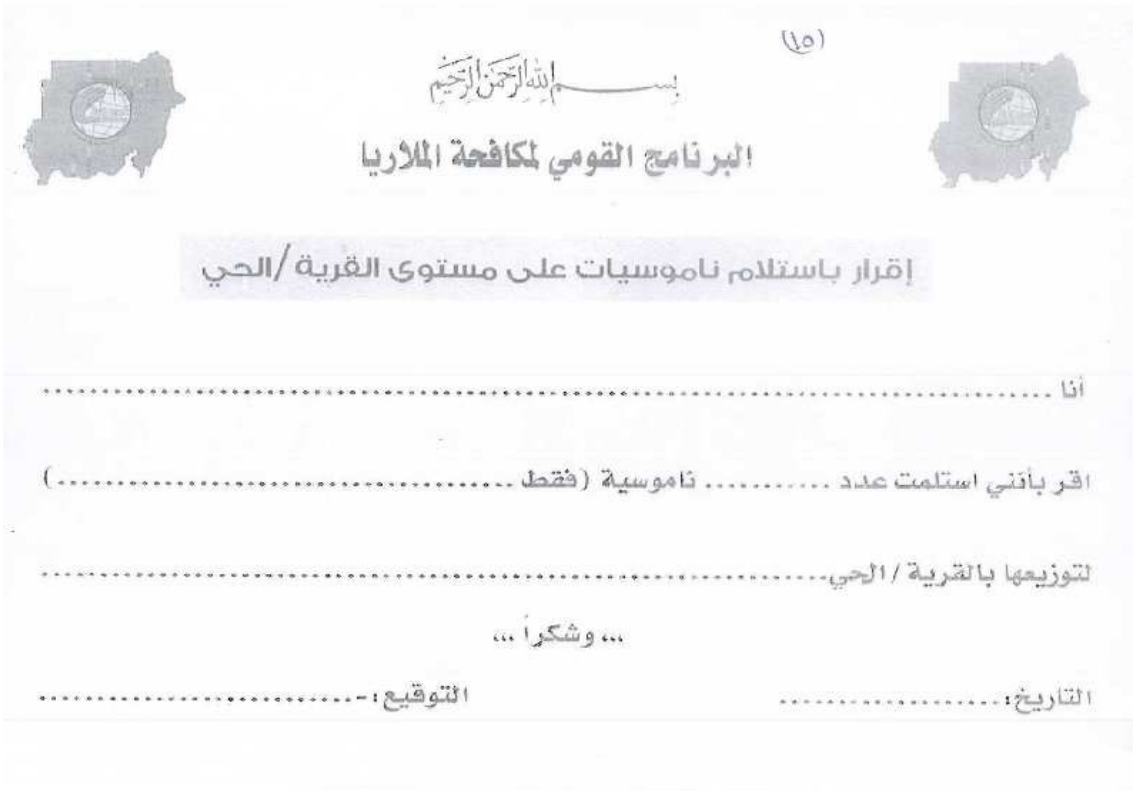
LLINs Distribution Report Form

Locality:…….. State:…….. Date:……..

No.	Distribution date	Name of Village/Block	No. of pregnant women	No. of children <5 years	Total No. of household members	Total No. of household	No. of LLINs received	Longitude	Latitud
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
		Total							

Copy to-: ytilacoL etatS

Appendix 2I: Goods receipt note (to be signed by village volunteer)



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بسم الله الرحمن الرحيم

البرنامج القومي لمكافحة الملاريا

إقرار باستلام ناموسيات على مستوى القرية /الحي

أنا .....

اقر بأنني استلمت عدد ..... ناموسية (فقط .....)

لتوزيعها بالقرية / الحي.....

... وشكراً ...

التاريخ:..... التوقيع:-.....

Translation:

National Malaria Control Programme
LLINs Receipt Note (Village/Section)

I ..... declare that I have received .....
LLINs to distribute to .....(specify village/ town sector)
Thank you
Date..... Signature
.....

Element 3: Process assessment of the campaign

Key information needs

- Is the campaign "on track", that is, is it progressing as planned? If not, which corrective actions need to be taken?
- How were households registered for the campaign? How complete was the registration process in each administrative unit?
- How many nets were distributed? Did households receive the correct number of LLINs?
- What was the quality of the services at various stages of the implementation of the campaign?
- What useful lessons can we learn for future mass campaigns?

Background

The LLINs that have been procured will eventually be delivered to the final distribution point, where they will be distributed to households either during the mass campaign or through the health services. Typically, the campaign distribution takes place at the village or block level.

It is essential to know if the campaign planning and implementation is on track. Key areas for process assessment during campaigns include: planning; social mobilization; communications; advocacy; training; registration of households; and supervision (AMP Toolkit, Chapter 8).

The National Malaria Control Programme (PNLP), FMOH team plays the leadership role in the campaigns, and works alongside partners. Work needs to be done at the central, state, locality and village levels. Federal, state and locality teams are formed. The NMCP staff at the state levels are deeply involved in preparing the localities and target villages for the distribution campaign. At the request of the NMCP, the SMCP arranges for the LLIN distribution campaign by listing the localities and target villages. Advocacy, social mobilization and behaviour change communication (BCC) activities are carried out, at all levels, usually with partners.

Careful micro planning is needed, with activities that take place before the campaign, during the campaign, and post-campaign. A successful mass campaign requires good coordination at each stage of the campaign, and effective communications (AMP Toolkit, Chapter 6). See "LLIN procurement, logistics and distribution process" in Part 1, Section 1.4 of this document for more details about the steps and activities involved in the mass campaigns carried out in the target states.

Campaign processes and activities

Registration of households: During the registration process, social mobilization takes place, aiming to ensure high levels of participation in the campaign activities. Volunteers who have been selected jointly by community leaders and the SMCP, play an essential role.

All volunteers must participate in a one-day orientation and training on the campaign process. House-to-house visits are carried out by the trained volunteers in each village or block in a target

locality. Using standardized forms (see "LLINs Distribution Form", Appendix 2G), each household is registered by the volunteer with the following information collected: name of head of household, number of pregnant women, number of children under the age of five years, total number of household members and the number of LLINs to be received by that household. To calculate the number of LLINs needed per household, one net is to be provided for every two persons in a household. In the case of an odd number of persons in a household, the number of LLINs for that household is rounded up.

Village leaders nominate the volunteers who will carry out household registration. The volunteer is from the same village. The village leader knows all the households in the village, and the volunteer works under the supervision of the village leader. If the volunteer comes across a missing household he will report this to the village leader as a missing household, and the leader will add the household to the village's list of households. Another way to support the registration of all households is that the volunteers are going across the village house-to-house under the supervision of locality, state and national supervisors.

The information on this form is then provided to the state MCP personnel, who calculate the LLIN needs per village and transfer the data to the form "LLINs distribution report form" (see Appendix 2H). This provides a reliable estimate of the number of LLINs needed for each village in a target locality.

During the household visits, the volunteer is also expected to stress the importance of using LLINs to prevent malaria and communicate other key messages about LLIN use and care.

During the campaign: At the distribution site, activities such as mobile theatre, Hakkama meetings and announcements about the importance of using LLINs take place.

The distribution of LLINs should follow a standardized procedure, led by trained persons and overseen by community leaders.

The number of LLINs to be given to each household proceeds according to the information on the village's household registration forms (Appendix 2G). The distributor gives each household representative the number of nets that is shown in the column "No. of LLINs received". Once the LLINs are received either the recipient or the distributor verifies the receipt of the LLIN(s) in the correct amounts by signing or checking off the receipt of LLINs in the row corresponding to the relevant household. This is done in the presence of the village's community leaders.

A pamphlet containing key information about malaria and behavioural messages on use, retention and care of nets is distributed to each household alongside the bed net(s) (see Appendix 7C).

If a household member (or his/her designate) does not appear at the distribution point to receive their LLINs, this will be noted by the distribution team. Arrangements will be made to ensure that the household receives the LLINs that they are eligible to receive.

Supervision of the LLIN distribution is important. Persons on the national, state and locality campaign teams and village leaders make supervisory visits to check if all is going according to plan and that the services are of high quality. Village leaders are present on all days of the distribution, and responsible for on-site daily supervision and monitoring of the activities. Corrective actions should be taken, as needed, to improve the quality of the implementation.

After the campaign: Administrative coverage can be calculated soon after each campaign, using administrative data found on the LLINs registration/distribution form (Appendix 2G, last column, No. of LLINs received) compared to total number of LLINs to be distributed to that target population.

The forms for all villages that received LLINs during the mass campaign (LLINs registration/distribution form, Appendix 2G) are collected by the village leader after the campaign is finished. The forms are returned to the state level campaign team and are stored in binders at the locality-level office of the MCP, under the responsibility of the MCP locality-based staff member, for a period of three years.

Meetings are held at the state level to review the campaign experience. Within three days of completion of the campaign, the state campaign team must submit a report to the national level.

After completion of the campaign, a final report is prepared by NMCP/IVM using a standardized format. In this report, the number of LLINs received by households in each target locality of the states targeted to receive LLINs through a mass campaign is shown (see Appendix 3A and 3D for sample reports). The NMCP/IVM reports campaign information and findings to the UNDP-PMU.

Post-campaign communications should be carried out in all communities. Mass media can be used (especially community radio). Community leaders and groups, and the volunteers, can help spread the key messages, encouraging households to hang and use their nets correctly.

Indicators

Aspects that are related to campaign quality will be measured. The indicators are mainly input, process or output indicators. Sample indicators are shown below for the various stages of the campaign. Behaviour change communication (BCC) is a vital aspect of all campaigns, and the indicators for BCC for a campaign are provided in Element 6 of this document, *Monitoring Behaviour Change Communication (BCC)*.

Sample indicators are shown below for the pre-campaign, registration, distribution of LLINs, and post-campaign stages.

Planning, coordination and communications:

- ✓ Number and proportion of states and localities with a functioning campaign coordination mechanism in place
- ✓ Number and type of advocacy events
- ✓ Number and quality of communication activities

- ✓ Number of adequately trained supervisors
- ✓ Community and social mobilization plans prepared
- ✓ Plan for waste disposal available

Registration:

- ✓ Degree to which planned social mobilization took place
- ✓ Number of community volunteers adequately orientated and trained
- ✓ Degree of completeness of the registration process in each village (quality of the estimates of the target population)
- ✓ Number of LLINs needed for each village and for the total number of villages in each targeted locality

Distribution of the LLINs:

- ✓ Quality of services provided at the distribution point
- ✓ Number of LLINs delivered to the target population
- ✓ Proportion of households that collected or received LLINs in each village
- ✓ Proportion of households that received the correct number of LLINs (that is, the full number of LLINS that the household was eligible to receive). To be reported by village, locality and each targeted state
- ✓ Availability of campaign LLINs for sale in local markets

Post-campaign:

- ✓ Administrative coverage
- ✓ Number of household visits or community meetings held to reinforce the key messages
- ✓ Number of review meetings held
- ✓ External assessment (supervision) reports

Monitoring tools

There are numerous monitoring tools that can be used to carry out a process assessment of the campaign:

- ➢ Specialized supervision checklists for monitoring the quality of services and activities (e.g., to assess household registration; training of supervisory personnel and community volunteers; the distribution)
- ➢ LLINs registration and distribution forms
- ➢ Rapid market surveys (to determine if LLINs have leaked into the community)
- ➢ Interviews of key personnel
- ➢ Training report
- ➢ Inventory of materials and supplies
- ➢ Post-campaign review meetings
- ➢ Standardized campaign reports

Some of the above tools are currently being used by the NMCP. For enhancing campaign monitoring, some existing tools could be revised and standardized, and the use of additional tools considered.

Using the results

Campaign leaders will use the information gathered to improve campaign performance, either on the spot or in future campaigns (depending on what is found during the assessment).

Partners

The IVM and PNLP of the FMOH will play the lead role in planning and implementing the campaigns. The Health Promotion Unit will make an essential contribution in IEC and BCC, using the COMBI approach (see Element 7, *Monitoring Behaviour Change Communication*). The Health Services Delivery unit, MOH, is important because health workers at all levels need to be actively engaged in supporting the campaign and they are often a core member of a campaign coordinating/organizing team.

Other ministries may also play an important role, especially for social mobilization: for example, Ministry of Education, and the Federal Ministry of Welfare and Social Development.

Depending on the state or locality, NGOs can be a leading partner in planning and implementing campaigns.

Community leaders at locality and village levels are important partners. Village leaders are responsible for nominating village volunteers and overseeing the distribution of LLINs, and supporting post-campaign activities.

UNDP, UNICEF, and WHO all play important roles.

When LLINs are distributed via campaigns to POC, UNICEF will play a leading role in reaching IDPs, and UNHCR for refugees. For these groups, NGOs too are often a key partner.

References and resources

AMP Toolkit, *A toolkit for mass distribution campaigns to increase coverage and use of long-lasting insecticide-treated nets*. Second edition 2012, Chapter 7, Implementation, and Chapter 8, Monitoring and evaluation.

Appendix 3A: LLINs distribution report for the Global Fund (February—March 2015)

State	Name of locality	No. of pregnant women	No. of children 5 < years	Total No. of household members	Total No. of household	No. of LLINs received
East Darfur	Eldaeen	3823	30662	144858	26113	79300
	Adeela	2149	10594	59659	10541	31300
	Abu Karinka	3265	17260	65319	10333	36300
	Sharia	1343	7477	71648	13054	38500
	Yassen	4389	28811	157492	25574	85000
	Asalaia	554	3822	20840	3546	11300
	Total	**15523**	**98626**	**519816**	**89161**	**281700**
North Darfur	Elfasher	9746	71750	361707	62740	200317
	Mallet	3959	20050	207487	17200	114000
	Dar Elsalam	3606	25534	109232	22884	61200
	Tawilla	2751	19652	72769	14976	40550
	Kutum	1965	8116	40584	7393	22200
	Total	**22027**	**145102**	**791779**	**125193**	**438267**
South Darfur	Katayla	3495	18673	75575	13457	40000
	Nteega	3560	11381	72029	12267	40000
	Edalfersan	5519	16729	98080	13227	45000
	Damso	3117	15453	75257	9288	40000
	Kabum	3564	14182	75362	11798	40000
	N.Nyala-S.Nyala	22051	84484	451661	66956	262964
	Bielel	3878	21783	131303	23534	70795
	Sunta	2431	13136	63090	10256	32800
	Buram	841	5360	14166	2115	7200

	Kass	131	241	1825	293	1000
	Elradoam	1120	5914	19765	3178	10000
	Elsaam	3868	18255	100751	17237	55796
	Total	**53575**	**225591**	**1178864**	**183606**	**645555**
	Grand Total	***91,125***	***469,319***	***249,0459***	***397,960***	***1,365,522***

Element 4: LLIN periodic assessment survey

Key information needs

- What is the ownership and use of LLINs in the household soon after LLIN distribution by a mass campaign, and over time?
- What is the loss of nets after the LLINs have been distributed to households via a mass campaign?
- What are the factors affecting the ownership and use of LLINs?
- What is the physical condition over time of the LLINs owned by the households?
- What can be learned from the household survey to improve the COMBI strategy and key messages to households about bed net use, care and repair?

Background

Malaria Indicator Surveys (MIS) were carried out in Sudan in 2009 and 2012. The next one will be in late 2015. The IVM/NMCP wants to have data at a greater frequency than the MIS is able to provide, in order to have an accurate picture of what happens to the LLINs that are distributed to households and the physical condition of the nets.

The IVM/NMCP is committed to implement a periodic assessment survey (PAS) after every mass distribution campaign of LLINs. The PAS will provide representative data on main indicators of measures related to ownership, access, use, condition and durability of LLINs.

Findings from the PAS will also contribute to the data needed for improving the COMBI strategy and messaging, decision-making on the timing for net replacement, and identifying geographic areas where there are problems with coverage or utilization.

Survey description

Survey objectives

1. To measure the level of ownership and use of LLINs.
2. To describe major behavioural aspects of net care and repair and their impact on LLIN use and physical durability of LLINs.
3. To assess the physical durability of LLINs distributed in mass campaigns in four eco-geographical regions over a three-year period and estimate median LLIN survival.
4. To compare the durability of LLINs across the different regions and identify major determinants of the performance of LLINs under field conditions.

Survey sites: This survey will generate results that will be representative of the focus population in the 12 states targeted to receive LLINs through mass campaigns and routine distribution of LLINs through primary health care services in four regions in Sudan:

- Eastern region: Gedarif and Kassala states
- Central: Blue Nile and White Nile states
- Greater Kordofan: North Kordofan, South Kordofan and West Kordofan states

- Greater Darfur: East Darfur, West Darfur, North Darfur, South Darfur and Central Darfur states

The epidemiology of malaria and the eco-geographical context vary across these four regions.

Time points for assessment: Following the distribution of LLINs through a mass campaign, there will be four rounds of the periodic survey. The first assessment will take place three months after the LLIN distribution. This will be followed by assessments at 12, 24 and 36 months after the distribution.

Methodology

Survey design: A repeated cross-sectional survey will be carried out with an established periodicity spanning three years from the time of the mass campaign distribution.

Sampling frame: The sampling frame will be those areas in each targeted state where a mass campaign distribution of LLINs has taken place.

Selection of primary sampling units (PSUs): These will be villages from the list of villages that received LLINs in the mass campaign. Twenty five (25) PSUs (clusters) will be selected from each sampling frame for each domain to be surveyed and from each PSU 12 households will be selected for the survey.

Sample size: In each domain, 300 households will be surveyed. This sample size will achieve a desired precision sufficient to make programmatic decisions and will also be large enough to provide an acceptable estimate of the indicator of the percentage survival of bed nets in serviceable condition after three years[13]. It is estimated that per domain, in each survey round, data will be collected on a target of 750 LLINs.

A 25*12 design (25 clusters and 12 households per cluster) will be used to achieve 300 households and approximately 750 campaign-distributed nets for each assessment survey round.

Cluster sampling: Two-stage cluster sampling will be carried out. At the first stage, villages to be surveyed will be selected using PPES (probability proportionate to estimated population size). In the second stage, 12 households will be randomly selected from the campaign registration list of all the households in each sample village. See Element 3, *Process assessment of the campaign* for a description of the registration procedure and a sample of the village registration form.

Questionnaire: A questionnaire adapted from the PMI Monitoring LLIN Durability Study standardized questionnaire (PMI, 2015) will be used. Data will be collected on bed net ownership and use, campaign nets lost from the household, campaign and other bed nets owned by the household, BCC communications, knowledge and attitudes about malaria, and net care and repair attitudes and

[13] See Appendix 4A for the factors taken into account for the statistical calculation for the sample size needed for measuring net life serviceability. Also shown is a table showing estimates for the indicators related to bed net ownership and use measured in this survey.

behaviour. The questionnaire will be administered in Arabic. See Appendix 4C (at the back of the document) for a copy of the draft questionnaire in English, and Annex 4B for the draft questionnaire in Arabic (to follow).

Fieldwork

Survey Teams: In each domain, there will be a field survey team to carry out the periodic assessment survey. A single cluster will be assigned to each team for each day of the fieldwork. Five field survey teams will be formed, with four interviewers per team. Thus, a team of 20 persons is needed in each domain. Interviewers will be selected from the pool of public health officers employed by the SMOH at the locality level.

In each cluster, the four interviewers will work as two teams, with two persons to interview each household. Each two-person team will be responsible to complete interviews of six households in a chosen cluster. It is expected that a team of two persons per household interview will be needed to ensure that the assessment of hole size and location is carried out with high quality and to have gender balance on the team visiting each household. A standardized tool will be used to measure hole size and three categories of hole sizes will be used.

One supervisor will be assigned to support and monitor two field survey teams. The supervisors will be a staff person of the SMCP.

The household interviews can be completed within a calendar week, with five days of data collection and time built in for travelling to the clusters. If travel conditions are especially challenging, more than seven days might be needed to complete the required 25 clusters in a domain.

In each village, two local volunteers will be recruited to help guide the interviewers to the sample households. If a home-based management of malaria (HMM) volunteer exists in the selected village then this guide would likely be the HMM volunteer. If a malaria society exists in the village, the volunteer could be recruited from the society.

Training

A cascade approach to training will be used. Two persons from each state (likely to be the M&E officer and the IVM officer) will be trained in Khartoum as master trainers by national level IVM/NMCP staff. In turn, the state-level trainers will then be responsible to train the 20 persons on the field survey teams in their domain of responsibility. At each domain-level training event, the SMCP coordinator and a representative from the national level NMCP will participate.

Data management

Staff of IVM/NMCP will prepare the data management plans for the survey, and enter, clean and analyse the data collected. The development of a data entry “ready-made” program will be explored.

Reporting

A report of the assessment survey findings will be prepared by the IVM/NMCP within six weeks of each survey round. A standard report template will be developed for use in all assessment surveys.

Using the results

The findings from each survey round will be reviewed and actions taken as needed; for example, if areas of low utilization of LLINs are found and depending on the findings, the IVM/NMCP may decide to:

- Carry out qualitative investigations to better understand the community and household factors involved
- Intensify the BCC activities in the area
- Establish a way to direct nets to areas where there are problems with low ownership and access to LLINs

Implementing agency

The IVM/NMCP will plan and carry out the periodic assessment surveys, and report on the findings.

Indicators

Indicators that can be measured by the PAS are listed below. These examples are outcome indicators, and measure aspects such as LLIN ownership, access and utilization; survivorship, retention and physical integrity of campaign LLINs; and BCC.

- ✓ Proportion of households with at least one LLIN
- ✓ Proportion of households with at least one LLIN for every two people
- ✓ Proportion of the population with access to a LLIN within their household
- ✓ Proportion of population that slept under a LLIN the previous night
- ✓ Proportion of under-five year olds that slept under a LLIN the previous night
- ✓ Proportion of previously received campaign LLINs no longer present
- ✓ Proportion of campaign nets still present and in use in the households to which they were distributed
- ✓ Net attrition rate due to wear and tear
- ✓ Proportion of campaign nets received but given away for use by others
- ✓ Proportion of remaining campaign LLINs in either good or serviceable condition or are in poor condition and need to be replaced
- ✓ Proportion of households that can recall the key communication message (reported by each specific message)

References and resources

- PMI; CDC; USAID. Study protocol. Durability monitoring of long-lasting nets in (country and/or locations). 2015.
- PMI, CDC, USAID. How to carry out LLIN durability monitoring and FAQ. 2015.

Appendix 4A: Sample size calculation

Calculating sample size of campaign LLINs

The factors that have been considered in the statistical calculation of sample size of campaign nets that is needed at the start of monitoring in the periodic assessment survey to obtain a +/- 12 percentage points difference in % survival of nets in serviceable condition after three years are the following[14]:

- The minimum differences to be detected (statistically) in order to still make the study worthwhile and provide actionable results. In our case it would be the question: "what difference in estimated LLIN durability or survival do we need to be able to detect between the same LLIN product (e.g., Permanet) at two different locations to say that they are programmatically different?" As a general orientation it is thought to be about 10—12 percentage points difference in "% survival in serviceable condition" after three years or a 0.5 year difference in median LLIN survival.
- The level of confidence that is to be used (alpha error); the 95% level.
- The anticipated power to find the desired difference (beta-error); 80%.
- The anticipated design effect; estimated at 2.0.
- The non-response rate; estimated at 5%.
- The range in number of LLINs received from the campaign is expected to be 600 to 1500 LLINs in a domain, since the range of LLINs in the households is estimated at 2 to 5 LLINs.
- The anticipated attrition rates for (a) all-cause attrition and (b) attrition due to "wear and tear" (resulting in discarding and/or re-purposing of nets). A rough orientation from existing global data is about 35—40% all-cause attrition over three years and 20% attrition due to wear and tear.
- The expected median survival of the LLIN over three years. This is assumed to be 50% (equivalent to a three-year survival); no previous data exist for Sudan, and this assumption gives statistically the most conservative estimate of sample size.

Overall, while the exact figures will always vary somewhat, based on the values used for each of the factors, a general orientation is that per survey round 750—800 campaign nets are needed to obtain the ±10-12 percentage-points difference after three years mentioned above. In Sudan, with an average household size of about five people and a standard "universal coverage" campaign this will require 320—360 households per survey round (depending on assumed loss-to-follow-up rate).

Given the survey objectives, survey costs, level of effort needed, and desired precision, the decision has been taken to sample 300 households per survey domain. This should provide an estimated 750 campaign nets per survey round and the percentage of LLINs surviving in serviceable condition closer to 12% than 10%.

Estimated confidence interval of key indicators

[14] The sample size considerations and calculation for the target number of campaign LLINs is consistent with the approach taken for durability monitoring described in the PMI document on "How to carry out durability monitoring" and FAQ 2015

Three hundred households will result in confidence intervals of plus or minus 8% for all core ownership and use indicators except for net use in currently pregnant women. Table 1 shows the five different types of indicator denominators, assuming a design effect of 2.0 and prevalence of 50%. The estimate for children under five years of age per household (0.75 children aged under five years old per household is based on 15% of all persons being children under five years and five persons per household).

Table 1. Three denominators for malaria indicators and estimated confidence interval from a survey with 300 households

Denominator	**Indicator**	**Number statistical elements per household**	**Number statistical units in 300 households**	**Estimated confidence interval (±%) given design effect = 2.0*, prevalence = 50%**
All persons	Net use	5	1500	8
Household	Various indicators	1	300	8
Children under 5 years of age	Net use	0.75	267	10

*Assuming design effect = 2.0 for net use indicators among persons of all ages

PLEASE SEE THE BACK OF THE DOCUMENT FOR APPENDICES 4B AND 4C, COPIES OF THE PERIODIC ASSESSMENT QUESTIONNAIRE IN ENGLISH AND ARABIC

Element 5: Bio-efficacy testing

Key information needs

- What is the bio-efficacy (residual insecticidal activity) of the LLINs before distribution to households?
- What is the bio-efficacy of the LLINs under field conditions in target populations over time?

Background

Knowledge about the bio-efficacy of LLINs before and post-distribution, and the lifespan of LLINs in real field conditions, is important. This can help determine the appropriate time interval between mass distribution campaigns and when it is necessary to replace old nets.

Bio-efficacy tests

Two separate but complementary tests will be carried out as described below.

1. Pre-LLIN distribution bio-assay testing

Objective

- To obtain baseline mortality rates and killing effects of LLINs.

Methodology: Before any LLIN distribution campaign five LLINs per batch will be sampled, whereby unless there are fewer than six batches, 30 LLINs will be selected for bio-efficacy assessment. The sampling will be done to ensure that the LLINs are selected from the entire batches. All bales from one batch will be listed, and systematic sampling will be carried out to select the number of bales needed. Within each selected bale, the bed nets will be selected by using random numbers between one and 100 (if the bale size is 100). To select a total of 30 LLINs per batch, 30 bales will be selected and one net will be randomly selected from each of those bales.

Susceptible strains of *An. Arabiensis* (Dongola Colony) will be used for bio-efficacy testing following standard WHO cone bio-assay procedures (WHO 2013).

2. Post-LLIN distribution bio-assay testing

Objectives

- To assess the degradation of insecticide use on used LLIN fabric over time under field conditions at four time points: three months, 12 months, 24 months and 36 months after a LLIN distribution campaign
- To assess household practices that affect the killing effect of LLINs over time
- To determine the % mortality and knock-down-rate after 60 minutes (KDT_{60}) of LLINs under field usage conditions

Methodology: A randomized community-based survey in four different regional zones will be undertaken after each LLIN distribution campaign, at four points in time: three months after distribution, and at 12 months, 24 months and 36 months. In each of the four domains, a total of 300 households (25 clusters/villages per domain * 12 households per cluster) will be randomly selected

for household interviews. See Element 4, *Periodic assessment survey* for a full description of this survey.

Sampling of LLINs: During each PAS, 30/300 households (10%) will be randomly selected as the targeted sample size (per each domain) to collect LLINs for bio-efficacy testing. The selection of the 30 households will be from within the sample of 300 households randomly selected for the periodic assessment survey. One campaign LLIN will be randomly selected from each of the 30 households selected for the bio-efficacy testing.

Overall, 30 LLINs will be collected per domain. In a case where there are no campaign LLINs in the selected household, then another household will be randomly selected from the entire number of households in the cluster. All LLINs collected for bio-efficacy testing will be replaced by new LLINs.

Data collected during the household interview: The collected LLINs will be coded and information for each individual net gathered from the household interview will be recorded (such as household identifier code, date of receipt of the LLIN, number of times washed, type of washing, drying). The physical integrity of each net (number of holes, size and location of holes) will also be observed and recorded during each interview at the selected household.

Cone bio-assay testing: Standard WHO cone bio-assay testing will be performed using susceptible malaria vector *An. arabiensis* strain (Dongola Colony) (WHO, 2013) to determine the bio-efficacy of the collected LLINs. From each sampled LLIN, one piece (25 cm x 25 cm) from each side panel and the roof (five pieces) will be cut and coded clearly to identify LLIN side location. Five standard WHO plastic cones will be fixed on each net piece. A batch of five susceptible, non-blood-fed, two to five-day-old female *An. arabiensis* reared in the Sennar Malaria Research and Training Centre (SMRTC) will be inserted in each cone using a bent aspirator.

In each test, mosquitoes will be exposed to each net piece for a three minute exposure period and then they are transferred to a holding tube where mosquito knock-down is recorded each ten minutes for 60 minutes. They are then provided with 10% sugar solution and held for 24 hours. Mosquitoes exposed to untreated nets will be used as a control group. Mortality rates will be determined after 24 hours holding period (Appendix 5A and Appendix 5B). If the mortality in controls is between 5% and 10%, Abbott's formula will be used for correction, and if the mortality in controls on any day is greater than 10% the results for that day will be considered invalid and should be discarded. All bio-assays will be carried out at 27 ± 2 °C and 75% ± 10% relative humidity. Appendices 5A and 5B show the form (English and Arabic versions) used for this test.

Implementing agency

The Vector Surveillance sub-unit, IVM/NMCP will be responsible for conducting, managing and supervising the testing. The testing will be carried out at the entomological laboratory of the Sennar Malaria Research and Training Centre (SMRTC), in Sennar state. The Centre has the skilled staff and sophisticated equipment needed to carry out the bio-efficacy testing.

Reports and publications

After each survey round a report will be prepared that will include key findings. The findings will be presented for discussion to the IVM and its partners. At the end of the monitoring period (36 months) a final report will be prepared. This could include recommendations to the IVM and its partners regarding future net selection policies, schedules to replace old nets, and the care and repair of LLINs if applicable.

It is expected that scientific publications will be prepared and submitted to peer reviewed journals, and that the findings will be presented at national and international meetings and conferences.

Indicators

The main indicators to be measured are listed below:

- ✓ Mean % knockdown at 60 minutes
- ✓ Mean % mortality of exposed specimens at 24 hours

References and resources

- WHO/HTM/NDT/WHOPES: Guidelines for monitoring the durability of long-lasting insecticidal mosquito nets under operational conditions. Geneva: World Health Organization; 2011. See: http://www.who.int/malaria/publications/atoz/9789241501705/en/
- WHO/HTM/NTD/WHOPES: Guidelines for laboratory and field testing of long-lasting insecticidal nets. Geneva: World Health Organization; 2013. See: http://www.who.int/iris/bitstream/10665/80270/1/9789241505277_eng.pdf?ua=1

Appendix 5A: LLIN cone bio-assay test report form (English version)

Federal Ministry of Health-Sudan

IVM-Unit

LLIN Tracking System

LLIN cone bioassay test report form

LLIN collection date: ----------/--------/---------- date of test: ----------/----------/----------

Region: ----------State: ----------Locality: ----------Village: ----------

Mosquito strain: ---------- spp: ---------- Sex: ----------abdomen Status: ----------age: ---------

LLIN code:

Region code	State code	Locality code		Village code	Household code		LLIN code

Test conditions:

Item	Temperature	% RH
Start		
After 3 minute		
After 24 hr		

Mosquito tested:

Total number tested	Cone 1	Cone 2	Cone 3	Cone 4	Cone 5 (Roof)	Control

Mosquito knockdown:

Time in minute	Cone 1	Cone 2	Cone 3	Cone 4	Cone 5 (Roof)	Total (1-5)	Control

Start								
10 min								
20 min								
30 min								
40 min								
50 min								
60 min								

Mortality after 24 hours:

Item	Cone 1	Cone 2	Cone 3	Cone 4	Cone 5 (Roof)	Total	Control
Alive							
Dead							

Investigator name: **Signature:** **Date:**

Appendix 5B: LLIN cone bio-assay test report form (Arabic version)

وزارة الصحة الاتحادية

ادارة صحة البيئة – قسم المكافحة المتكامله لنواقل الامراض

نظام متابعة الناموسيات المشبعة

المشبعة الناموسيات **استمارة اختبار الحيوية**

تاريخ جمع الناموسية**:** ---------- تاريخ اجراء اختبار الحيوية**:** ----------

الاقليم--------- الولاية**:** -- **.....** المحلية **.....**اسم العنقود **.**..... رمز العنقود ----------

البعوض المستخدم للاختبار..... الجنس (ذكر\انثي) **.**..... النوع**.** .....لحالة لفسيلوجية**...**.....العمر**.....**.....

معلومات الناموسية المشبعة**:**

_رمز الاقليم رمز الولاية المحلية رمز العنقود رمز الناموسية رمز الاسرة

ظروف الاختبار

البند	**درجة الحرارة**	**الرطوبة**
عند البداية		
بعد 3 دقائق		
بعد 24		

عدد الباعوض المختبر :–

العدد الكلي المختبر	قمع القارنة (control)	قمع 1 (cone 1)	قمع 2 (cone 2)	قمع 3 (cone 3)	قمع4 (cone 4)	قمع 5 السقف (cone 5)

نتيجة الاختبار الباعوض المرتطم بسطح المزلاق بعد التعرض لمدة:

الزمن	قمع القارنة (control)	قمع 1 (cone 1)	قمع 2 (cone 2)	قمع 3 (cone 3)	قمع4 (cone 4)	قمع 5 السقف	المجموع (1–5)

						(cone 5)	
عند البداية							
10 دقائق							
20 دقيقة							
30 دقيقة							
40 دقيقة							
50 دقيقة							
60 دقيقة							
المجموع							

النتيجة النهائية بعد 24 ساعة فترة حضانة

عدد الباعوض	قمع القارنة (control)	قمع 1 (cone 1)	قمع 2 (cone 2)	قمع 3 (cone 3)	قمع4 (cone 4)	قمع 5 السقف (cone 5)	المجموع (1–5)
الحي							
الميت							

اسم المشرف **التوقيع**

التاريخ

Element 6: Monitoring the routine distribution of LLINs through Primary Health Care services

Key information needs

- What is the quality of the implementation of LLIN distribution though the antenatal care and immunization services?
- What needs to be done to improve the planning and implementation of this LLIN distribution strategy?

Background

WHO has recommended that continuous distribution[15] channels should be functional before, during and after the mass distribution campaigns to mop-up universal access to LLINs (WHO, March 2015). In addition to mass campaigns, the IVM/NMCP has identified the routine distribution of LLINs through antenatal care and immunization services to be main channels to maintain universal access to LLINs.

In mid-2015, the IVM/NMCP will introduce the distribution of LLINs through primary health care (PHC) facilities as a way to mop-up LLIN distribution and sustain the universal coverage of LLINs. In the macro-quantification of LLIN needs for 2015, 122,463 nets have been allocated for distribution through the PHC facilities in the 12 states targeted to receive LLINs.

A recent joint statement by RBM working groups and AMP states that the ANC and childhood immunization clinics provided through the PHC services offer an effective channel for the continuous distribution of LLINs (RBM; AMP; February 2015). In Sudan, 4.0% of pregnant women have at least one ANC visit during their pregnancy (CPS, 2008 Sudan population and housing census) and the coverage of immunization is over 80% (annual EPI routine coverage report), thus confirming that distribution of LLINs through the PHC facilities can provide a good opportunity to increase uptake of LLINs by pregnant women and their infants and children.

The IVM/NMCP will need to work closely with the MCH department, MOH, especially in the early stages of planning and implementing the strategy for LLIN distribution through PHC to ensure that LLINs become a part of the PHC package. The integration of a LLIN distribution programme into the PHC services needs to be well planned and understood by those working at various administrative levels of the MOH (national, state and locality).

Good supply management will be important and the stock of LLINs at the distribution sites will need to be assured. Health workers will need to understand the importance of using LLINs to prevent malaria, and be able to correctly convey the key malaria messages in their interpersonal

[15] "The term "continuous" is used to describe distribution systems that deliver bed nets continuously and without interruption over time, as opposed to campaigns which deliver a consignment of nets to a defined target population in a single time-limited operation. "Routine" LLIN systems deliver nets along with other routine health services." (WHO, March 2014).

communications with pregnant women and mothers attending immunization clinics. Orientation and training will be needed at national, state and locality levels of MOH staff and midwives who attend childbirth in the communities.

Partners

The programme planning and implementation will be carried out under the leadership of the IVM/NMCP, working in conjunction with the maternal health and immunization programmes.

Indicators and tracking tools

Indicators: There are a number of process indicators for monitoring the routine distribution of LLINs through the PHC services. Outcome indicators for ownership and use will be measured in the MIS and in the periodic assessment survey. These surveys will be able to identify the relative contribution of LLIN delivery through the PHC centres.

Examples of process indicators that may be appropriate to use are as follows:

- ✓ Number of health service providers adequately trained for LLIN routine distribution
- ✓ Number of LLINs distributed through the ANC and immunization services
- ✓ Proportion of PHC centres that have established the LLIN routine distribution through their antenatal and immunization services
- ✓ Proportion of women who received one LLIN during an ANC visit during their last pregnancy
- ✓ Proportion of children under five years of age who received one LLIN at his/her first immunization visit
- ✓ Proportion of facilities with stock-outs of LLINs
- ✓ Proportion of women who receive malaria BCC messaging from the health care worker
- ✓ Number of monthly monitoring visits to the PHC facility from state-level SMCP staff
- ✓ Proportion of PHC centres that report LLIN distribution in the monthly facility report

Tracking tools

- ➢ Minutes of MOH cross-unit planning meetings
- ➢ Training reports
- ➢ Inventory of IEC materials
- ➢ Stock sheets for LLINs
- ➢ Monthly facility reports

The monitoring data collected on the distribution of LLINs through the PHC facilities will need to be integrated into the routine monthly reporting that is carried out by the health facilities. When a pregnant woman attends an antenatal care clinic and receives a LLIN, the health care worker will record this on the woman's progress/follow up monitoring card (Appendix 6A). When her new-born infant receives his/her first immunization and the mother is given a LLIN, the health care worker will record this on the child's growth monitoring/road-to-health card (Appendix 6B).

Ideally, the ANC and immunization cards would need to be modified to permit the space to record the distribution of a LLIN to the mother. However, the current stock of these charts is very large, so

the planners will need to devise a standard way to record the LLIN distribution using the existing cards.

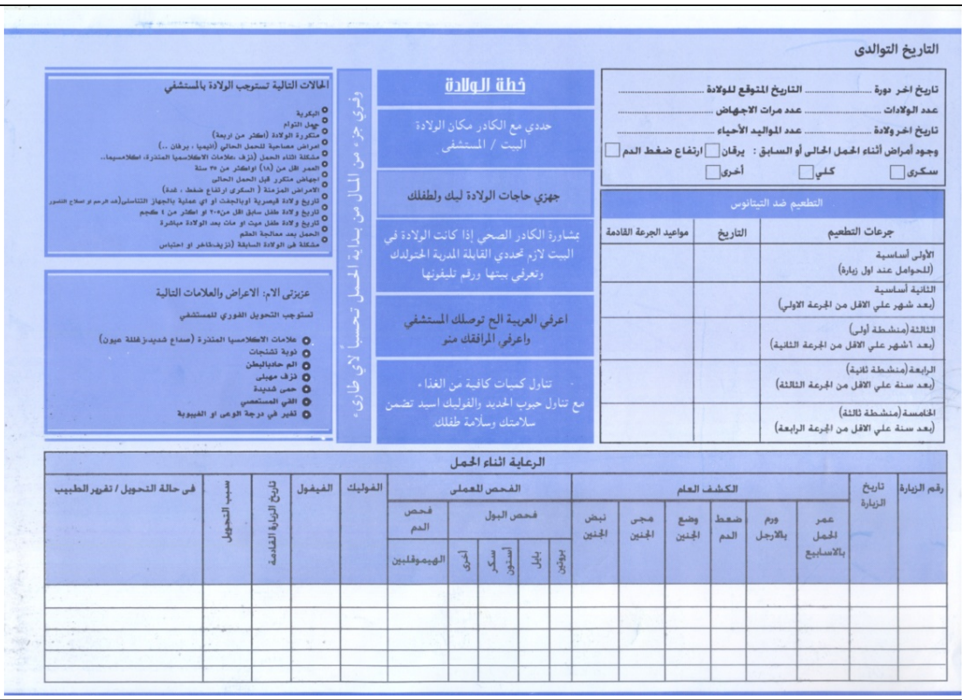
Reports and publications

Since the routine distribution of LLINs through the PHC services is a new strategy implemented by the MOH in 2015, there is the potential for the preparation of reports that document the process of implementing the strategy, and publications that share the lessons learned from this experience.

References and resources

- Roll Back Malaria (RBM) Vector Control Working Group (VCWG), Continuous LLIN Distribution Systems Work Stream; USAID; NetWorks. *Continuous Long-Lasting Insecticidal Net Distributions: A Guide to Concepts and Planning*. December 2011. Available at: http://www.rollbackmalaria.org/files/files/partnership/wg/wg_itn/docs/ws3/3-Guide_to_continuous_distribution_strategy.pdf. Accessed 29 June 2015.
- Roll Back Malaria (RBM) Vector Control Working Group (VCWG) and Malaria in Pregnancy Working Group; AMP. *Continuous Distribution of Long-Lasting Insecticidal Nets in Africa through Antenatal and Immunization Services*: A joint statement by the Roll Back Malaria Working groups on Malaria in Pregnancy and Vector Control and the Alliance for Malaria Prevention. February 2015. Available at: http://www.rollbackmalaria.org/files/files/partnership/4_FLLIN_E.PDF. Accessed 29 June 2015. ,
- WHO, Global Malaria Programme. *WHO recommendations for achieving universal coverage with long-lasting insecticidal nets in malaria control*. September 2013 (revised March 2014). Available at: http://www.who.int/malaria/publications/atoz/who_recommendations_universal_coverage_llins.pdf. Accessed 29 June 2015.
- Central Bureau of Statistics (CBS), 2008 Sudan Population and Housing Census

Appendix 6A: Pregnant woman follow-up form


التاريخ التوالدى

تاريخ اخر دورة .... التاريخ المتوقع للولادة ....

عدد الولادات .... عدد مرات الاجهاض ....

تاريخ اخر ولادة .... عدد المواليد الأحياء ....

وجود أمراض أثناء الحمل الحالى أو السابق : يرقان ☐ ارتفاع ضغط الدم ☐ سكرى ☐ كلي ☐ أخرى ☐

التطعيم ضد التيتانوس

جرعات التطعيم	التاريخ	مواعيد الجرعة القادمة
الأولى أساسية (للحوامل عند اول زيارة)		
الثانية أساسية (بعد شهر علي الاقل من الجرعة الاولي)		
الثالثة (منشطة أولى) (بعد ٦ اشهر علي الاقل من الجرعة الثانية)		
الرابعة (منشطة ثانية) (بعد سنة علي الاقل من الجرعة الثالثة)		
الخامسة (منشطة ثالثة) (بعد سنة علي الاقل من الجرعة الرابعة)		

خطة الولادة

حددي مع الكادر مكان الولادة البيت / المستشفى

جهزي حاجات الولادة ليك ولطفلك

بمشاورة الكادر الصحي إذا كانت الولادة في البيت لازم تحددي القابلة المدربة الحتولدك وتعرفي بيتها ورقم تليفونها

اعرفي العربية الح توصلك المستشفي واعرفي المرافقك منو

تناول كميات كافية من الغذاء مع تناول حبوب الحديد والفوليك اسيد تضمن سلامتك وسلامة طفلك

وفري جزء من المال من بداية الحمل تحسباً لأي طارئ

الحالات التالية تستوجب الولادة بالمستشفي

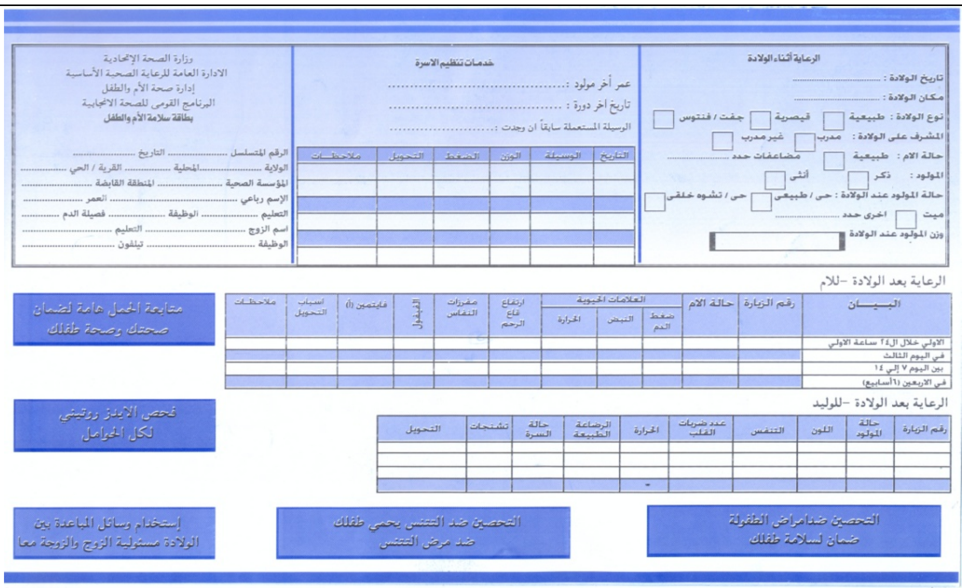
- البكرية
- جهل التوام
- متكررة الولادة (اكثر من اربعة)
- امراض مصاحبة للحمل الحالي (انيميا ، يرقان ..)
- مشكلة اثناء الحمل (نزف ،علامات الاكلامسيا المتذرة، اكلامسيا..
- العمر اقل من (١٨) اواكثر من ٣٥ سنة
- اجهاض متكرر قبل الحمل الحالي
- الامراض المزمنة (السكرى ارتفاع ضغط ، غدة)
- تاريخ ولادة قيصرية اوبالجفت او اي عملية بالجهاز التناسلي
- تاريخ ولادة طفل سابق اقل من ٢٠٠٠ او اكثر من ٤ كجم
- تاريخ ولادة طفل ميت او مات بعد الولادة مباشرة
- الحمل بعد معالجة العقم
- مشكلة فى الولادة السابقة (نزيف،تاخر او احتباس

عزيزتى الام: الاعراض والعلامات التالية تستوجب التحويل الفوري للمستشفي

- علامات الاكلامسيا المتذرة (صداع شديد،زغللة عيون)
- نوبة تشنجات
- الم حادبالبطن
- نزف مهبلى
- حمى شديدة
- القي المستعصي
- تغير في درجة الوعى او الغيبوبة

الرعاية اثناء الحمل

رقم الزيارة	تاريخ الزيارة	الكشف العام: عمر الحمل بالاسابيع	ورم بالارجل	ضغط الدم	وضع الجنين	مجى الجنين	نبض الجنين	الفحص المعملى: فحص البول: بروتين	بايل	أستون	سكر	أخرى	فحص الدم: الهيموقلبين	الفوليك	الفيفول	تاريخ الزيارة القادمة	سبب التحويل	فى حالة التحويل / تقرير الطبيب


وزارة الصحة الإتحادية
الادارة العامة للرعاية الصحية الأساسية
إدارة صحة الأم والطفل
البرنامج القومى للصحة الانجابية
بطاقة سلامة الأم والطفل

الرقم المتسلسل .... التاريخ ....
الولاية .... المحلية .... القرية / الحي ....
المؤسسة الصحية .... المنطقة القابضة ....
الإسم رباعي .... العمر ....
التعليم .... الوظيفة .... فصيلة الدم ....
اسم الزوج .... التعليم ....
الوظيفة .... تيلفون ....

خدمات تنظيم الاسرة

عمر أخر مولود : ....
تاريخ اخر دورة : ....
الوسيلة المستعملة سابقاً ان وجدت : ....

التاريخ	الوسيلة	الوزن	الضغط	التحويل	ملاحظات

الرعاية أثناء الولادة

تاريخ الولادة : ....
مكان الولادة : ....
نوع الولادة : طبيعية ☐ قيصرية ☐ جفت / فنتوس ☐
المشرف على الولادة : مدرب ☐ غير مدرب ☐
حالة الام : طبيعية ☐ مضاعفات حدد ....
المولود : ذكر ☐ أنثى ☐
حالة المولود عند الولادة : حى / طبيعى ☐ حى / تشوه خلقى ☐
ميت ☐ اخرى حدد ....
وزن المولود عند الولادة ☐

الرعاية بعد الولادة –للام

البيــــان	رقم الزيارة	حالة الام	العلامات الحيوية: ضغط الدم	النبض	الحرارة	ارتفاع قاع الرحم	مفرزات النفاس	الفيفول	فايتمين (أ)	اسباب التحويل	ملاحظات
الاولي خلال ال٢٤ ساعة الاولي											
في اليوم الثالث											
بين اليوم ٧ إلي ١٤											
في الاربعين (٦أسابيع)											

الرعاية بعد الولادة –للوليد

رقم الزيارة	حالة المولود	اللون	التنفس	عدد ضربات القلب	الحرارة	الرضاعة الطبيعة	حالة السرة	تشنجات	التحويل
					-				

متابعة الحمل هامة لضمان صحتك وصحة طفلك

فحص الايدز روتيني لكل الحوامل

التحصين ضدامراض الطفولة ضمان لسلامة طفلك

التحصين ضد التتنس يحمي طفلك ضد مرض التتنس

إستخدام وسائل المباعدة بين الولادة مسئولية الزوج والزوجة معا

Appendix 6B: Children under five years of age growth rate follow-up form

جمهورية السودان
وزارة الصحة الإتحادية

كرت الطريق إلى الصحة

الرقم المتسلسل:
تاريخ إستخراج الكرت:
الولاية:
المحلية:
إسم المؤسسة الصحية:
إستراتيجية تقديم خدمة التحصين :
ثابت ☐ فرعي ☐ جوال ☐

البيانات الشخصية:
إسم الطفل: النـوع:
تاريخ الميلاد : عمر الطفل :
ترتيب الطفل:
مكان الولادة :
القياسات عند الولادة : الوزن : الطول:
الأمراض المزمنة بالأسرة إن وجدت:
الســكن :
تلفون المعتني بالطفل:
تلفون المركز/الفني إن وجد:

عزيزتي الأم
- شكراً لزيارتك للمركز وحرصك على التطعيم ومتابعة نمو طفلك.
- راجعي مع العامل الصحي مواعيد، نوع ومكان الجرعة القادمة وزيارة متابعة النمو.
- احرصي على اكمال الجرعات المقررة لك ولطفلك.
- تعرفي علي الآثار الجانبية المحتملة وكيفية التعامل معها.
- إحرصي على الإحتفاظ بالكرت واحضاره عند كل زيارة لك ولطفلك.

RAWAA For Printing

الوزن للعمر - بنات من صفر - ٥ سنوات

الوزن (كجم)

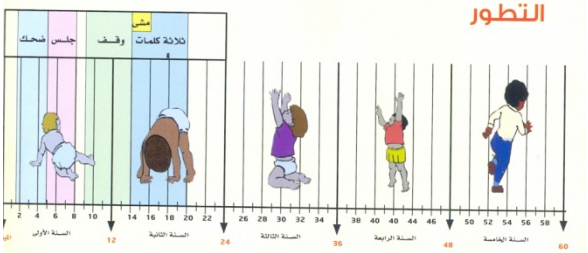
الولادة | ٦ | ١٢ | ١٨ | ٢٤ | ٣٠ | ٣٦ | ٤٢ | ٤٨ | ٥٤ | ٦٠
سنة | سنتين | ٣سنوات | ٤ سنوات | ٥ سنوات

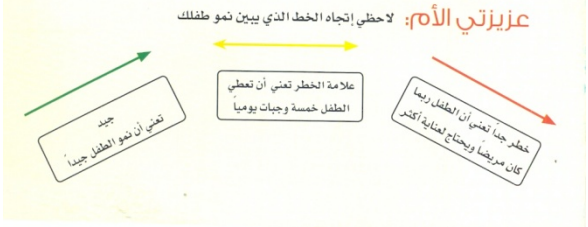
الطول / الإرتفاع للعمر - بنات من صفر - ٥ سنوات

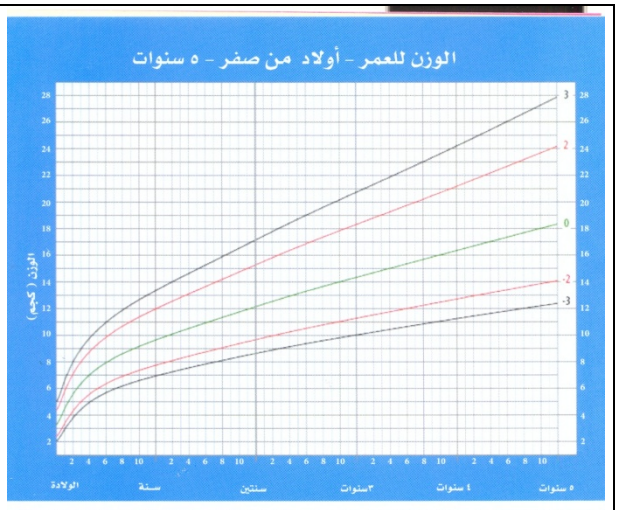
الوزن (كجم)

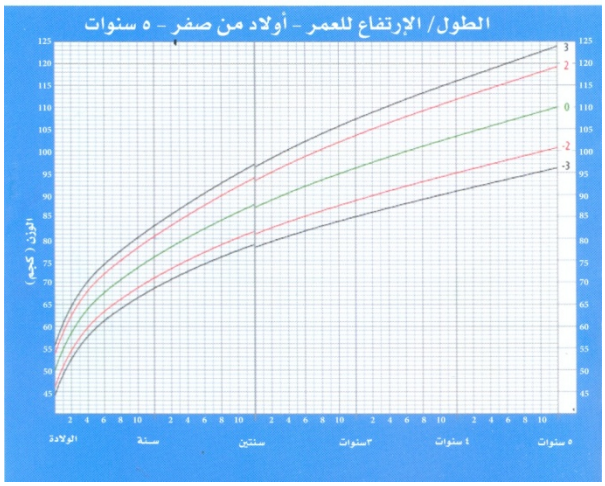
الولادة | ٦ | ١٢ | ١٨ | ٢٤ | ٣٠ | ٣٦ | ٤٢ | ٤٨ | ٥٤ | ٦٠
سنة | سنتين | ٣سنوات | ٤ سنوات | ٥ سنوات

الزيارات الأساسية	تاريخ الزيارة	الوزن (كجم)	الطول (سم)
عند الولادة			
٠- أقل من ٣ شهور			
٣- أقل من ٦ شهور			
٦- أقل من ٩ شهور			
٩- أقل من ١٢ شهر			
١٢- أقل من ١٦ شهر			
١٦- أقل من ٢٠ شهر			
٢٠- أقل من ٢٤ شهر			
٢٤- أقل من ٣٠ شهر			
٣٠- أقل من ٣٦ شهر			
٣٦- أقل من ٤٢ شهر			
٤٢- أقل من ٤٨ شهر			
٤٨- أقل من ٥٤ شهر			
٥٤- أقل من ٦٠ شهر			









تطعيمات الطفل

تاريخ الميلاد :

نوع اللقاح	زمن الجرعة	الجرعة	تاريخ الجرعة الحالية	تاريخ الجرعة القادمة
السل جرعة واحدة	عند الولادة			
شلل فموي ٤ جرعات	عند الولادة	الجرعة الصفرية *		
	٦ أسابيع	الأولى		
	١٠ أسابيع	الثانية		
	١٤ أسبوع	الثالثة		
شلل (عضلي) جرعة واحدة	١٤ أسبوع	جرعة واحدة		
الخماسي ٣ جرعات	٦ أسابيع	الأولى		
	١٠ أسابيع	الثانية		
	١٤ أسبوع	الثالثة		
المكورات الرئوية ٣ جرعات	٦ أسابيع	الأولى		
	١٠ أسابيع	الثانية		
	١٤ أسبوع	الثالثة		
الروتا** جرعتان	٦ أسابيع	الأولى		
	١٠ أسابيع	الثانية		
الحصبة جرعتان	٩ شهور	الأولى		
	١٨ شهرا	الثانية		

* لقاح الشلل: تعطى جرعة الشلل الصفرية منذ الولادة حتى إسبوعين فقط.

** لقاح الروتا: يجب اعطاء الجرعة الأولى خلال الفترة من ٦ الى ١٥ أسبوع فقط من ولادة الطفل على ألا يتجاوز عمر الطفل عند الجرعة الثانية ٨ أشهر.

التطعيم يحمي طفلك من أمراض الطفولة

عزيزتي الأم:

*** الرضاعة الطبيعية المطلقة:**

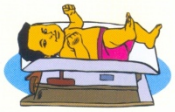
رضعي طفلك لبنك فقط وماتديهو حتي الموية لحدي عمر ٦ شهور ..

*** التغذية التكميلية:**

في الشهر ال٧ أبدي اكليهو تدريجياً أطعمة مهروسة وشبه سائلة وواصلي الرضاعة لحدي عمر سنتين..

*** متابعة نمو الطفل:**

- متابعة نمو طفلك مهم ولازم توزنيهو دورياً .



*** الاستمرار في التغذية أثناء المرض:**

- أثناء المرض كتري من السوائل والاكل واستمري في الرضاعة .
- سارعي بأخذ طفلك إلى المؤسسة الصحية عند ظهور أعراض أي مرض.

*** علاج الطفل المصاب بالإسهال:**

- طفلك العندو إسهال لازم تديهو ملح الإرواء وعلاج الزنك.

Element 7: Monitoring Behaviour Change Communication (BCC)

Key information needs

- Which BCC activities are taking place throughout the year? How well are they being carried out?
- Is the LLIN campaign on track with respect to the communications planning and activities? How well is the work going? Is the correct messaging being done?
- Are the planned communications activities taking place when delivering LLINs through the PHC services? How well are they being carried out?

Background

Communication is an essential component of the Health Promotion programme for the prevention of malaria through the use of LLINs. Without a strategically planned, behaviourally focused communication programme, the success of the intervention will be jeopardized. When LLINs are distributed (whether through campaigns or through PHC services), behaviour change communication (BCC) is essential to help ensure that beneficiaries hang their nets, use them consistently, care for them and repair them (AMP toolkit, Chapter 6).

There are three main categories of communication: advocacy, social mobilization and BCC (AMP toolkit, Chapter 6). The FMOH has adopted COMBI (communications for behavioural impact) for use in malaria communications. COMBI is a specific behaviourally focused communication approach. See Appendix 7A for descriptions of the above categories and terms used in communications programming.

While BCC is an essential component of campaigns to scale up LLIN coverage, BCC interventions must also take place throughout the year.

With the introduction in mid-2015 of the distribution of LLINs through PHC services, BCC will need to be a strong component to ensure success of the continuous delivery system. When LLINs are distributed through the routine health services, the health service planners and providers will play an essential communications role.

All levels will need to know what the key messages are, and understand the vital importance of effective communications. At the health centres, pregnant women and mothers must receive clear and consistent messages about the hanging, use and care of LLINs.

Communication actions and activities

The FMOH has developed a set of communication objectives and key generic messages that support the achievement of the desired behaviours (Appendix 7B).

There is a broad range of communications activities that needs to be carried out. Work needs to be done at central, state, locality and village levels. Social mobilization (administrative and community) helps to strengthen the BCC efforts.

The key messages and communications can be tailored to specific audiences using a variety of different communications channels. Both mass communications and interpersonal communications are valued and used.

A variety of communication channels are used, for example:

- Radio
- Television (talk shows, news coverage, discussion programmes, soap opera)
- Newspapers (press releases)
- Print media (posters, pamphlets, leaflets, banners)
- Meetings/discussions with various categories of government leadership, service providers, administrators
- Partnership meetings
- Celebrity spokespersons
- LLIN campaign launch
- Community meetings and discussions
- Public address system (mobile "speakers")
- Household visits
- Mobile theatres
- Workshops
- Demonstrations

Specific audiences include:

- General public
- Mass media (radio, television, journalists)
- Opinion leaders
- Politicians
- Health workers
- Community leaders
- Community volunteers
- NGO leaders and organizations
- Community-based midwives
- Household heads and members

BCC and IEC materials are developed, produced and disseminated by the Health Promotion Unit, FMOH, under the guidance and supervision of the NMCP. The materials are developed and field-tested in Arabic, and where appropriate, translated into local languages and dialects. See Appendix 7C for a core IEC material used in all mass campaigns to communicate the key BCC messages.

Select NGOs with expertise in the area of BCC/IEC may be contracted for carrying out certain activities (e.g., development, production and dissemination of BCC/IEC print or mass media materials).

BCC is also an essential component of malaria programmes to reach POCs. When LLINs are distributed to POC, the partners should also use the BCC/COMBI approach and convey the key messages adequately. The key messages may need to be tailored to these populations.

Indicators

The BCC indicators will mainly be input, process and output indicators[16]. Some examples are as follows, shown for each of the three ways that BCC activities are delivered. Since no single communication activity will have the desired behavioural impact, monitoring will often involve the tracking of many indicators.

BCC activities throughout the year

- ✓ Number of IEC materials (re)printed and distributed (leaflets, posters, banners, fact sheets)
- ✓ Number of planning and supervision visits made
- ✓ Number of radio spots aired (by date, by language)
- ✓ Number of television messages/spots
- ✓ Number of effective drama teams trained
- ✓ Number of mobile theatre events held
- ✓ Number of schools, teachers and students involved
- ✓ Number and type of health personnel engaged (e.g., health centre staff, community midwife)

BCC as part of an LLIN campaign[17]

Before the campaign:

- ✓ Number of radio spots aired (by date, by language)
- ✓ Number of television messages/spots
- ✓ Number of effective drama teams trained
- ✓ Number of orientations held at locality level for NMCP and MOH staff
- ✓ Number of community volunteers trained receiving the correct BCC messages

During the campaign:

- ✓ Number and type of events held in each locality and level of participation by dignitaries and community leaders
- ✓ Number of mobile theatre performances held
- ✓ Number of leaflets with messages distributed
- ✓ Number of messages disseminated by local radio stations, community radio, mobile microphone, and mobile theatre

Post-campaign:

- ✓ Number of household visits made by community volunteers to reinforce key messages
- ✓ Media spots reinforcing BCC messages

[16] Communications-related outcome indicators will be measured during the periodic assessment survey and the MIS.

[17] The BCC indicators are important to measure and will be used for process monitoring of LLIN campaigns. The indicators listed here are additional to the sample indicators shown in Element *3, Process assessment of the campaign.*

- ✓ Community groups reinforcing BCC messages

BCC as part of LLIN distribution through PHC services

- ✓ Number of adequately trained supervisory personnel (central, state and locality levels)
- ✓ Number of staff trained on BCC key messages and interpersonal communications
- ✓ Malaria BCC is part of the curriculum for PHC health workers' training
- ✓ Number of educational materials available at the health centre

Tracking tools

A number of tools can be used for monitoring the BCC interventions, as listed below. Supervisors' checklists and monitoring forms can generally be a good tool for the inclusion of indicators to monitor communications activities.

- ➢ Standardized reporting form for media communications
- ➢ Inventory of materials
- ➢ Monitoring visits to the state and locality by PNLP staff using a developed checklist to include (for example) progress of activities against the communication work plan
- ➢ Supervisor's checklists
- ➢ Training checklist
- ➢ Reports from training activities
- ➢ Volunteers' reports
- ➢ Activity reports
- ➢ Standardized forms to record planned social mobilization activities
- ➢ Exit interviews with beneficiaries as they leave distribution posts

The review of available tracking tools and the possible development of new tools are under consideration by the PNLP and the Health Promotion Unit.

Reports

On an annual basis, a malaria BCC/communication report is produced.

Partners

The NMCP works closely with the health promotion unit, FMOH, on the BCC programme. The PHC unit, MOH, is an important partner too. Besides the MOH, other ministries can become involved in malaria communications, and social mobilization and advocacy: for example, the Federal Ministry of Education and Teaching; Federal Ministry of Welfare and Social Development; and the state level Ministry of Social and Cultural Affairs.

A range of partners can be involved in advocacy, community outreach and communications at the locality and community level, including: opinion leaders such as political, community and religious leaders and influential people; health workers; NGOs; community based organizations (CBOs); Trades

Union; teachers and students; and others. Their work can contribute to mass campaigns, distribution of LLINs through PHC, and to BCC that needs to take place throughout the year.

For POC, UNICEF will be a main partner for programmes for IDPs, and UNHCR for refugees. NGOs too can be actively involved in LLIN distribution and health care service provision to POC.

References and resources

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Appendix 7A: Definitions for IEC, community mobilization, BCC, COMBI and social mobilization

Information, Education and Communication (IEC)

IEC in health aims to increase awareness, change attitudes and bring about a change in specific behaviours. It means sharing information and ideas in a way that is culturally sensitive and acceptable to the community using appropriate channels, messages and methods. It is therefore broader than developing health education materials, because it includes the process of communication and building social networks for communication, information and education[18].

Community mobilization

"*Community mobilization is a process through which action is stimulated by a community itself or by others, that is planned, carried out and evaluated by a community of individuals, groups and organizations on a participatory and sustained basis to improve the health, hygiene and education levels so as to enhance the overall standard of living in the community.*

A group of people have transcended their differences to meet on equal terms in order to facilitate a participatory decision–making process. In other words community mobilization can be viewed as a process that begins a dialogue among members of the community to determine who, what, and how issues are decided, and also to provide an avenue for everyone to participate in decisions that affect their lives[19]."

Behaviour change communication (BCC)

"Behaviour change communication is the process of using communication to encourage continuous positive behaviours. In the case of LLIN distribution campaigns, BCC is important to ensure that beneficiaries use nets consistently and maintain and repair them. BCC works by influencing factors like social norms, perceptions of risk and self-efficacy. By changing these factors, BCC can promote and sustain individual, family, community and societal behaviour change. BCC works best when multiple communication channels are used, and when messages are tailored to communities." (AMP Toolkit, Chapter 6, p. 6-1).

"BCC encompasses health communication, and social and community mobilization, and it evolved from information, education and communications (IEC) strategies." (Koenker, H. et al, 2014).

COMBI (Communications for behavioural impact)

As described in the WHO Communication for Behavioural Impact (COMBI) toolkit (2012)[20]:

[18] Ministry of Health and Child Welfare/Zimbabwe National Family Planning Council, *IEC Reference Manual for Health Programme Managers*. See: https://www.k4health.org/sites/default/files/IEC%20Reference%20Manual%20for%20Health%20Programme%20Managers.pdf.

[19] Wikipedia. See https://en.wikipedia.org/wiki/Community_mobilization

[20] WHO (2012), Communication for behavioural impact: field workbook. See http://www.who.int/ihr/publications/combi_toolkit_fieldwkbk_outbreaks/en

"COMBI is a planning framework and an implementation method for using communication strategically to achieve positive behavioural and social results in public health programs. COMBI stems from consumer communications, linking education and information with marketing. COMBI is based on marketing models, and communication theory and practice.

"Conventional IEC programs in health have been able to increase awareness and knowledge but have not been successful at achieving behavioural results.

"COMBI incorporates lessons learnt from five decades of public health communication and private sector marketing. The main goal of COMBI is to achieve specific behavioural results.

"COMBI was used during the Ebola outbreak in Sudan in 2004 and is currently being used in the malaria control program."

Another WHO brief on COMBI (WHO 2004) notes the following:

"COMBI is social mobilization directed at the task of mobilizing all societal and personal influences on an individual and family to prompt individual and family action. It is a process that blends strategically a variety of communication interventions intended to engage individuals and families in considering recommended healthy behaviours and to encourage the adoption and maintenance of those behaviours. COMBI incorporates many lessons of the past 50 years of health education and communication in a behaviourally focused manner. COMBI also draws substantially from the experience of the private sector in consumer communication.

"Its methodology effectively integrates health education, information-education-communication (IEC), community mobilization, consumer communication techniques and market research, all directed sharply and smartly to specific, precise behavioural outcomes in health.

"COMBI involves five integrated communication actions for achieving communication and behavioural results. People are engaged in a review and analysis of the suggested healthy behaviour through a strategic blend of five integrated communication actions in a variety of settings, appropriate to the "market" circumstances and recognizing that that there is no single magical communication intervention. The five integrated communication actions are as follows.

1. Public Relations/Advocacy/Administrative Mobilization
2. Community Mobilization
3. Sustained Appropriate Advertising
4. Personal Selling (Interpersonal Communication/Counselling), and
5. Point-of-Service Promotion

"The key element for planning COMBI programmes is to strive for an integrated approach with a judicious blending and selection of communication actions appropriate to the behavioural outcome desired, and not to believe that one single kind of communication intervention is all-powerful."

Social mobilization

WHO describes social mobilization as planned mobilization of social and personal influences in all sectors, with the aim of prompting individual, family, community and social action.

"Social mobilization has two aspects: administrative mobilization and community mobilization. Administrative mobilization is concerned with getting the particular health behaviour on the public and administrative/programme management agenda. It is important to address community culture, beliefs and practices in order to avoid a negative response to social mobilization." (WHO, COMBI toolkit)

"Social mobilization in the context of campaigns means mobilizing communities to take full advantage of campaign and post-campaign activities. Social mobilization activities focus on informing target groups of the dates and locations of the campaigns, including registration and distribution, and what to expect from household visits. It is the information needed to ensure high levels of participation in the campaign activities." (AMP Toolkit, chapter 6, p.6.1)

Appendix 7B: Communication objectives and key BCC messages

Communication objectives

- Increase the awareness of the individual's sense of personal risk to getting malaria throughout the year, especially during periods of transmission
- Engage household members in understanding the tangible benefits of using LLINs
- Encourage household members to use LLINs continuously
- Increase the understanding among the political and administrative and household members that LLINs are a viable and cost-effective means of controlling malaria in Sudan
- Increase the understanding for all pregnant women and children under the age of five years (through their care-givers) to sleep consistently under LLINs
- Increase the understanding of household members to look after LLINs and repair them
- Increase household member's sense of ownership of LLINs

Key messages

The key messages address the communication objectives. The messages have been developed by the FMOH and are shown below.

- Hang the LLINs immediately after the sun set
- Make sure that your net is free of holes.
- Repair the holes and ensure safety of the net.
- Use the LLINs consistently for you and your family members daily.
- Keep your net from rainwater, direct sunlight and dust.
- Avoid washing your net with soap powder.
- Don't dry your net under direct sun light.
- Keep your net away from children in the morning to avoid dirt and to ensure its safety.

Appendix 7C: Sample of core IEC material, the two-page laminated brochure that is distributed along with LLINs during mass campaigns. Key behavioural messages are emphasized.

وزارة الصحة الإتحادية

مشروع تشجيع إستخدام الناموسيات المشبعة

(الناموسية المشبعة تريح بالك وتحمى عيالك وتوفر مالك)

تعتبر الملاريا من أكبر المشاكل الصحية فى السودان وهى مرض ذو علاقة بالمياه ويسببه طفيل البلازموديوم الذي ينتقل عن طريق لسعات أنثى بعوض الأنوفلس عندما تتغذى على دم الانسان ويلي ذلك ظهور أعراض المرض بعد حوالي (٧-١٢) يوم والتي تتمثل في (حمى ، آلام في المفاصل ، إستفراغ ، إسهال).

تعتبر الناموسية المشبعة من أفضل الوسائل لحماية الإنسان من لسعات البعوض والحشرات الأخرى (مثل الذباب الرملي...) والتي بدورها تحمى من خطر الإصابة بالأمراض التي تنقلها تلك الحشرات و من أهمها مرض (الملاريا والفلاريا والليشمانيا).

الناموسية المشبعة:

هي ناموسية يتم إضافة مبيد ذو أثر باقي لها ولا يؤثر علي صحة الإنسان

مميزات الناموسية المشبعة:-

١- تمنع وصول البعوض للإنسان.
٢- تطرد البعوض من المكان الذي به الناموسية.
٣- تقتل البعوض.

لضمان فاعلية الناموسية المشبعة يجب أن تستخدم بصورة صحيحة عليه:-

- ثبت الناموسية المشبعة بعد مغيب الشمس مباشرة.
- تأكد من خلو الناموسية المشبعة من الثقوب.
- إحرص على اصلاح الثقوب وسلامة الناموسية.
- إستخـــدم الناموسية المشبعة يوميـا لك ولافراد أسرتك.
- حافظ على الناموسية المشبعة من الأتربة ومياه الأمطار وأشعة الشمس.
- إحرص على عدم غسل الناموسية بصابون البودرة.
- إحرص على عدم شرها فى اشعة الشمس المباشرة.
- إحرص على حفظ الناموسية فى الصباح بعيداً عن الاطفال لتجنب اتساخها وسلامتها.

(Brochure, page 2 of 2)

الناموسية المشبعة من أنجع وسائل مكافحة الملاريا ووسيلة كافية لحماية أفراد الأسرة وخاصة الأطفال الأقل من سن خمسة سنوات والنساء الحوامل من مرض الملاريا

فأحرص عزيزي المواطن على إستخدامها لك ولأفراد أسرتك ومساعدتهم في تركيبها يوميا علي السرير وفكها وحفظها في الصباح وضمان سلامتها.

Appendix 4B: The periodic assessment questionnaire (English version)

LLIN Periodic assessment survey questionnaire

IDENTIFICATION

Region _____

State _____

Locality

Village/Block

_____

Household Number

Cluster Number ☐☐ ☐☐

ID Number Cluster number followed by Household number ☐☐ ☐☐ ← Enter this number at the top of each page

HOUSEHOLD VISIT

B1	Household visit details Date of visit _____ 0 = recipient not home 1 = recipient home and consented to interview 2 = recipient home but refused to interview		Visit 1 ☐	Visit 2 ☐ Visit 3 ☐
B2	Date of interview dd/mm/yyyy		☐☐ / ☐☐ / ☐☐☐☐	
B3	Interviewer Name_____ Tel No. _____	Code	☐☐☐☐	

INTRODUCTION AND CONSENT

Go with the respondent through the consent form

Respondent agrees to be interviewed.....	**1**	**Go to Q01**
Respondent does not agree to be interviewed……	**0**	**End**

SECTION 1: People living in the household and visitors

Line No.	Usual residents	Relationship to head of household	Sex	Residence		Age
	Please give me the **first names** of the persons who usually live in your household and the visitors who slept here last night	What is the relationship of (NAME) to the head of the household?*	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? If less than 1 year write 00 in the box. **If don't know write 'NK'**
Q01	Q02	Q03	Q04	Q05	Q06	Q07
			M F	Yes No	Yes No	
01			1 2	1 0	1 0	Years
02			1 2	1 0	1 0	Years
03			1 2	1 0	1 0	Years
04			1 2	1 0	1 0	Years
05			1 2	1 0	1 0	Years
06			1 2	1 0	1 0	Years
07			1 2	1 0	1 0	Years
08			1 2	1 0	1 0	Years

09			1 2	1 0	1 0	Years
10			1 2	1 0	1 0	Years
11			1 2	1 0	1 0	Years
12			1 2	1 0	1 0	Years
13			1 2	1 0	1 0	
14			1 2	1 0	1 0	
15			1 2	1 0	1 0	Years

Codes for Q3: Relationship to household head

01=head	04=son/daughter in law	07=parent in law	10=adopted/foster/stepchild
02=wife/husband/partner	05=grandchild	08=brother/sister/in law	11=not related
03=son/daughter	06=parent	09=other relative	98=don't know

In households of the second, third and fourth wife, she is the head of the household.

SECTION2: Household characteristics and net ownership

No	Question	Categories	Skip
We would first like to ask some questions about the head of household, characteristics of the house and possessions of the household			
Q08	Who is responding to this questionnaire?	Line number of respondent	
Q09	Can the head of household read and write?	Yes 1 No 0 Don't know 9	
Q10	Are there other household members who can read and write?	Yes 1 No 0	

No	Question	Categories		Skip
		Don't know	9	
Q11	Has the head of the household ever attended school?			
		Yes	1	
		No	0	**No or DNK ⇨Q13**
		Don't know	9	
Q12	What was the highest level of school the head of the household attended? (Primary, Secondary, Higher)	Khalwa	1	
		Primary	2	
		Secondary	3	
		Higher	4	
		Don't know	9	
Q13	What is the main material of the roof? RECORD OBSERVATION			
		Grass/Papyrus/Banana leaves	1	
		Thatch	2	
		Zinc/Iron/Aluminium sheets	3	
		Plastic sheeting	4	
Q14	What is the main material of the walls? RECORD OBSERVATION			
		Grass	1	
		Mud	2	
		Canvas	3	
		Brick/Concrete	4	
Q15	What is the main material of the floor? RECORD OBSERVATION			
		Earth or sand	1	
		Clay	2	
		Wood, bamboo or palm	3	
		Vinyl or parquet	4	
		Tiles or cement	5	
Q16	How many rooms does your household have?	☐☐		

No	Question	Categories		Skip
Q17	How many of these rooms are used for sleeping?	☐☐		
Q18	How many sleeping places are used by this household (beds, mattresses, mats or rugs, etc.)? ***>>Ask for both inside the hut and outside***	☐☐		
Q19	Do you ever store food or crop in any of the rooms used for sleeping?	Yes	1	
		No	0	
		Don't know	9	
Q20	What is the main source of drinking water?	Surface water (stream, river, lake, pond, irrigation channel etc.)	1	
		Rain water, gutter pipe	2	
		Protected well (public or private)	3	
		Public tube well or borehole	4	
		Public tap or standpipe	5	
		Piped into dwelling Reservoir/Hafeer Hand pump Tankering/Vending	6	
		Other, specify:_____	7	
Q21	What type of toilet facility is available to the household?	Opens space/Bush	1	
		Shared pit latrine	2	
		Own pit latrine	3	
		Shared improved pit latrine	4	
		Own improved pit latrine	5	
		Shared flush toilet	6	
		Own flush toilet	7	

No	Question	Categories		Skip
Q22	What is the main energy source for cooking?			
		Firewood	1	
		Charcoal	2	
		Kerosene	3	
		Gas	4	
		Electricity	5	
		Dung	6	
Q23	Do you ever cook in a room that is also used for sleeping?			
		Always	1	
		Sometimes	2	
		Never	3	
		Don't know	9	
Q24	In the last 6 months, have you seen any rats or mice in your house (sleeping rooms) or their traces (faeces or damage)?			
		Yes	1	
		No	0	
		Don't know	9	
Q25	Does the household (any member) have any of the following			
			Yes	No
		Radio	1	0
		Television	1	0
		Refrigerator	1	0
		Electric fan	1	0
		Electric iron	1	0
		Simple Mobile phone(s)	1	0
		Smartphone or IPad etc.	1	0
		Computer	1	0
Q26	Does the household (any member) have any means of transport?			
			Yes	No
		Bicycle	1	0
		Motor	1	0
		Car or truck	1	0

No	Question	Categories			Skip
		Animal or animal cart	1	0	
		Donkey /Camel/ Horse	1	0	
		Canoe, boat or ship	1	0	
Q27	Does your household own any livestock animals? **>>read out the list**		Yes	No	
		Chicken	1	0	
		Ducks and pigeons	1	0	
		Goats or sheep	1	0	
		Camel	1	0	
		Cows	1	0	
		Donkeys/Mule	1	0	
		Other-Specify_____			
Q28	Does the household own land used for agriculture or farming?				
		Yes	1		
		No	0		**No ⇨Q30**
Q29	If yes, indicate approximate size In Feddan (1 fed=4200 sq m) **>> write 99.9 if unknown**	□□.□			
We would now like to ask some questions about the mosquito nets in your household					
Q30	Does the household own any mosquito nets for sleeping under?				
		Yes	1		
		No	0		**No ⇨ BCC section**
Q31	If yes, how many mosquito nets does the household have at this time? ***>> probe for any nets currently not in use***	□□			
Q32	How many nets did your household receive from the last LLIN mass campaign?	□□			
Q33	Did your household obtain any mosquito nets				

No	Question	Categories		Skip
	since the campaign from any other source?	Yes	1	
		No	0	**No or DNK⇨Q36**
		Don't know	9	
Q34	How many nets did your household obtain (received or bought) in total since the campaign including those you may no longer have?	☐☐		
Q35	Did you obtain these additional mosquito nets from the following sources?			
			Yes	No
		Antenatal care services	1	0
		Immunization services	1	0
		Health facility/hospital	1	0
		Relatives or friends	1	0
		NGO	1	0
		Shop or pharmacy	1	0
		Market or hawker	1	0
		Other	1	0

SECTION3: Lost nets from campaign

No	Question	Categories		Skip
We would now like to ask some questions about the LLIN mosquito nets the household received from the last bed net distribution campaign				
Q36	***>>interviewer enters number of LLINs as recorded on the household registration form***	☐		

No	Question	Categories		Skip
Q37	Let me check if I have this correct: the number of nets you said your household received was <number provided in question # 32>but I need to clarify: My record show you received <x> LLINs. So, could you please tell me what was the number of nets this household received from the campaign? **>>interviewer to record the number of nets said by the respondent**	☐		
Q38	Are ALL these nets still in the possession of the household?	Yes	1	**Yes⇨Q44, section 4**
		No	0	
Q39	If not, how many of the nets are still in the possession of the household?	☐		
40	Calculate the number of missing nets (Q37 minus Q39), record the number and proceed to Q41-43 for each net lost ***>>Interviewer to calculate***	☐		

Please enter the following information FOR EACH NET "LOST" (IF NO NETS LOST GO TO SECTION 4)

No	Question	Categories	Net 1	Net 2	Net 3
Q41	How long did you have this net?	**>> enter 00 for below 1 month** **>>enter 98 for "do not know"**	☐☐ Months	☐☐ Months	☐☐ Months
Q42	Can you tell me what happened to the net?				
		Net was stolen	1	1	1
		Net was destroyed accidentally	2	2	2
		Net was sold	3	3	3
		Net was given away to relatives	4	4	4
		Net was given away to others	5	5	5
		Net was thrown away	6	6	6
		Material used for other purpose	7	7	7
		Other	8	8	8
		Don't know	9	9	9

No	Question	Categories			Skip
		Specify other			
Q43	Why did you not keep this net? ***>>enter first reason mentioned***				
		Net was too torn, too many holes	1	1	1
		Net was too dirty	2	2	2
		Net was not needed at the time	3	3	3
		We did not like this net	4	4	4
		Needed the money	5	5	5
		Other	6	6	6
		Don't know	9	9	9
		Specify other			

SECTION 4: Campaign nets owned by the household

No	Question	Mosquito net 1		Mosquito net 2		Mosquito net 3		Mosquito net 4	
We would now like to inspect all the mosquito nets the household owns from the campaign and ask some questions about them ***Complete all information on one net before moving to the next net***									
Q44	***Observe the net and net label and identify the brand of the net***								
		Is PermaNet	1	Is PermaNet	1	Is PermaNet	1	Is PermaNet	1
		Is Yorkool	2	Is Yorkool	2	Is Yorkool	2	Is Yorkool	2
		Is Dawanet	3	Is Dawanet	3	Is Dawanet	3	Is Dawanet	3
		Is Interceptor	4	Is Interceptor	4	Is Interceptor	4	Is Interceptor	4
		Is **NOT** Campaign net	0	Is **NOT** Campaign net	0	Is **NOT** Campaign net	0	Is **NOT** Campaign net	0
Q45	What is the shape of the net?								
		Rectangular	1	Rectangular	1	Rectangular	1	Rectangular	1
		Conical	0	Conical	0	Conical	0	Conical	0
Q46	What is the colour of the net?								
		White	1	White	1	White	1	White	1
		Other	0	Other	0	Other	0	Other	0
Q47	This net was obtained from the campaign in ___ of 20__?								
		Yes	1	Yes	1	Yes	1	yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
If Q44 to 47 are all marked as (1), the net is confirmed as campaign net (and given an ID number if LLIN selected for bio-efficacy study)		Is campaign net		Is campaign net		Is campaign net		Is campaign net	
		Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
Q48	Where was the net found?								
		Hanging loose over sleeping place	1	Hanging loose over sleeping place	1	Hanging loose over sleeping place	1	Hanging loose over sleeping place	1
		Hanging and folded up or tied	2	Hanging and folded up or tied	2	Hanging and folded up or tied	2	Hanging and folded up or tied	2
		Not hanging but not	3	Not hanging but not	3	Not hanging but not	3	Not hanging but not	3

No	Question	Mosquito net 1		Mosquito net 2		Mosquito net 3		Mosquito net 4	
		stored		stored		stored		stored	
		Stored away unpacked	4	Stored away unpacked	4	Stored away unpacked	4	Stored away unpacked	4
		Stored away still in package	5	Stored away still in package	5	Stored away still in package	5	Stored away still in package	5
		Stored in a suitcase	6	Stored in a suitcase	6	Stored in a suitcase	6	Stored in a suitcase	6
		Other	7	Other	7	Other	7	Other	7
		Specify other		Specify other		Specify other		Specify other	
Q49	What type of sleeping place has this net been used for mostly?								
		Bed frame (finished)	1	Bed frame (finished)	1	Bed frame (finished)	1	Bed frame (finished)	1
		Bed frame (sticks)	2	Bed frame (sticks)	2	Bed frame (sticks)	2	Bed frame (sticks)	2
		Foam mattress	3	Foam mattress	3	Foam mattress	3	Foam mattress	3
		Reed mat/Carpet	4	Reed mat	4	Reed mat	4	Reed mat	4
		Grass/Ground	5	Grass	5	Grass	5	Grass	5
		Ground	6	Ground	6	Ground	6	Ground	6
		Never used	7	Never used	7	Never used	7	Never used	7
		Other		Other		Other		Other	
		Specify other		Specify other		Specify other		Specify other	
Q50	Did any person sleep under this net last night?								
		Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
		Yes⇨Q52		**Yes⇨Q52**		**Yes⇨Q52**		**Yes⇨52**	
Q51	If no, why not?								
		No mosquitoes	1	No mosquitoes	1	No mosquitoes	1	No mosquitoes	1
		There is no malaria	2	There is no malaria	2	There is no malaria	2	There is no malaria	2
		Too hot	3	Too hot	3	Too hot	3	Too hot	3
		Don't like smell	4	Don't like smell	4	Don't like smell	4	Don't like smell	4
		Feel "closed in"	5	Feel "closed in"	5	Feel "closed in"	5	Feel "closed in"	5
		Net too old or torn	6	Net too old or torn	6	Net too old or torn	6	Net too old or torn	6
		Net too dirty	7	Net too dirty	7	Net too dirty	7	Net too dirty	7
		Net not available last night (washing)	8	Net not available last night (washing)	8	Net not available last night (washing)	8	Net not available last night (washing)	8

No	Question	Mosquito net 1		Mosquito net 2		Mosquito net 3		Mosquito net 4	
		Usual user(s) did not sleep here last night	9	Usual user(s) did not sleep here last night	9	Usual user(s) did not sleep here last night	9	Usual user(s) did not sleep here last night	9
		Net was not needed last night	10	Net was not needed last night	10	Net was not needed last night	10	Net was not needed last night	10
		Other	11	Other	11	Other	11	Other	11
		Don't know	98	Don't know	98	Don't know	98	Don't know	98
Q52	Who used <slept under> the net last night?	Line number of users (Q01)		Line number of users (Q01)		Line number of users (Q01)		Line number of users (Q01)	
		☐☐	1	☐☐	1	☐☐	1	☐☐	1
		☐☐	2	☐☐	2	☐☐	2	☐☐	2
		☐☐	3	☐☐	3	☐☐	3	☐☐	3
		☐☐	4	☐☐	4	☐☐	4	☐☐	4
		☐☐	5	☐☐	5	☐☐	5	☐☐	5
Q53	How many nights has this net been used in the last week?								
		Every night (7 nights)	1	Every night (7 nights)	1	Every night (7 nights)	1	Every night (7 nights)	1
		Most nights (5-6)	2	Most nights (5-6)	2	Most nights (5-6)	2	Most nights (5-6)	2
		Some nights (1-4)	3	Some nights (1-4)	3	Some nights (1-4)	3	Some nights (1-4)	3
		Not used last week	4	Not used last week	4	Not used last week	4	Not used last week	4
		Net is not used at all	5	Net is not used at all	5	Net is not used at all	5	Net is not used at all	5
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
Q54	Has this net ever been washed?								
		Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
		0 or 9⇨Q59		**0 or 9⇨Q59**		**0 or 9⇨Q59**		**0 or 9⇨Q59**	

No	Question	Mosquito net 1		Mosquito net 2		Mosquito net 3		Mosquito net 4	
Q55	How many times has it been washed in the last 6 months? ***>>enter "00" if none***	☐☐		☐☐		☐☐		☐☐	
Q56	For the last wash, what soap was used?								
		Liquid/Soap bar	1	Liquid/Soap bar	1	Liquid/Soap bar	1	Liquid/Soap bar	1
		Powder Detergent	2	Powder Detergent	2	Powder Detergent	2	Powder Detergent	2
		Bleach	3	Bleach	3	Bleach	3	Bleach	3
		Mix	4	Mix	4	Mix	4	Mix	4
		None	5	None	5	None	5	None	5
		Water only	6	Water only	6	Water only	6	Water only	6
Q57	Where was the net dried?								
		Outside on the ground	1	Outside on the ground	1	Outside on the ground	1	Outside on the ground	1
		Outside on line	2	Outside on line	2	Outside on line	2	Outside on line	2
		Outside bush or fence	3	Outside bush or fence	3	Outside bush or fence	3	Outside bush or fence	3
		Inside	4	Inside	4	Inside	4	Inside	4
		Other	5	Other	5	Other	5	Other	5
		Specify other:		Specify other:		Specify other:		Specify other:	
Q58	Was it (the net) dried in sunlight or in shade??	Sunlight	1	Sunlight	1	Sunlight	1	Sunlight	1
		Shade	2	Shade	2	Shade	2	Shade	2
Q59	Has this net ever had any holes?								
		Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
		0 or 9⇨Q69		**0 or 9⇨Q69**		**0 or 9⇨Q69**		**0 or 9⇨Q69**	
Q60	How did that								

No	Question	Mosquito net 1		Mosquito net 2		Mosquito net 3		Mosquito net 4	
	happen? ***>>tick all that apply***	Torn on object	1	Torn on object	1	Torn on object	1	Torn on object	1
		Pulled and tore	2	Pulled and tore	2	Pulled and tore	2	Pulled and tore	2
		Torn on hanging sticks	3	Torn on hanging sticks	3	Torn on hanging sticks	3	Torn on hanging sticks	3
		Burned by flame	4	Burned by flame	4	Burned by flame	4	Burned by flame	4
		Rats or mice	5	Rats or mice	5	Rats or mice	5	Rats or mice	5
		Seam came open	6	Seam came open	6	Seam came open	6	Seam came open	6
		In another way	7	In another way	7	In another way	7	In another way	7
		Do not recall	8	Do not recall	8	Do not recall	8	Do not recall	8
Now examine the net for holes and repairs **using the aids and tally sheet** and enter the results here									
Q61	Number of holes size 1 on the four sides	☐☐		☐☐		☐☐		☐☐	
Q62	Number of holes size 1 on the roof	☐☐		☐☐		☐☐		☐☐	
Q63	Number of holes size 2 on the four sides	☐☐		☐☐		☐☐		☐☐	
Q64	Number of holes size 2 on the roof	☐☐		☐☐		☐☐		☐☐	
Q65	Number of holes size 3 on the four sides	☐☐		☐☐		☐☐		☐☐	
Q66	Number of holes size 3 on the roof	☐☐		☐☐		☐☐		☐☐	
Q67	Number of repairs (hole fully closed)	☐☐		☐☐		☐☐		☐☐	

No	Question	Mosquito net 1		Mosquito net 2		Mosquito net 3		Mosquito net 4	
Q68	Number of partial repairs (hole reduced but still there)	☐☐		☐☐		☐☐		☐☐	
Q69	Has the net been modified in any way?	Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
		0 or 9⇨71		**0 or 9⇨71**		**0 or 9⇨71**		**0 or 9⇨71**	
Q70	How was it modified?								
		Shape was changed	1	Shape was changed	1	Shape was changed	1	Shape was changed	1
		Added to lengthen	2	Added to lengthen	2	Added to lengthen	2	Added to lengthen	2
		Added to reinforce	3	Added to reinforce	3	Added to reinforce	3	Added to reinforce	3
		Other	4	Other	4	Other	4	Other	4
		Specify:		Specify:		Specify:		Specify:	

Size1=Finger size, size2= Hand size and size3= Head size

SECTION 5: Other LLIN bed nets owned by the household

Any net NOT identified as a campaign net <but that is a LLIN> is entered here

If there are no additional <LLIN> bed nets in the household, go to next section (section 6)

No	Question	Mosquito net <1>		Mosquito net <2>		Mosquito net <3>		Mosquito net <4>	
We would now like to ask some questions about all the other mosquito nets the household owns and take a look at them									
Q71	Could you show me the nets in the household?								
		Observed	1	Observed	1	Observed	1	Observed	1
		Not observed	0	Not observed	0	Not observed	0	Not observed	0
Q72	***Observe the net and net label (if any)***								
		PermaNet	1	PermaNet	1	PermaNet	1	PermaNet	1

No	Question	Mosquito net <1>		Mosquito net <2>		Mosquito net <3>		Mosquito net <4>	
	and identify the brand of the net ***>>if net is not observed show net pictures to respondent and probe***	Tailor made	2	Tailor made	2	Tailor made	2	Tailor made	2
		Unbranded (no label)	3	Unbranded (no label)	3	Unbranded (no label)	3	Unbranded (no label)	3
		Other	4	Other	4	Other	4	Other	4
		Specify other		Specify other		Specify other		Specify other	
Q73	***>>Observe or ask the shape of net*** What is the shape of the net?								
		Rectangular	1	Rectangular	1	Rectangular	1	Rectangular	1
		Conical	2	Conical	2	Conical	2	Conical	2
Q74	***>>Observe or ask the colour of net*** What is the colour of the net?								
		White	1	White	1	White	1	White	1
		Green	2	Green	2	Green	2	Green	2
		Blue	3	Blue	3	Blue	3	Blue	3
		Other	4	Other	4	Other	4	Other	4
		Specify		Specify		Specify		Specify	
Q75	How long ago did you obtain this net? ***>>enter "00" for months if less than one month***								
		Months if less than 2 years		Months if less than 2 years		Months if less than 2 years		Months if less than 2 years	
		☐☐		☐☐		☐☐		☐☐	
		Years if more than 2 years		Years if more than 2 years		Years if more than 2 years		Years if more than 2 years	
		☐☐		☐☐		☐☐		☐☐	
		Don't remember	98	Don't remember	98	Don't remember		Don't remember	98
Q76	Where did you obtain this net?								
		Mass campaign	1	Mass campaign	1	Mass campaign	1	Mass campaign	1
		ANC services	2	ANC services	2	ANC services	2	ANC services	2
		Immunization services	3	Immunization	3	Immunization services	3	Immunization services	3

No	Question	Mosquito net <1>		Mosquito net <2>		Mosquito net <3>		Mosquito net <4>	
				services					
		Health Facility	4	Health Facility	4	Health Facility	4	Health Facility	4
		Nutrition centre	5	Nutrition centre	5	Nutrition centre	5	Nutrition centre	5
		Mosque or church	6	Mosque or church	6	Mosque or church	6	Mosque or church	6
		Family or friends	7	Family or friends	7	Family or friends	7	Family or friends	7
		Private clinic	8	Private clinic	8	Private clinic	8	Private clinic	8
		Pharmacy	9	Pharmacy	9	Pharmacy	9	Pharmacy	9
		Shop or supermarket	10	Shop or supermarket	10	Shop or supermarket	10	Shop or supermarket	10
		Market	11	Market	11	Market	11	Market	11
		Hawker	12	Hawker	12	Hawker	12	Hawker	12
		School	13	School	13	School	13	School	13
		NGO	14	NGO	14	NGO	14	NGO	14
		Other	15	Other	15	Other	15	Other	15
		Specify		Specify		Specify		Specify	
Q77	Did you pay any money for this net?								
		Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
Q78	>>***Observe or ask where the net is located within the house at the time of interview*** Where is the net located now?								
		Hanging loose over bed/mattress	1	Hanging loose over bed/mattress	1	Hanging loose over bed/mattress	1	Hanging loose over bed/mattress	1
		Hanging and folded up or tied	2	Hanging and folded up or tied	2	Hanging and folded up or tied	2	Hanging and folded up or tied	2
		Not hanging but not stored	3	Not hanging but not stored	3	Not hanging but not stored	3	Not hanging but not stored	3
		Stored away unpacked	4	Stored away unpacked	4	Stored away unpacked	4	Stored away unpacked	4
		Stored away still in package	5	Stored away still in package	5	Stored away still in package	5	Stored away still in package	5
		Temporarily taken away	6	Temporarily taken away	6	Temporarily taken away	6	Temporarily taken away	6
		Other	7	Other	7	Other	7	Other	7
		Specify other		Specify other		Specify other		Specify other	
Q79	Did any								
		Yes	1	Yes	1	Yes	1	Yes	1

No	Question	Mosquito net <1>		Mosquito net <2>		Mosquito net <3>		Mosquito net <4>	
	person sleep under this net under last	No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
		Yes⇨Q81		**Yes⇨Q81**		**Yes⇨Q81**		**Yes⇨Q81**	
Q80	If no, why not?								
		No mosquitoes	1	No mosquitoes	1	No mosquitoes	1	No mosquitoes	1
		There is no malaria	2	There is no malaria	2	There is no malaria	2	There is no malaria	2
		Too hot	3	Too hot	3	Too hot	3	Too hot	3
		Don't like smell	4	Don't like smell	4	Don't like smell	4	Don't like smell	4
		Feel "closed in" or afraid	5	Feel "closed in" or afraid	5	Feel "closed in" or afraid	5	Feel "closed in" or afraid	5
		Net too old or torn	6	Net too old or torn	6	Net too old or torn	6	Net too old or torn	6
		Net too dirty	7	Net too dirty	7	Net too dirty	7	Net too dirty	7
		Net not available last night (washing)	8	Net not available last night (washing)	8	Net not available last night (washing)	8	Net not available last night (washing)	8
		Usual user(s) did not sleep here last night	9	Usual user(s) did not sleep here last night	9	Usual user(s) did not sleep here last night	9	Usual user(s) did not sleep here last night	9
		Net was not needed last night	10	Net was not needed last night	10	Net was not needed last night	10	Net was not needed last night	10
		Other	11	Other	11	Other	11	Other	11
		Don't know	98	Don't know	98	Don't know	98	Don't know	98
		Specify other		Specify other		Specify other		Specify other	
Q81	If yes, who used this net ***>>probe for any additional person using this net last night and enter line***	Line number of users (Q01)							
		☐☐	1	☐☐	1	☐☐	1	☐☐	1
		☐☐	2	☐☐	2	☐☐	2	☐☐	2
		☐☐	3	☐☐	3	☐☐	3	☐☐	3
		☐☐	4	☐☐	4	☐☐	4	☐☐	4
		☐☐	5	☐☐	5	☐☐	5	☐☐	5
Q82	How many nights has this net been used in the last week?								
		Every night (7 nights)	1	Every night (7	1	Every night (7 nights)	1	Every night (7 nights)	1
		Most nights (5-6)	2	Most nights (5-6)	2	Most nights (5-6)	2	Most nights (5-6)	2
		Some nights (1-4)	3	Some nights (1-4)	3	Some nights (1-4)	3	Some nights (1-4)	3
		Not used last week	4	Not used last week	4	Not used last week	4	Not used last week	4
		Net is not used at all	5	Net is not used at all	5	Net is not used at all	5	Net is not used at all	5
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
Q83	Has this net ever been washed?								
		Yes	1	Yes	1	Yes	1	Yes	1
		No	0	No	0	No	0	No	0
		Don't know	9	Don't know	9	Don't know	9	Don't know	9
Q84	How many								

No	Question	Mosquito net <1>	Mosquito net <2>	Mosquito net <3>	Mosquito net <4>
	times has it been washed in the last 6 months or since it was obtained (if	☐☐	☐☐	☐☐	☐☐

Probe for any additional nets that may not be in use at the moment, out for drying after washing or temporarily taken to another location (e.g. to the field)

SECTION 6: BCC

The following questions must be addressed to all households				
Q85	In the last 6 months, did you receive any information on ownership, use, care and repair of your mosquito nets from any source?	Yes	1	**No or DNK ⇨Q88**
		No	0	
		Don't know	9	
Q86	What were the sources of that information? ***>> multiple answers possible***	Community Health Worker	1	
		Radio message or talk show	2	
		Song on the radio	3	
		Drama performance	4	
		Health staff	5	
		Community leader	6	
		Hakkama	7	
		Community volunteer	8	
		Pharmacy or shop attendant	9	
		Family or friends	10	
		Mosque or church	11	

		Newspaper or TV	12	
		Other	13	
		Specify other:		
Q87	What was the content of the messages you heard/saw? ***>> multiple answers possible***	You should own LLINs	1	
		Use your net	2	
		How to take care of your net	3	
		Hang up your net	4	
		Sleep under your net every night	5	
		Nets prevent malaria	6	
		Repair your net	7	
		Other	8	
		Specify:		
Q88	What is your preferred source of information? ***>>multiple answers possible*** ***Choose up to 3 three***			
		Community Health Worker	1	
		Radio message or talk show	2	
		Song on the radio	3	
		Drama performance	4	
		Health staff	5	
		Community leader	6	
		Hakkama	7	
		Community volunteer	8	
		Pharmacy or shop attendant	9	
		Family or friends	10	
		Mosque or church	11	
		Newspaper or TV	12	

		Other	13	
		Specify other:		
Q89	In what language do you prefer to receive messages?	Arabic	1	
		Other	2	
		Specify		
Q90	Did you discuss caring for or repairing your nets with your family?	Yes	1	
		No	0	

I am going to ask you about a series of actions you could take and I would like you to tell me how confident you are tha you could actually do that action successfully. For each action, please tell me if you think you definitely could, probab could, probably could not or definitely could not do each action successfully

	.	Definitely could	Probably could	Probably could not	Definitely could not	
Q91	Obtain enough bed nets for all your children.	1	2	3	4	
Q92	Hang a bed net above your children's sleeping spaces.	1	2	3	4	
Q93	Protect yourself and your children from getting malaria.	1	2	3	4	
Q94	Ensure that pregnant women will be able to sleep under a bed net every night	1	2	3	4	
Q95	Sleep under a bed net every night of the year.	1	2	3	4	
Q96	Get all of your children to sleep under a bed net every night of the year.	1	2	3	4	

I am going to read a series of statements to you and I would like you to tell me how much you agree with them. For each statement, please tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with it.

		Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	
Q97	Some people who sleep under a bed net still get malaria.	1	2	3	4	
Q98	Sleeping under a bed net is the best protection from malaria.	1	2	3	4	
Q99	New bed nets protect a person from malaria for a few years.	1	2	3	4	

Q100	Dead mosquitoes on the ground or on the roof of the bed net are a good way to tell that your bed net is still effective.	1	2	3	4	
Q101	A bed net can get too many holes in a few months to stop mosquitoes.	1	2	3	4	

I am going to read a series of statements to you and I would like you to tell me how much you agree with them. For each statement, please tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with it.

		Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	
Q102	Mosquito nets are safe to use.	1	2	3	4	
Q103	Sleeping under a bed net can save you money.	1	2	3	4	
Q104	It is difficult to sleep well under a bed net when the weather is hot	1	2	3	4	
Q105	Sleeping under a bed net is needed all year round in our village	1	2	3	4	
Q106	Many people in this area would prefer not to sleep under a bed net	1	2	3	4	

SECTION 7: Net care and repair

No	Question	Categories			Skip
We would now like to ask some questions about the care for your nets					
Q107	Have you ever experienced any holes in the nets you own?				
		Yes	1		
		No	0		**No⇨Q113**
Q108	How did the hole(s) happen? ***>> check "1" for all options that apply, "0" if they don't***		Yes	No	
		Tore when got caught on edge or nail	1	0	
		Was pulled and tore on corner	1	0	
		Was caused by children	1	0	
		Was burned by a candle or sparks	1	0	
		Was caused by rats or mice	1	0	
		In another way	1	0	
		Was damaged during drying after we washed the net	1	0	

No	Question	Categories			Skip
		Don't know	1	0	
Q109	Over the **last 6 months**, have you ever tried to repair any of these holes or get them repaired by someone else?	Yes		1	
		No		0	**No⇨Q112**
Q110	How were the holes repaired? ***>>check "1" for all options that apply, "0" if they don't***		Yes	No	
		Stitched	1	0	
		Knotted or tied	1	0	
		Used a patch	1	0	
		In another way	1	0	
Q111	Over the last 6 months, who made repairs to the holes in your nets? ***>>check "1" for all options that apply, "0" if they don't***		Yes	No	
		Household member	1	0	
		Tailor	1	0	
		Friend or relative	1	0	
		Community volunteer	1	0	
		Other	1	0	
		Specify:			
Q112	What was the **main** reason holes were not repaired?	No time for this		1	
		It is not necessary		2	
		Don't know how		3	
		Do not have materials to repair		4	
		Holes are not big enough to repair		5	
		It is not possible to repair holes		6	
		Other		7	
		Specify:			
		Don't know		9	
Q113	What do you do at home to prevent nets from tearing or getting holes?		Yes	No	
		Keep away from children	1	0	
		Keep away from pests	1	0	

No	Question	Categories			Skip
	>>Do not read the responses aloud. Probe twice with "Any other ways?" ***Mark "1" for each response mentioned and "0" for those not***	Roll up or tie up when not in use	1	0	
		Handle nets with care	1	0	
		Do not soil with food	1	0	
		Keep away from flame or fire	1	0	
		Wash gently	1	0	
		Wash only when dirty	1	0	
		Inspect nets regularly for holes	1	0	
		Repair small holes quickly	1	0	
		It is not possible to prevent holes	1	0	
		Do nothing	1	0	
		Other	1	0	
		Specify:			
Q114	What is the recommended way to wash a mosquito net? ***>>Do not read the responses aloud. Probe twice with "Any other ways?"*** ***Mark "1" for each response mentioned and "0" for those not***		Yes	No	
		Gently	1	0	
		In a basin	1	0	
		With mild soap	1	0	
		Only when dirty	1	0	
		No more than once every 3 months	1	0	
		Not in the stream	1	0	
		Other	1	0	
		Specify:			

I am going to read a series of statements to you and I would like you to tell me how much you agree with them. For each statement, please tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with it.

		Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Q115	Mosquito nets are valuable	1	2	3	4

No	Question	Categories			Skip
Q116	There are actions I can take to make my net last long	1	2	3	4
Q117	It is not possible to repair holes in nets	1	2	3	4
Q118	A repaired net can still be effective against mosquitoes	1	2	3	4
Q119	Other people in this community fix holes in their mosquito nets	1	2	3	4
Q120	I do not have time to repair a hole in my net	1	2	3	4
Q121	I can help protect my family from malaria by taking care of my net	1	2	3	4
Q122	I am confident I can repair holes immediately	1	2	3	4

********** END OF QUESTIONNAIRE **********

Thank the respondents for their time and cooperation.

INTERVIEWER NOTES: Please note any problems you had with completing the interview for this household.

وزارة الصحة الاتحادية

ادارة صحة البيئة – قسم المكافحة المتكامله لنواقل الامراض

نظام متابعة الناموسيات المشبعة

إستبيان مسح الأسرة

:فـيرعتلا

الاقليم :..... الرمز: ☐			
الولاية:..... الرمز: ☐			
المحلية:..... الرمز: ☐			
اسم العنقود/القرية/الحي:			
رمز العنقود/القرية/الحي	☐	**رمز الأسرة**	☐☐
رقم الاستبيان	رمز (الاقليم-الولاية-المحلية-العنقود-الاسرة)	☐☐☐ ☐☐☐☐	➡ أدخل الرقم في الخانات المقابلة

زيارة الأسرة:

B1	تفاصيل زيارة الأسرة		1الزيارة	2الزيارة	3الزيارة
	= رب الأسرة/ المستضيف غيرموجود في المنزل 0 = رب الأسرة/ المستضيف موجود في المنزل ووافق على المقابلة 1 = رب الأسرة/ المستضيف موجود في المنزل لكنه رفض المقابلة 2		☐	☐	☐
B2	تاريخ المقابلة	يوم / شهر / سنة	☐☐ / ☐☐ / ☐☐☐☐		
B3	إسم الباحث:.....		التوقيع:		

	رقم التلفون:.....

التقديم والمقابلة والموافقة:

واصل مع
المستتضيف خلال إستمارة الموافقة

المستضيف وافق على إجراء المقابلة	**1**	**Q 01**أذهب إلي
المستضيف رفض إجراء المقابلة	**0**	نهاية

الجزء الأول: الأشخاص الذين يعيشون في بالمنزل:

رقم	القاطنون الأساسيون و الضيوف	صلة القرابة بصاحب المنزل	الجنس	السكن		العمر
	القاطنون الفى المنزل ارجو إدخال الاسم الاول لكل الاشخاص الذين يعيشون في بالمنزل	ما هي صلة (الاسم) بصاحب المنزل	هل (الاسم) ذكر أم أنثى	هل (الاسم) يسكن هنا	هل (الإسم) كان هنا الليلة الماضية	ما هو عمر (الإسم)؟ إذا كان أقل من سنة داخل المربع 0أكتب مع تبيان الأشهر في المربع المجاور، إذا لا تعلم أكتب لا أعرف
Q01	Q02	Q03	Q04	Q05	Q06	Q07
			ذكر 1 أنثى 2	نعم 1 لا 0	نعم 1 لا 0	
01			1 2	1 0	1 0	سنوات
02			1 2	1 0	1 0	سنوات
03			1 2	1 0	1 0	سنوات
04			1 2	1 0	1 0	سنوات
05			1 2	1 0	1 0	سنوات
06			1 2	1 0	1 0	سنوات

07			12	10	10	سنوات
08			12	10	10	سنوات
09			12	10	10	سنوات
10			12	10	10	سنوات
11			12	10	10	سنوات
12			12	10	10	سنوات
13			12	10	10	سنوات
14			12	10	10	سنوات
15			12	10	10	سنوات

الرمز لـ Q3 : الصلة بصاحب المنزل.

01 = رب الأسرة 04 = زوجة الإبن / زوج الإبنة 07 = النسيبه /النسيب

02 = زوجة / زوج 05 = حفيد / حفيدة 08 = أخ/ أخت الزوج / الزوجه

03 = إبن / إبنة 06 = والد / والدة 09 = صلة قرابه آخرى

10= طفل/طفلة بالتبني 11 = لا توجد قرابة 98 = لا أعرف

في الأسر الثانية والثالثة والرابعة الزوجة هي ربة الأسرة.

الجزء الثاني: صفات الأسرة وملكية الناموسية:

رقم	السؤال	المجموعات			استبعد
أولا نريد أن نسأل بعض الأسئلة عن رب الأسرة ، صفات المنزل وممتلكات الأسرة					
Q08	من الذي يستجيب لهذا الإستبيان؟	أذكر رقم المستجيب			
Q09	هل رب الأسرة يقرأ ويكتب؟				
		نعم	1		
		لا	0		
		لا أعلم	9		
Q10	هل يوجد بالإسرة أشخاص يقرأون ويكتبون؟				
		نعم	1		
		لا	0		
		لا أعلم	9		
Q11	هل رب الأسرة تلقى تعليم مدرسي؟				إذا كان الاجابه بلا أو لا أدري أذهب الي س13
		نعم	1		
		لا	0		
		لا أعلم	9		
Q12	ما هو أعلى تعليم تلقاه رب الأسرة؟ (أساسي ، ثانوي ، عالي)	خلوة	1		
		أساسي	2		
		ثانوي	3		
		عالي	4		
		لا أعرف	9		
Q13	ما هي مواد سقف المنزل؟				

		عرش بلدي/ / ديس / جريد النخل	1		
		قش	2		
		ألواح زنك / حديد / ألمونيوم/اسمنت	3		
		مشمع	4		
Q14	ما هي مواد بناء الحيطان؟				
		قش/زنك	1		
		جالوص	2		
		مشمع إقماش	3		
		طوب / اسمنت / مسلح/حجر	4		
Q15	ما هي مواد الأرضيات؟				
		تراب / رمل	1		
		طين	2		
		خشب ، قنا , جريد نخل	3		
		بلاستيك مشمع	4		
		بلاط / سيراميك	5		
Q16	كم عدد الغرف بالمنزل				
Q17	كم المستعمل منها للنوم				
Q18	كم عدد أماكن النوم المستعملة بالمنزل (السراير ، مراتب ، سجاد ، حصير ..... ألخ) ***أسأل عن أماكن النوم داخل وخارج الغرف***				
Q19	هل تحفظ أي طعام أو محصول في أي من غرف النوم				
		نعم	1		
		لا	0		
		لا أعرف	9		
Q20	ما هو المصدر الرئيسي لمياه الشرب				
		مياه سطحية (نبع ، نهر ، بحيرة، بركة، ترعة، ... ألخ)	1		

		أمطار ، شبكة مياه ،	2		
		بئر محمية (عام أو خاص)	3		
		بئر عميقة	4		
		كشك ماءظ ماسورة عامة	5		

رقم	السؤال	المجموعات		استبعد
		ماسورة داخل المنزل حفير / مستودع ماء مضخة مياه دونكي صهريج ماء / كارو	6	
		أخرى ...	7	
Q21	ما هو نوع دورة المياه المتوفرة بالمنزل			
		فضاء مكشوف / خلف الأشجار/حشائش	1	
		حفرة مرحاض مشتركة	2	
		حفرة مرحاض منفردة	3	
		غرفة مرحاض محسنة مشتركة	4	
		حفرة مرحاض محسنة منفردة	5	
		صرف صحي مشترك	6	
		صرف صحي منفرد	8	
Q22	ما هي وسيلة الطهي الأساسية			
		حطب	1	
		فحم	2	
		كيروسين	3	
		غاز	4	
		كهرباء	5	
		روث بهائم	6	

Q23	هل يتم الطبخ في غرفة مخصصة للنوم				
		دائماً		1	
		في بعض المرات		2	
		أبداً لا		3	
		لا أعرف		9	
Q24	خلال الأشهر الستة الماضية هل لاحظت أي فئران أو آثارها في المنزل؟				
		نعم		1	
		لا		2	
		لا أعرف		9	
Q25	هل يوجد بالمنزل أو (لدى أي من أفراد الأسرة) أي مما يلي:		نعم	لا	
		راديو	1	0	
		تلفزيون	1	0	
		ثلاجة	1	0	
		مروحة كهربائية	1	0	
		مكواة كهربائية	1	0	
		جهاز موبايل عادي	1	0	
		جهاز موبايل متقدم	1	0	
		حاسوب	1	0	
		مكيف	1	0	
Q26	هل لدى الأسرة (لدى أي من أفراد الأسرة) وسيلة نقل		نعم	لا	
		دراجة- عجله	1	0	
		دراجة نارية-موتر	1	0	
		سيارة أو لوري	1	0	
		حيوان أو كارو	1	0	
		حمار / جمل / حصان	1	0	
		قارب / رفاص أو سفينة	1	0	
Q27	هل لدى الأسرة بهائم أو دواجن		نعم	لا	
		دواجن	1	0	
		بط أو حمام	1	0	

		غنم أو ضأن	1	0	
		جمال/ ابل	1	0	
		أبقار	1	0	
		حمير / بغال	1	0	
Q28	هل لدى الأسرة أرض للزراعة				**إذا كانت الاجابة بلا اذهب الي س30**
		نعم	1		
		لا	0		
Q29	إذا نعم أذكر مساحة الأرض بالفدان (1 فدان = 4200 متر مربع) ادخل 99 اذا كانت المساحة غير معروفة	☐☐ ☐			

رقم	السؤال	المجموعات		استبعد
نود الان أن نسأل بعض الأسئلة عن الناموسيات في منزلك:				
Q30	هل لدى الأسرة ناموسية للنوم تحتها؟			**إذا كانت الاجابة بلا أذهب الي (85-س 106س)**
		نعم	1	
		لا	0	
Q31	إذا الإجابة بنعم كم عدد الناموسيات لدى الأسرة في الوقت الحالي		☐☐	
Q32	كم عدد الناموسيات التي إستلمتها الأسرة في آخر حملة توزيع جماعية للناموسيات المشبعة؟		☐☐	
Q33	هل إستلمت الأسرة ناموسيات أخرى بعد آخر حملة من أي مصدر أخر؟			**إذا كانت الاجابة بلا او لا اعرف أذهب الي س36**
		نعم	1	
		لا	0	
		لا اعرف	9	
Q34	كم عدد الناموسيات التي إمتلكتها الأسرة (استلمت أو أشتريت) منذ الحملة الأخيرة مشتملة علي التي غير متواجدة لديكم حالياً؟		☐☐	
Q35	هل إستلمت الأسرة هذه الناموسيات الإضافية من المصادر الآتية؟			
			نعم	لا
		خدمات رعاية الأمومة والطفولة	1	0
		خدمات تحصين		
		مرفق صحي / مستشفى	1	0
		الأقارب أو الأصدقاء	1	0
		منظمات غير حكومية	1	0
		متجر أو صيدلية	1	0

		السوق أو الباعة المتجولين	1	0	
		أخرى- حدد.....	1	0	

الجزء الثالث: الناموسيات المفقودة من الحملة الأخيرة

رقم	السؤال	المجموعات			استبعد
نود الآن أن نوجه أسئلة عن الناموسيات المستلمة بواسطة الأسرة خلال الحملة الأخيرة					
Q 36	ادخل عدد الناموسيات الموزعة للأسرة من استمارة تسجيل وتوزيع الناموسيات				
Q 37	دعني أتأكد من أن ما يلي صحيحاً: عدد الناموسيات لدى هذه الأسرة والمستلم من الحملة الأخيرة كان.... ***راجع المربع أعلاه مع نتيجة س32***				
Q38	هل كل هذه الناموسيات في ملكية الأسرة				**إذاكانت الاجابة بنع اذهب الى س44**
		نعم	1		
		لا	0		
Q39	إذا كان لا . كم عدد الناموسيات لدى الأسرة حالياً؟				
Q40	أحسب عدد الناموسيات المفقودة (س37 – س39) ، سجل الرقم وواصل الي س 41 – س 43 لكل واحدة من الناموسيات المفقودة				

أدخل المعلومات الآتية لكل ناموسية "مفقودة " على حدى

رقم	السؤال	المجموعات	1ناموسية	2ناموسية	3ناموسية
Q41	كم من الوقت كانت لديك هذه الناموسية	لأقل من واحد شهر00أدخل عند الجواب "بلا أدري"98أدخل	شهور	شهور	شهور
Q42	هل بامكانك ان تخبرني ماذا حدث للناموسية				
		سرقت	1	1	1
		تمزقت بسبب ما	2	2	2
		تم بيعها	3	3	3

		تم منحها للأقارب	4	4	4
		تم منحها لاشخاص اخرين	5	5	5
		تم التخلص منها	6	6	6
		تم استعمالها لغرض اخر	7	7	7
		اخرى_ حدد.....	8	8	8
		لا ادري	9	9	9
Q43	لماذا لم تحتفظ بهذه الناموسية؟				
		الناموسية ممزقة بها ثقوب كثيرة	1	1	1
		الناموسية متسخة للغاية	2	2	2
	ادخل ا لسبب المذكوراولا	الناموسية ليست لها حوجة الآن	3	3	3
		لا نرغب فيها	4	4	4
		في حوجة للمال	5	5	5
		أخرى_حدد.....	6	6	6
		لا أدري	9	9	9

الجزء الرابع:ناموسيات الحملة التي تملكها الأسرة

رقم	السؤال	1ناموسية		2ناموسية		3ناموسية		4ناموسية	
الآن نود أن نفحص كل الناموسيات التي امتلكتها الأسرة من حملة التوزيع ونطرح بعض الأسئلة عنها ***أكمل المعلومات عن كل واحدة من الناموسيات قبل الإنتقال لما بعدها***									
Q44	***لاحظ الناموسية والعلامة المميزة وحدد نوعها***								
		PermaNet(هي بيرمانت	1	**PermaNet(هي بيرمانت**	1	**PermaNet(هي بيرمانت**	1	**PermaNet(هي بيرمانت**	1
		Yorkool(يوركول	2	Yorkool(يوركول	2	Yorkool(يوركول	2	Yorkool(يوركول	2
		DuaNet(دوانت	3	DuaNet(دوانت	3	DuaNet(دوانت	3	DuaNet(دوانت	3
		انترسيبت Inteceptorr( )	4	انترسيبت Inteceptorr( )	4	انترسيبت Inteceptorr( )	4	انترسيبت Inteceptorr( )	4
Q45	ما هو شكل الناموسية								
		مربعة	1	مربعة	1	مربعة	1	مربعة	1
		مخروطية	0	مخروطية	0	مخروطية	0	مخروطية	0
Q46	ما هو لون الناموسية								
		أبيض	1	أبيض	1	أبيض	1	أبيض	1
		آخر_ حدد.....	0	آخر_ حدد.....	0	آخر_ حدد.....	0	آخر_ حدد.....	0
Q47	هل هذه الناموسية أستلمت من الحملة في 20 ؟								
		نعم	1	نعم	1	نعم	1	نعم	1
		لا	0	لا	0	لا	0	لا	0
		لا أدري	9	لا أدري	9	لا أدري	9	لا أدري	9
إذاكان س44 – س47 كلها مرقمة هذا يؤكد أن الناموسية من الحملة 1 وتعطى رقم البطاقة		ناموسية حملة		ناموسية حملة		ناموسية حملة		ناموسية حملة	
		نعم	1	نعم	1	نعم	1	نعم	1
		لا	0	لا	0	لا	0	لا	0
Q 48	اين وجدت الناموسية اثناء الزيارة؟	معلقة فوق مكان النوم	1	معلقة فوق مكان النوم	1	معلقة فوق مكان النوم	1	معلقة فوق مكان النوم	1
		معلقة ومطوية أو مربوطة	2	معلقة ومطوية أو مربوطة	2	معلقة ومطوية أو مربوطة	2	معلقة ومطوية أو مربوطة	2
		غير معلقة وغير مخزنة	3	غير معلقة وغير مخزنة	3	غير معلقة وغير مخزنة	3	غير معلقة وغير مخزنة	3
		مخزنة من غير كيس	4	مخزونة من غير كيس	4	مخزونة من غير كيس	4	مخزونة من غير كيس	4
		مخزنة داخل الكيس	5	مخزونة داخل الكيس	5	مخزونة داخل الكيس	5	مخزونة داخل الكيس	5

		مخزنة داخل شنطة / حقيبة	6	مخزنة داخل شنطة / حقيبة	6	مخزنة داخل شنطة / حقيبة	6	مخزنة داخل شنطة / حقيبة	6
		أخرى_ حدد.....	7	أخرى_ حدد.....	7	أخرى_ حدد.....	7	أخرى_ حدد.....	7
Q 49	ما هو نوع مكان التى النوم الذي تعلق فيه الناموسية	هيكل سرير (مكتمل)	1	هيكل سرير (مكتمل)	1	هيكل سرير (مكتمل)	1	هيكل سرير (مكتمل)	1
		هيكل سرير (بالعصي)	2	هيكل سرير (بالعصي)	2	هيكل سرير (بالعصي)	2	هيكل سرير (بالعصي)	2
		مرتبة اسفنج	3	مرتبة اسفنج	3	مرتبة اسفنج	3	مرتبة اسفنج	3
		حصير / سجاد	4	حصير / سجاد	4	حصير / سجاد	4	حصير / سجاد	4
		قش	5	قش	5	قش	5	قش	5
		ارضية ترابية	6	ارضية ترابية	6	ارضية ترابية	6	ارضية ترابية	6
		لم تستعمل	7	لم تستعمل	7	لم تستعمل	7	لم تستعمل	7
		أخرى_ حدد.....	8	أخرى_ حدد.....	8	أخرى_ حدد.....	8	أخرى_ حدد.....	8
Q50	هل نام أي شخص تحت هذه الناموسية الليلة الماضية	نعم	1	نعم	1	نعم	1	نعم	1
		لا	0	لا	0	لا	0	لا	0
		لا أدري	9	لا أدري	9	لا أدري	9	لا أدري	9
		نعم أذهب س52		نعم أذهب س52		نعم أذهب س52		نعم أذهب س52	
		1ناموسية		**2ناموسية**		**3ناموسية**		**4ناموسية**	
Q51	اذا الإجابة لا لماذا ؟	لا يوجد باعوض	1	لا يوجد باعوض	1	لا يوجد باعوض	1	لا يوجد باعوض	1
		لا توجد ملاريا	2	لا توجد ملاريا	2	لا توجد ملاريا	2	لا توجد ملاريا	2
		الطقس حار جداً	3	الطقس حار جداً	3	الطقس حار جداً	3	الطقس حار جداً	3
		الرائحة غير محببة	4	الرائحة غير محببة	4	الرائحة غير محببة	4	الرائحة غير محببة	4
		الشعور بالاختناق	5	الشعور بالاختناق	5	الشعور بالاختناق	5	الشعور بالاختناق	5
		الناموسية قديمة وممزقة	6	الناموسية قديمة وممزقة	6	الناموسية قديمة وممزقة	6	الناموسية قديمة وممزقة	6
		الناموسية متسخة للغاية	7	الناموسية متسخة للغاية	7	الناموسية متسخة للغاية	7	الناموسية متسخة للغاية	7
		الناموسية غير متواجدة (في الغسيل)	8	الناموسة غير متواجدة (في الغسيل)	8	الناموسة غير متواجدة (في الغسيل)	8	الناموسة غير متواجدة (في الغسيل)	8
		مستعملو الناموسية غير متواجدين الليلة الماضية	9	مستعملو الناموسية غير متواجدين الليلة الماضية	9	مستعملو الناموسية غير متواجدين الليلة الماضية	9	مستعملو الناموسية غير متواجدين الليلة الماضية	9

		لا حوجة لها الليلة الماضية	10	لا حوجة لها الليلة الماضية	10	لا حوجة لها الليلة الماضية	10	لا حوجة لها الليلة الماضية	10
		أخرى_ حدد.....	11	أخرى_ حدد.....	11	أخرى_ حدد.....	11	أخرى_ حدد.....	11
		لا أدري	98	لا أدري	98	لا أدري	98	لا أدري	98
رقم	السؤال	**1ناموسية**		2**ناموسية**		**3ناموسية**		**4ناموسية**	
Q52	من الذي نام تحتها الليلة الماضية	ضع رقم المستخدمين (Q01)		ضع رقم المستخدمين (Q01)		ضع رقم المستخدمين (Q01)		ضع رقم المستخدمين (Q01)	
		□□	1	□□	1	□□	1	□□	1
		□□	2	□□	2	□□	2	□□	2
		□□	3	□□	3	□□	3	□□	3
		□□	4	□□	4	□□	4	□□	4
		□□	5	□□	5	□□	5	□□	5
Q53	كم عدد الليالي التي إستخدمت فيها الناموسية في الاسبوع الماضي								
		كل ليلة (7 ليالي)	1	كل ليلة (7 ليالي)	1	كل ليلة (7 ليالي)	1	كل ليلة (7 ليالي)	1
		)5-6أغلب الليالي (	2	)5-6أغلب الليالي (	2	)5-6أغلب الليالي (	2	)5-6أغلب الليالي (	2
		)1-4بعض الليالي (	3	)1-4بعض الليالي (	3	)1-4بعض الليالي (	3	)1-4بعض الليالي (	3
		لم تستعمل الأسبوع الماضي	4	لم تستعمل الأسبوع الماضي	4	لم تستعمل الأسبوع الماضي	4	لم تستعمل الأسبوع الماضي	4
		لم تستعمل إطلاقاً	5	لم تستعمل إطلاقاً	5	لم تستعمل إطلاقاً	5	لم تستعمل إطلاقاً	5
		لا أدري	9	لا أدري	9	لا أدري	9	لا أدري	9
Q54	هل تم غسل هذه الناموسية								
		نعم	1	نعم	1	نعم	1	نعم	1
		لا	0	لا	0	لا	0	لا	0
		لا أدري	9	لا أدري	9	لا أدري	9	لا أدري	9
		Q59 أذهب 9-0من		أذهب 9-0من		أذهب 9-0من		أذهب 9-0من	

			Q59		Q59		Q59
Q55	كم عدد المرات التي تم فيها غسلها في الشهور الستة الماضية ***" إذا الإجابة بلا00ادخل "***	☐☐ _____		☐☐ _____		☐☐ _____	
Q56	في آخرة غسلة ما نوع الصابون المستخدم						
		سائل/لوح صابون	1	سائل/لوح صابون	1	سائل/لوح صابون	1
		بودرة منظف	2	بودرة منظف	2	بودرة منظف	2
		مبيض	3	مبيض	3	مبيض	3
		خليط	4	خليط	4	خليط	4
		بدون	5	بدون	5	بدون	5
		بالماء فقط	6	بالماء فقط	6	بالماء فقط	6
Q57	أين تم تجفيف الناموسية						
		علي الأرض	1	علي الأرض	1	علي الأرض	1
		علي حبل بالخارج	2	علي حبل بالخارج	2	علي حبل بالخارج	2
		بالخارج علي السور	3	بالخارج علي السور	3	بالخارج علي السور	3
		بالداخل	4	بالداخل	4	بالداخل	4
		أخرى	5	أخرى	5	أخرى	5
		حدد أخرى	6	حدد أخرى	6	حدد أخرى	6
Q58	هل تم تجفيفها في الشمس أو في الظل؟						
		تحت أشعة الشمس	1	تحت أشعة الشمس	1	تحت أشعة الشمس	1
		في الظل	2	في الظل	2	في الظل	2
Q59	هل توجد بهذه الناموسية أي ثقوب؟						
		نعم	1	نعم	1	نعم	1
		لا	0	لا	0	لا	0
		لا ادري	9	لا ادري	9	لا ادري	9
		Q69 اذهب 0 or 9		Q69 اذهب 0 or 9		Q69 اذهب 0 or 9	
Q60	كيف حدثت الثقوب؟						
		تمزقت علي شئ ما	1	تمزقت علي شئ ما	1	تمزقت علي شئ ما	1
		تم جذبها وتمزقت	2	تم جذبها وتمزقت	2	تم جذبها وتمزقت	2
		إحترقت باللهب	3	إحترقت باللهب	3	إحترقت باللهب	3
		بالفئران أو القوارض	4	بالفئران أو القوارض	4	بالفئران أو القوارض	4
		وصلت مفتوحة	5	وصلت مفتوحة	5	وصلت مفتوحة	5

		بطريقة أخرى	6	بطريقة أخرى	6	بطريقة أخرى	6	بطريقة أخرى	6	بطريقة أخرى	6
		لا أتذكر	7	لا أتذكر	7	لا أتذكر	7	لا أتذكر	7	لا أتذكر	7

رقم	السؤال	1نامو سية		2نامو سية		3نامو سية		4نامو سية	
الآن أفحص الناموسية للثقوب والإصلاحات بإستعمال الأدوات وإدخال النتائج في المربعات أسفله									
Q61	) على 1عدد الثقوب مقاس (الجوانب الأربعة								
Q62	) السقف1عدد الثقوب مقاس (								
Q63	) على 2عدد الثقوب مقاس (الجوانب الأربعة								
Q64	) السقف2عدد الثقوب مقاس (								
Q65	) على 3عدد الثقوب مقاس (الجوانب الأربعة								
Q66	) على 3عدد الثقوب مقاس (السقف								
Q67	عدد الثقوب التي تم اصلاحها								

	بالكامل							
Q68	عدد الثقوب التي تم اصلاحها جزئياً (تم تصغيره وما زال موجوداً)	□□		□□		□□		
Q69	هل تم تعديل الناموسية باي شكل من الأشكال؟							
		نعم	1	نعم	1	نعم	1	نعم
		لا	0	لا	0	لا	0	لا
		لا أدري	9	لا أدري	9	لا أدري	9	لا أدري
		اذا كانت الاجابة بلا او لا اعرف اذهب الى س 71	اذا كانت الاجابة بلا او لا اعرف اذهب الى س 71	اذا كانت الاجابة بلا او لا اعرف اذهب الى س 71	اذا كانت الاجابة بلا او لا اعرف اذهب الى س 71	اذا كانت الاجابة بلا او لا اعرف اذهب الى س 70	اذا كانت الاجابة بلا او لا اعرف اذهب الى س 71	اذا كانت الاجابة بلا او لا اعرف اذهب الى س 71
Q70	كيف تم تعديلها							
		تم تغيير الشكل	1	تم تغيير الشكل	1	تم تغيير الشكل	1	تم تغيير الشكل
		تم تطويله	2	تم تطويله	2	تم تطويله	2	تم تطويله
		تم تقويته	3	تم تقويته	3	تم تقويته	3	تم تقويته
		أخرى حدد	4	أخرى حدد	4	أخرى حدد.....	4	أخرى حدد .....

فتحة مقاس1=حجم الاصبع, فتحة مقاس2=حجم كف اليد وفتحة مقاس3=حجم الراس

الجزء الخامس: الناموسيات طويلة الاجل الأخرى التي تمتلكها الأسرة

أي ناموسية غير مستلمة من الحملة وهى طويلة الاجل يجب إدخالها أدناه

إذا لا توجد ناموسيات إضافية لدى الأسرة اذهب الى الجزء 6

	السؤال	1ناموسية		2ناموسية		3ناموسية		4ناموسية	
	ن نود طرح أسئلة حول الناموسيات الأخرى التي تمتلكها الأسرة مع فحصها								
	هل يمكن أن تعرض عليّ الناموسيات لدى الأسرة								
		فحصت	1	فحصت	1	فحصت	1	فحصت	1
		لم تفحص	0	لم تفحص	0	لم تفحص	0	لم تفحص	0
	أنظر للناموسية وماركتها (إذا وجدت) وحدد نوع الناموسية								
		بيرمانت	1	بيرمانت	1	بيرمانت	1	بيرمانت	1
	إذا لم تفحص أعرض صور الناموسية على المستجيب وأسأل	مخاطة بواسطة ترزي	2	مخاطة بواسطة ترزي	2	مخاطة بواسطة ترزي	2	مخاطة بواسطة ترزي	2
		غير معروفة النوع (بدون ماركة)	3	غير معروفة النوع (بدون ماركة)	3	غير معروفة النوع (بدون ماركة)	3	غير معروفة النوع (بدون ماركة)	3
		أخرى حدد	4	أخرى حدد	4	أخرى حدد.....	4	أخرى حدد	4
	أفحص وأسأل عن شكل الناموسية ما هو شكلها								
		مستطيله	1	مستطيله	1	مستطيله	1	مستطيله	1
		مخروطية	2	مخروطية	2	مخروطية	2	مخروطية	2
	أفحص وأسأل عن لونها ما هو لونها								
		أبيض	1	أبيض	1	أبيض	1	أبيض	1
		أخضر	2	أخضر	2	أخضر	2	أخضر	2
		أزرق	3	أزرق	3	أزرق	3	أزرق	3
		أخرى_ حدد.....	4	أخرى_ حدد.....	4	أخرى_ حدد.....	4	أخرى_ حدد.....	4
	منذ كم من الوقت امتلكت هذه	شهور إذا اقل من عامين		شهور إذا اقل من عامين		شهور إذا اقل من عامين		حدد أخرى	

	الناموسية *إذا كانت الفترة أقل 00أدخل من واحد شهر*		□□		□□		□□	
		أعوام إذا أكثر من عامين		أعوام إذا أكثر من عامين		أعوام إذا أكثر من عامين		أعوام إذا أكثر من عامين
			□□		□□		□□	
		98 لا أتذكر		98 لا أتذكر		98 لا أتذكر		98 لا أتذكر
		1 حملة جماعية		1 حملة جماعية		1 حملة جماعية		1 حملة جماعية
		2 خدمات أمومة وطفولة		2 خدمات أمومة وطفولة		2 خدمات أمومة وطفولة		2 خدمات أمومة وطفولة
		3 تحصين اطفال		3 تحصين اطفال		3 تحصين اطفال		3 تحصين اطفال
		4 مرفق صحي		4 مرفق صحي		4 مرفق صحي		4 مرفق صحي
		5 مركز تغذية		5 مركز تغذية		5 مركز تغذية		5 مركز تغذية
		6 مسجد أو كنيسة		6 مسجد أو كنيسة		6 مسجد أو كنيسة		6 مسجد أو كنيسة
		7 الأسرة أو أصدقاء		7 الأسرة أو أصدقاء		7 الأسرة أو أصدقاء		7 الأسرة أو أصدقاء
		8 مرفق صحي خاص		8 مرفق صحي خاص		8 مرفق صحي خاص		8 مرفق صحي خاص
	من أين تحصلت على هذه الناموسية	9 صيدلية		9 صيدلية		9 صيدلية		9 صيدلية
		10 متجر أو بقالة		10 متجر أو بقالة		10 متجر أو بقالة		10 متجر أو بقالة
		11 سوق		11 سوق		11 سوق		11 سوق
		12 باعة متجولون		12 باعة متجولون		12 باعة متجولون		12 باعة متجولون
		13 مدرسة		13 مدرسة		13 مدرسة		13 مدرسة
		14 منظمة غير حكومية		14 منظمة غير حكومية		14 منظمة غير حكومية		14 منظمة غير حكومية
		15 اخرى_حدد.....		15 اخرى_حدد.....		15 اخرى_حدد.....		15 اخرى_حدد.....
	هل دفعت أي نقود مقابل الناموسية	1 نعم		1 نعم		1 نعم		1 نعم
		0 لا		0 لا		0 لا		0 لا
		9 لا ادري		**9 لا ادري**		**9 لا ادري**		**9 لا ادري**

	السؤال	1ناموسية		2ناموسية		3ناموسية		ناموسية4	
	أسأل او لاحظ اين توجد الناموسية في المنزل خلال إجراء المقابلة أين توجد الناموسية الآن	معلقة فوق السرير/ المرتبة	1	معلقة فوق السرير/ المرتبة	1	معلقة فوق السرير/ المرتبة	1	معلقة فوق السرير/ المرتبة	1
		معلقة ومطوية أو مربوطة	2	معلقة ومطوية أو مربوطة	2	معلقة ومطوية أو مربوطة	2	معلقة ومطوية أو مربوطة	2
		غير معلقة وغير مخزنة	3	غير معلقة وغير مخزنة	3	غير معلقة وغير مخزنة	3	غير معلقة وغير مخزنة	3
		مخزنة بدون كيس	4	مخزنة بدون كيس	4	مخزنة بدون كيس	4	مخزنة بدون كيس	4
		مخزنة داخل الكيس	5	مخزنة داخل الكيس	5	مخزنة داخل الكيس	5	مخزنة داخل الكيس	5
		أخذت مؤقتاً لجهة ما	6	أخذت مؤقتاً لجهة ما	6	أخذت مؤقتاً لجهة ما	6	أخذت مؤقتاً لجهة ما	6
		أخرى_ حدد.....	7	أخرى_ حدد.....	7	أخرى_ حدد.....	7	أخرى_ حدد.....	7
	هل نام أي شخص تحت هذه الناموسية الليلة الماضية	نعم	1	نعم	1	نعم	1	نعم	1
		لا	0	لا	0	لا	0	لا	0
		لا أدري	9	لا أدري	9	لا أدري	9	لا أدري	9
		إذا نعم اذهب س81		**إذا نعم اذهب س81**		**إذا نعم اذهب س81**		**إذا نعم اذهب س81**	
	إذا كانت الاجابة بلا لماذا	لا يوجد باعوض	1	لا يوجد باعوض	1	لا يوجد باعوض	1	لا يوجد باعوض	1
		لا توجد ملاريا	2	لا توجد ملاريا	2	لا توجد ملاريا	2	لا توجد ملاريا	2
		الطقس حار جداً	3	الطقس حار جداً	3	الطقس حار جداً	3	الطقس حار جداً	3
		الرائحة غير محببة	4	الرائحة غير محببة	4	الرائحة غير محببة	4	الرائحة غير محببة	4
		الإحساس بالاختناق	5	الإحساس بالاختناق	5	الإحساس بالاختناق	5	الإحساس بالاختناق	5
		الناموسية قديمة وممزقة	6	الناموسية قديمة وممزقة	6	الناموسية قديمة وممزقة	6	الناموسية قديمة وممزقة	6
		الناموسية متسخة للغاية	7	الناموسية متسخة للغاية	7	الناموسية متسخة للغاية	7	الناموسية متسخة للغاية	7
		الناموسية غير متواجدة (في الغسيل)	8	الناموسية غير متواجدة (في الغسيل)	8	الناموسية غير متواجدة (في الغسيل)	8	الناموسية غير متواجدة (في الغسيل)	8
		صاحبها غير متواجد أمس	9	صاحبها غير متواجد أمس	9	صاحبها غير متواجد أمس	9	صاحبها غير متواجد أمس	9
		لم تكن هناك حوجة لها	10	لم تكن هناك حوجة لها	10	لم تكن هناك حوجة لها	10	لم تكن هناك حوجة لها	10

		أخرى_ حدد.....	11	أخرى_ حدد.....	11	أخرى_ حدد.....	11	أخرى_ حدد.....
		لا أدري	98	لا أدري	98	لا أدري	98	لا أدري
		رقم الأقارب المتسلسل)Q01(		رقم الأقارب المتسلسل)Q01(		رقم الأقارب المتسلسل)Q01(		رقم الأقارب المتسلسل)Q01(
	اذا كانت الاجابة بنعم في السؤال رقم 79 اكتب رقم الشحص المتسلسل من السؤال رقم 1		1		1		1	1
			2		2		2	2
			3		3		3	3
			4		4		4	4
			5		5		5	5
	كم عدد الليالي التي إستخدمت فيها الناموسية في الاسبوع الماضي	ليالي)7كل ليلة (	1	ليالي)7كل ليلة (	1	ليالي)7كل ليلة (	1	1
		)5-6أغلب الليالي (	2	)5-6أغلب الليالي (	2	)5-6أغلب الليالي (	2	2
		)1-4بعض الليالي (	3	)1-4بعض الليالي (	3	)1-4بعض الليالي (	3	3
		لم تستعمل الأسبوع الماضي	4	لم تستعمل الأسبوع الماضي	4	لم تستعمل الأسبوع الماضي	4	4
		لم تستعمل إطلاقاً	5	لم تستعمل إطلاقاً	5	لم تستعمل إطلاقاً	5	5
		لا أدري	9	لا أدري	9	لا أدري	9	9
	هل تم غسل هذه الناموسية	نعم	1	نعم	1	نعم	1	1
		لا	0	لا	0	لا	0	0
		لا ادري	9	لا ادري	9	لا ادري	9	9
	كم عدد مرا ت الغسيل في الستة أشهر الماضية أو منذ الحصول عليها 6(إذا المدة أقل من شهور)							

أسأل عن أي ناموسيات أخرى إضافية إذا لم تكن مستعمله في الوقت الحاضر ، مثلاً تحت التجفيف بعد الغسيل أو مؤقتاً تم أخذها لمكان آخر (مثلاً أماكن الزراعة).

الجزء السادس: الإتصال والتوعية:

لة الآتية يجب طرحها على جميع الأسر				
	في الأشهر الستة الأخيرة هل تلقيت أي معلومات عن أمتلاك وإستخدام والعناية ب وإصلاح الناموسيات من أي مصدر			
		نعم	1	إذا كانت الاجابة بلا او لا أدري اذهب الى 88س
		لا	0	
		لا أدري	9	
	ما هي مصادر تلك المعلومات يمكن الإجابة بأكثر من واحدة ما أمكن ذلك			
		المجتمع	1	
		رسالة أو حديث إذاعي	2	
		أغنية على الراديو	3	
		تمثيلية	4	
		كادر صحي	5	
		قائد مجتمع	6	
		حكامة	7	
		متطوع	8	
		صيدلية أو تاجر	9	
		عائلة أو أصدقاء	10	
		مسجد أو كنيسة	11	
		صحيفة أو تلفزيون	12	
		أخرى	13	
		حدد أخرى		
	ما هو محتوى الرسائل التى سمعتها / رأيتها *يمكنك تعدد الإجابات*			
		استعمل الناموسية لديك	1	
		اعتني بالناموسية لديك	2	
		علق الناموسية لديك	3	
		نم تحت ناموسيتك كل ليلة	4	
		الناموسيات تحمي من الملاريا	5	
		اصلح ناموسيتك	6	

		حدد أخرى	8	
	ما هو أكثر مصدر معلومات مفضل لديك حدد ثلاثة مصادر			
		المجتمع	1	
		رسالة أو حديث إذاعي	2	
		أغنية على الراديو	3	
		تمثيلية	4	
		كادر صحي	5	
		قائد مجتمع	6	
		حكامة	7	
		متطوع	8	
		صيدلية أو تاجر	9	
		عائلة أو أصدقاء	10	
		مسجد أو كنيسة	11	
		صحيفة أو تلفزيون	12	
		أخرى	13	
		حدد أخرى		
	باي لغة تفضل إستقبال الرسائل او المعلومات	العربية	1	
		اخرى_حدد.....	2	
	هل ناقشتم العناية ب أو إصلاح ناموسيتك مع افراد اسرتك			
		نعم	1	
		لا	0	

الآن سأطرح عليك مجموعة من الإجراءات التي يمكنك أن تتخذها وأسألك الي أي مدى أنت متأكد من إتخاذها بنجاح

أرجو إخباري ما إذا كان كل إجراء بالضرورة اومحتمل إجراؤه أو بالضرورة لا يمكن

		بالضرورة يمكن	إحتمال يمكن	إحتمال لا يمكن	بالضرورة لا يمكن	
Q91	الحصول على كميات كافية لكل أطفالك	1	2	3	4	
Q92	علق ناموسية على أماكن نوم أطفالك	1	2	3	4	
Q93	أحمي نفسك وأطفالك من الإصابة بالملاريا	1	2	3	4	
Q94	النساء الحوامل يجب عليهن النوم تحت الناموسية كل ليلة	1	2	3	4	
Q95	نم تحت الناموسية كل ليلة خلال السنة	1	2	3	4	
Q96	دع كل أطفالك ينامون تحت ناموسية كل ليلة خلال السنة	1	2	3	4	

الآن سأقرأ عليك بعض الاقوال وأريد منك أن تخبرني الي أي مدى يمكن أن تتفق معي كلياً أو قليلاً أو لا تتفق كلياً أو قليلاً حول كل مقولة

		أوافق بشدة	أوافق الي حدٍ ما	لا أوافق لحد ما	لا أوافق اطلاقاً	
Q97	بعض الناس الذين ينامون تحت الناموسية يصابوا بالملاريا	1	2	3	4	
Q98	النوم تحت الناموسية أفضل وسيلة حماية ضد الملاريا	1	2	3	4	
Q99	الناموسيات الجديدة تحمي الشخص من الملاريا لعدة سنوات	1	2	3	4	
Q100	البعوض الميت على الأرض أو علي سقف الناموسية أكبر دليل على أن الناموسية ما زالت فعالة	1	2	3	4	
Q101	الناموسية يمكن أن تكون بها عدة ثقوب في أشهر قليلة لكنها تظل تحمى من لدغات البعوض	1	2	3	4	

الآن سأقرأ عليك بعض المقولات وأريد منك أن تخبرني الي أي مدى يمكن أن تتفق معي كلياً أو قليلاً أو لا تتفق كلياً أو قليلاً حول كل مقولة

		أوافق بشدة	أوافق الي حدٍ ما	لا أوافق لحد ما	لا أوافق اطلاقاً	
Q102	الناموسيات آمنة للإستعمال	1	2	3	4	
Q103	النوم تحت الناموسية يوفر النقود	1	2	3	4	

Q104	من الصعوبة النوم تحت الناموسية عندما يكون الطقس حارا	1	2	3	4	
Q105	النوم تحت الناموسية ضروري طيلة أيام السنة في قريتنا	1	2	3	4	
Q106	كثير من الناس في هذه المنطقة لا يفضلون النوم تحت الناموسية	1	2	3	4	

الجزء السابع: العناية بالناموسية واصلاحها:

رقم	السؤال	المجموعات			استبعد
الان نريد ان نسأل بعض الاسئلة عن العناية بناموسيتك					
Q107	هل تعاملت مع أي ثقوب بالناموسية لديك				**إذا كان الاجابه بلا أذهب الي س 113**
			نعم	1	
			لا	0	
Q108	**كيف حدثت هذه الثقوب** ***" لكل الإجابات إذا كانت 1اختار ") إذا لم يفعلوا ذلك0مطابقة و (***				
		تمزقت عندما أمسكت بطرف ما أو مسمار	1	0	
		عندما جذبها من الجانب وتمزقت	1	0	
		تمزقت بلعب الاطفال	1	0	
		إحترقت بشمعة أو بشرارة	1	0	
		بفعل الفئران أو القوارض	1	0	
		بشكل آخر	1	0	
		تضررت أثناء التجفيف بعد غسلها	1	0	
		لا أدري	1	0	
Q109	خلال الستة أشهر الماضية هل حاولت إصلاح أي من الثقوب أو إصلاحها بواسطة شخص آخر				**إذا الاجابة بلا اذهب السس112**
			نعم	1	
			لا	0	
Q110	كيف تم إصلاح الثقوب؟ ***" لكل الإجابات إذا كانت 1اختار ") إذا لم يفعلوا ذلك0مطابقة و (***				
		تم خياطتها	1	0	
		تم ربطها أو قفلها	1	0	
		تم ملأها بشئ ما	1	0	
		بطريقة آخرى	1	0	
Q111	خلال الستة أشهر الماضية من الذي				

	أجرى الإصلاحات على الثقوب بالناموسية ***" لكل الإجابات إذا كانت 1اختار "*** ***) إذا لم يفعلوا ذلك0مطابقة و (***		نعم	لا	
		أحد أفراد الأسرة	1	0	
		ترزي	1	0	
		صديق أو قريب	1	0	
		متطوع في المجتمع	1	0	
		أخرى_ حدد.....	1	0	
Q112	ما السبب الرئيسي في عدم إصلاح الثقوب				
		لا يوجد وقت لذلك		1	
		ليس ضروري فعل ذلك		2	
		لا أعرف كيف		3	
		لا توجد لدي مواد للإصلاح		4	
		الثقوب غير كبيرة للغاية لإصلاحها		5	
		غير ممكن إصلاح الثقوب		6	
		أخرى_حدد.....		7	
		لا أدري		9	
Q113	ما هو الإجراء الذي تتخذه بالمنزل لحماية الناموسية من التمزق أو حدوث الثقوب ***يجب أن لا تطرح الإجابات بصوت عالي.*** ***وأسأل مرتين مع أي وسائل أخرى)*** ***) 0) لكل إجابة مذكورة (1ضع (*** ***للإجاباتالغير مذكورة***				
			نعم	لا	
		ضعها بعيداً عن متناول الأطفال	1	0	
		ضعها بعيداً عن القوارض أو الحشرات	1	0	
		لفها أربطها في حالة عدم الإستعمال	1	0	
		تعامل معها بعناية	1	0	
		يجب أن لا تتسخ ببقايا الطعام	1	0	
		أحفظها بعيداً عن اللهب أو النار	1	0	
		أغسلها بلطف	1	0	
		أغسلها فقط عندما تتسخ	1	0	
		أفحص بإنتظام عن الثقوب بالناموسية	1	0	
		اصلح الثقوب الصغيرة بسرعة	1	0	

		غير ممكن منع حدوث الثقوب	1	0	
		لا يجب عمل شئ	1	0	
		أخرى_حدد.....	1	0	
			1	0	

رقم	السؤال		المجموعات	استبعد	
Q114	ما هي الطريقة المثلى لغسل الناموسية ***يجب أن لا تطرح الإجابات بصوت عالي.*** ***وأسأل مرتين مع أي وسائل أخرى)*** ***) لكل إجابة مذكورة 1ضع ( ) للإجاباتالغير مذكورة 0(***				
			نعم	لا	
		بلطف	1	0	
		في حوض	1	0	
		بصابون خفيف	1	0	
		عندما تكون غذرة فقط	1	0	
		لا أكثر من مرة واحدة كل ثلاثة أشهر	1	0	
		ليس في نهر	1	0	
		أخرى_حدد.....	1	0	

الآن سأقرأ عليك بعض الاقوال وأريد منك أن تخبرني الي أي مدى يمكن أن تتفق معي كلياً أو قليلاً أو لا تتفق كلياً أو قليلاً حول كل مقولة

	توجد أسئلة كثيرة في هذا القسم	أوافق بشدة	أوافق الي حدٍ ما	لا أوافق لحد ما	لا أوافق اطلاقاً
Q115	الناموسيات ذات قيمة	1	2	3	4
Q116	توجد إجراءات يمكن أن تطيل عمر الناموسية	1	2	3	4
Q117	لا يمكن إصلاح الثقوب في الناموسيات	1	2	3	4
Q118	الناموسية المصلحة يمكن أن تكون فعالة ضد البعوض	1	2	3	4
Q119	يوجد بعض الناس في هذا المجتمع يصلحون الثقوب بناموسياتهم	1	2	3	4
Q120	ليس لدي وقت لإصلاح ثقب في ناموسيتي	1	2	3	4

Q121	يمكن أن أحمي أسرتي من الملاريا بالعناية بالناموسية لدينا	1	2	3	4
Q122	أنا واثق يمكنني إصلاح الثقوب فوراً	1	2	3	4

نهاية الإستبيان

شكراً للمستجيب لوقته وتعاونه

ملاحظات الباحث:فضلاً أذكر أي مشاكل واجهتك في إكمال هذه المقابلة مع هذه الإسرة