The Alliance for Malaria Prevention

A toolkit for mass distribution campaigns to increase coverage and use of long-lasting insecticide-treated nets

Second Edition 2012

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Acronyms and abbreviations

AEFI	Adverse effects from immunization
AMP	Alliance for Malaria Prevention
ANC	Antenatal care
BCC	Behaviour change communication
BD	Bidding document
CIF	Cost, insurance, freight
CIP	Carriage and insurance paid
CBO	Community-based organization
CCM	Country Coordinating Mechanism
CDC	Centers for Disease Control and Prevention
CHPS	Community-Based Health Planning and Services (Ghana)
CLT	Central Logistics Team
CMA	Commodity Management Assessment
DHMT	District health management team
DHS	Demographic and Health Survey
DHO	District Health Office
DP	Distribution point
EA	Enumeration area
EPI	Expanded Programme on Immunization
FAO	Food and Agriculture Organization of the United Nations
FAQ	Frequently asked question
GMAP	The Global Malaria Action Plan of Roll Back Malaria
GMP	Global Malaria Programme of World Health Organization
GPS	Global positioning system
HMIS	Health Management Information System
HWG	Harmonization Working Group of Roll Back Malaria
ICB	International Competitive Bidding
ICC	Inter-agency Coordinating Committee
IEC	Information, education and communication
IFRC	International Federation of Red Cross and Red Crescent Societies
IPC	Interpersonal communication
IPT	Intermittent preventive treatment
IRS	Indoor residual spraying
ITN	Insecticide-treated net
LCCN	LLIN Campaign Coordination Network (Nigeria)
LGA	Local government area
LLIN	Long-lasting insecticide-treated net
LPoA	Logistics Plan of Action
LQAS	Lot quality assurance sampling
MCH	Mother-child health
MDA	Mass drug administration
MDGs	Millennium Development Goals
M&E	Monitoring and evaluation
MERG	Monitoring and Evaluation Reference Group of Roll Back Malaria

MICS	Multiple Indicator Cluster Survey
MIS	Malaria Indicator Survey
MoH	Ministry of Health
MQ	Macro-quantification
NCC	National Coordinating Committee
NGO	Non-governmental organization
NMCP	National Malaria Control Programme
NTDs	Neglected tropical diseases
PAHO	Pan American Health Organization
PDA	Personal digital assistant
PLWHA	People living with HIV/AIDS
PMI	President's Malaria Initiative
PoA	Plan of Action
PPS	Prepositioning site (logistics)
PPS	Probability proportional to size (M&E)
PR	Principal recipient (Global Fund)
PSA	Procurement Services Agent (Global Fund)
PSI	Population Services International
PSM	Procurement and supply management
PSS	Procurement Support Services (Global Fund)
QA	Quality assurance
QC	Quality control
RBM	Roll Back Malaria
RFP	Request for proposals
RFQ	Request for quotations
RHMT	Regional Health Management Team
SIA	Supplementary immunization activities
SMS	Short message service (text message)
SR	Secondary recipient (Global Fund)
SST	State Support Teams (Nigeria)
SWOT	Strengths, weaknesses, opportunities, threats
TA	Technical adviser
ToT	Training of trainers
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
VIP	Very important person
VPP	Voluntary pooled procurement
WB	World Bank
WB	Waybill (logistics)
WHO	World Health Organization
WHOPES	World Health Organization Pesticide Evaluation Scheme

Foreword

Long-lasting insecticide-treated nets (LLINs) are a critical and highly effective component of malaria prevention and control programmes. Net use has been shown to reduce all-cause mortality in children under five years of age by about 20 per cent and malarial illnesses among children under five and pregnant women by up to 50 per cent. LLINs not only protect individuals sleeping under them from being bitten, but the insecticide also kills mosquitoes that land on nets, reducing overall malaria transmission in the community.

Until relatively recently, global efforts to scale up effective malaria prevention and treatment interventions targeted those at greatest risk of malaria, namely children under five years of age and pregnant women. In an effort to further reduce malaria morbidity and mortality and to strengthen health systems, many malaria programmes have adopted the 2007 World Health Organization recommendation calling for universal coverage of the entire population at risk of malaria. From 2008 to 2011, more than 25 African countries have implemented universal coverage strategies, delivering approximately 200 million LLINs to populations in endemic areas and saving hundreds of thousands of lives.

However, new challenges lie ahead as LLIN programmes expand en route to sustained universal coverage. Data from recent African studies on net durability demonstrate the potential need for earlier net replacement than current guidelines suggest. While some nets may last longer than three years, many are likely to last less time, and data show that the physical lifespan of LLINs varies widely by country and even sub-nationally. WHO now recommends regular monitoring of LLIN durability; the findings can trigger changes in distribution strategies, especially where coverage has decreased to levels where the malaria transmission is rising. In addition, maintaining universal coverage requires a diversified approach: mass distribution of LLINs through campaigns, complemented by systems for continuous LLIN distribution, via such channels as routine immunization programmes and antenatal visits, as well as subsidized and full cost private sector sales. It is critical that malaria control partners advocate for funding such a multi-pronged approach if we are to sustain the hard-won gains made over recent years in reducing malaria morbidity and mortality.

The World Health Organization is pleased to be an active contributor to the Alliance for Malaria Prevention, a working group of the Roll Back Malaria Partnership. Through

its more than 40 members, AMP works to scale up LLIN ownership and use and build national capacity to sustain the fight against malaria. The original AMP toolkit for conducting integrated LLIN mass distributions has proven to be an invaluable resource for thousands of health workers, policy-makers and communities in the expansion of LLIN ownership throughout Africa and beyond. This welcome second edition of the AMP toolkit provides well-documented guidance, resources, and tools focusing both on campaigns and on routine continuous LLIN distribution systems. It describes overall campaign planning and implementation, including the importance of establishing coordination structures, procurement, logistics, communication, monitoring and evaluation and reporting. The examples of best practices that are provided will serve as a valuable resource for countries planning comprehensive approaches to achieving and maintaining universal coverage with LLINs. Perhaps most importantly this toolkit pays tribute to the excellent work being done by National Malaria Control Programmes and their partners in many countries, primarily in sub-Saharan Africa.

Based on years of solid experience by country programmes and partner organizations, the AMP toolkit is an outstanding contribution for countries facing the challenge of scaling up LLIN coverage and utilization to meet their national goals of preventing illness and death due to malaria, and reaching the health-related Millennium Development Goals. We wholeheartedly encourage widespread use of the toolkit as we collectively strive towards reaching our ambitious 2015 objectives.

Robert D Newman, MD, MPH
Director, Global Malaria Programme
World Health Organization

Tchad. © MENTOR Initiative

Background to the AMP toolkit

The Alliance for Malaria Prevention (AMP) is a partnership of over 40 partners, including government agencies, private sector businesses, public sector organizations, faith-based organizations and humanitarian organizations. Each of these partners provides an invaluable contribution to the partnership in supporting countries to reach the Roll Back Malaria (RBM) Targets Beyond 2011 and 2015 Millennium Development Goals (MDGs) through increased LLIN ownership and use.

The RBM partnership was initiated in 1998. Initially founded by the Director General of the World Health Organization (WHO), with the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP) and the World Bank, it now has more than 500 partners from all sectors active in the malaria field, including foundations, multi-lateral institutions, non-governmental organizations, the private sector and research and academia. Its Malaria Toolbox aims "to strengthen malaria-endemic country capacity" by "offering … existing "tools" (broadly defined) to help national programme managers, their teams and their collaborating partners to improve programme action and performance. The RBM Partnership seeks systematized, easy-to-use, and publicly accessible tools for capturing and disseminating proven practices so that successes in the field can be shared widely and replicated."[a]

RBM's Harmonization Working Group (HWG) facilitates and harmonizes partners' support in response to country-identified needs and supports the establishment of the 'three ones' principles for malaria (one coordinating mechanism, one plan and one monitoring and evaluation system) at country level[b].

The first edition of the AMP toolkit complemented the RBM Toolbox and the work of the HWG by providing detail on the development of integrated campaigns to encourage the distribution and use of long-lasting insecticide-treated nets (LLINs) by children under five years of age. This second edition of the toolkit supports the planning and implementation of scale-up campaigns for LLINs to universal coverage for the entire population at risk of malaria in a country.

Purpose of the toolkit

The toolkit brings together country and partner experiences to provide an overview of various strategies employed in mass LLIN scale-up, as well as lessons learned. This is the second edition of the AMP toolkit. The first edition focused primarily on integrated and targeted LLIN distribution campaigns, reflecting the policy of ensuring coverage of children under five years of age, via measles vaccination and child health days, for example. This second edition, in line with current international and country policies around malaria prevention and control, provides more examples and lessons learned from universal coverage distributions aimed to ensure that the entire population at risk of malaria is protected.

This toolkit provides a step-by-step guideline for the planning and implementation of mass LLIN distributions, whether targeted to specific population groups or for universal coverage. It includes information on coordination, planning and budgeting, procurement, logistics, communication, implementation, monitoring and evaluation, reporting results and sustaining gains.

The AMP toolkit is accompanied by a CD with reference documents and examples that have been collected from campaigns carried out in different countries. The reference documents, such as campaign plans of action, logistics and communication plans, training guides, communication materials, evaluation protocols, supply chain management tracking tools and

data collection templates can be modified to local situations and contexts. Both English and French examples are included of most items. The examples provided represent best practices to date and reflect the experiences of countries moving from low to high LLIN coverage through mass LLIN distribution[c].

Audience for the AMP toolkit

The AMP LLIN scale-up toolkit is designed for use by National Malaria Control Programmes (NMCP) and partner organizations involved in planning and implementing mass distribution campaigns for universal coverage. The toolkit is primarily focused on central level planning, but also contains information on regional or district planning, as the same lessons apply on a smaller scale. As countries begin or continue the scale-up process, the toolkit should provide guidance and should encourage planning based on experiences and lessons learned from other countries.

Using the AMP toolkit

The toolkit provides guidelines for planning and implementing mass LLIN distributions. Each chapter in the toolkit provides a narrative accompanied by a series of references or tools that are included on the CD. References and tools are provided as examples and should be modified to reflect each country's specific situation.

Although a number of countries have now undertaken universal coverage distributions of various scales, this kind of campaign remains new to many countries and partners. The AMP toolkit provides documents that are available at time of publication, but it is certain that there will be many more experiences and recommendations in the coming months and years as countries move towards meeting the RBM Targets Beyond 2011 for prevention of malaria and the 2015 MDGs (see below). For this reason, the toolkit is considered to be a living document and additional references will be made available on the AMP website[d] as they come into existence. The AMP partnership will collect new references and tools through the AMP e-mail address[e]. Major updates will be announced via the AMP website, through AMP conference calls and minutes, and through the RBM e-update.

Roll Back Malaria Targets Beyond 2011

- Reduce global malaria deaths to near zero by end 2015.
- Reduce global malaria cases by 75 per cent by 2015 (from 2000 levels).
- Eliminate malaria by 2015 in ten new countries (since 2008) and in the WHO Europe Region.

Content of the AMP toolkit

Chapter 1 gives the background to LLIN scale-up and move to universal coverage, together with an assessment of the impact it may have on reduction of the malaria burden. The need to ensure correct utilization of LLINs following the scaling up of coverage is also discussed. LLIN scale-up is seen as one part of a continuous distribution strategy for ensuring sustained high coverage with malaria prevention.

Chapter 2 stresses the importance of good coordination for planning and implementing mass distribution campaigns. Partners, led by the Ministry of Health and the National Malaria Control Programme, must work together to ensure successful achievement of campaign and country goals. The need for good coordination applies whether the planned campaign is national or regional in scale, stand-alone or integrated. A broad range of partners from different sectors of society and with different skills and expertise should be involved. The key to good coordination is communication.

- End poverty and hunger: Reduce those suffering from hunger and poverty by half
- Universal education: Ensure that all boys and girls complete a full course of primary schooling
- Gender equality: Eliminate gender disparity in primary and secondary education
- Child health: Reduce by two thirds the mortality rate of children under five
- Maternal health: Reduce by three quarters the maternal mortality ratio
- Combat HIV/AIDS: Halt and begin to reverse the spread of HIV/AIDs and other diseases
- Environmental sustainability: Integrate the principles of sustainable development into country policies and programmes
- Global partnership: Develop open trading and financial systems that are non-discriminatory

Chapter 3 advises on the planning of mass distribution campaigns, involving all partners and beginning early enough to identify any gaps in resources with sufficient time to fill them before implementation. It describes the planning requirements for different kinds of mass distribution campaigns, both integrated and stand-alone, targeted or universal coverage. Quantification methods for LLINs and other resources, such as personnel, are also detailed, and recommendations are given for the detailed plan of action which must be developed.

Chapter 4 details the procurement of LLINs, usually internationally, separating the purchasing process from the main logistics operations, including LLIN storage, control and distribution, which are described in Chapter 5. Timelines for the procurement of LLINs through the World Bank, the Global Fund, JSI Deliver project, supporting USAID/PMI-funded programmes and UNICEF, showing the differences in their terminology and procedures, are provided in the annexes.

Madagascar. © Wendell Phillips, Canadian Red Cross

Chapter 5 gives a detailed breakdown of the vital role of logistics in a successful mass distribution campaign. The chapter follows a logical sequence of steps, each one building on the earlier ones, including macro- and micro-planning, budgets, training, supervision and monitoring, and tracking and accountability. The guidelines included are intended to be adapted to each country's specific context, leading logistics implementers through the movement of LLINs down the supply chain to successful distribution to the end users.

Chapter 6 focuses on the key role of communication, a vital activity before, during and after a campaign. Communication activities include advocacy, social mobilization and behaviour change communication. Advocacy is carried out at both country level and at international level. It fosters political will and support for mass distribution campaigns. Social mobilization in the form of information activities to target groups ensures that there is high community participation in campaign activities. Behaviour change communication helps to influence individual and social norms by encouraging positive behaviours, such as consistent and correct use of LLINs and good LLIN maintenance.

Chapter 7 details the steps required to achieve successful implementation of a mass distribution campaign. The engagement of personnel at the operational level is vital early on to begin the micro-planning process so that plans and budgets are finalized and any gaps identified with time left to fill them. The use of planning templates is recommended, developed at central level and provided for use at operational level. Once micro-planning is complete, it is possible to identify the personnel that will be needed and to provide sufficient training opportunities in advance of campaign implementation. The chapter goes on to discuss LLIN allocation strategies and beneficiary identification, methods of LLIN distribution, data collection and management issues and supervision and monitoring throughout the campaign.

Chapter 8 discusses a monitoring and evaluation strategy that is vital to determine optimal use of resources during a mass distribution campaign, together with an analysis of results in order to inform future campaigns. The chapter provides a basic framework of the measurable inputs, processes, outputs, outcomes and impacts that can be used to track key elements of the campaign and to assess results. Survey methods and statistical sampling are described, together with practical considerations for their use.

Chapter 9 focuses on the importance of preparing a final report on LLIN mass distribution campaigns, giving an objective assessment of the strengths and weaknesses of each campaign, and proposing recommendations for future campaigns. The chapter gives suggestions for the content of the report, detailing the key elements of implementation, logistics, communication and finances, and analysing results and gains.

Chapter 10 discusses how countries can move beyond scale-up activities and sustain gains made in recent mass distribution campaigns. The main recommendation is that continuous distribution of LLINs is required to maintain high population access, ownership and utilization. One of the main continuous distribution channels is public sector delivery via routine distribution at health facilities and is being emphasized as a proven and successful method for ensuring that the highest risk population groups are covered. It does, however, require a significant enhancement of the existing health system. The chapter suggests the steps that need to be taken to implement this change, and also briefly touches upon other channels for continuous distribution of LLINs.

Endnotes

a. Available at: www.rbm.who.int/toolbox/index.html

b. Information at: www.rbm.who.int/mechanisms/hwg.html

c. Roll Back Malaria (RBM) Vector Control Working Group (VCWG) Continuous LLIN Distribution Systems Work Stream, *Country-to-country guide for implementers of LLIN Keep-Up: A guide for continuous delivery of LLINs via ANC, EPI, and other routine health services.* Draft 2011. See: www.rbm.who.int/mechanisms/vcwgWorkstream3.html

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Niger. © John Haskew, IFRC

1: Introduction

1.1 Brief history of LLIN scale-up and move to universal coverage

Among the methods for increasing coverage and utilization of effective malaria prevention, mass distribution of LLINs is a key strategy. Since 2002, the mass distribution of LLINs through large-scale integrated or stand-alone campaigns has been used as a catch-up strategy for countries to make rapid and significant gains toward reducing malaria morbidity and mortality. Mass LLIN distribution campaigns are, however, a multifaceted undertaking requiring many months of planning and complex logistics, and for these reasons as well as cost they are only planned every few years, either to increase coverage rapidly or to replace nets among a large part of a country's population.

It is therefore critical that countries support channels for their population to access LLINs by other means and on a continuous basis[ab]. The availability of LLINs through routine systems, such as during routine vaccinations and antenatal care where they are generally provided free of charge to young children and pregnant women, or through community or commercial outlets at subsidized or a market price, should be part of an overall strategy for the keep-up or post scale-up phase to ensure that gains achieved during mass distributions are sustained (see Resource R1-1 on the accompanying CD.) The distribution of LLINs by all methods must be integrated within countries' broader malaria prevention strategies. Malaria prevention with LLINs is only one part of broader national malaria control plans, which include treatment, diagnostics and other vector control options such as indoor residual spraying.

Sierra Leone. © Melanie Caruso, IFRC

The focus on LLIN scale-up really began in 2002 when the American Red Cross and Measles Initiative partners pilot-tested the first integrated campaign by putting together LLIN distribution with supplementary immunization activities in one region of northern Ghana. The results of the pilot study demonstrated that distributing free LLINs to children under five years of age as part of a mass measles vaccination campaign led to "rapid, high and equitable coverage at low cost" [c]. The encouraging results led to similar activities in five districts of Zambia in 2003. When the LLIN distributions were evaluated six months after the campaign, the results showed that 97 per cent of targeted households had retained their campaign nets and overall household coverage had increased from 29 per cent before the campaign to 85 per cent after the campaign. Another important accomplishment was the achievement of high equity across economic quintiles[1] after mass distributions, compared with inequitable access to nets prior to the campaign distributions, meaning that through the mass distribution model the poorest and least poor quintiles of the population have equal access to LLINs.

[1] A statistical value of a data set that represents 20 per cent of a given population. Quintiles are often used to create cut-off points, such as income, for a given population.

In 2004, based on the experiences in Ghana and Zambia, WHO and UNICEF issued a joint statement, "Malaria Control and Immunization: a sound partnership with great potential". The joint statement describes common methods of delivery and other points of synergy between malaria control and immunization and states that "these overlaps and similarities make it imperative to coordinate and seek synergies by working together from the level of the village up to the headquarters of international organizations"[d].

In 2004, the first national-level integrated campaign took place in Togo. Post-campaign evaluations, at one and nine months post-distribution, demonstrated high coverage of all campaign interventions, including a significant increase in household ownership and use of LLINs. From 2004, the integrated mass distribution model was adopted by a number of countries, helping them to move more quickly and effectively towards attainment of their malaria prevention goals.

The rigorous evaluations that were undertaken by the Centers for Disease Control and Prevention (CDC) between 2002 and 2005 on the integrated campaign models in Ghana, Zambia, Togo, Niger and Mozambique demonstrated:

- high coverage (compared to pre-campaign) in households with children under five years of age, with the possibility to scale up coverage rapidly through an established Expanded Programme on Immunization (EPI) activity
- high equity across economic quintiles with the reach of campaigns being sufficient to address inequities of access between most poor and least poor households
- high retention of campaign nets in households
- no negative impact on vaccination campaigns if well planned and implemented

The findings helped answer some of the key questions being posed by international and national organizations which had prevented full buy-in to the mass, free distribution model.

In 2007, the policy for malaria control changed from targeted distributions (prioritizing the most vulnerable groups: children under five years of age and pregnant women) to universal coverage for all persons at risk of malaria. With this shift, it has been more difficult to link vaccination campaigns with LLIN delivery since the target groups differ. While distribution to vulnerable groups may be prioritized when there are insufficient LLINs for a universal coverage campaign, most countries have incorporated universal coverage targets into their national strategies and are moving closer to this goal with the support of increased resources from various funders. Where countries have limited experience and/or resources for mass LLIN distribution, including insufficient LLINs, targeted campaigns that build on the EPI experience and ensure coverage of vulnerable groups at a minimum remain a good strategy. This strategy will, however, leave these countries with a need to implement "fill-in" or "mop-up" methods of LLIN distribution to protect their entire population. In future, as integrated campaigns are a good method for maintaining high coverage among the most vulnerable groups, they should be considered an important channel for sustaining gains achieved after universal coverage campaigns.

Today, countries are at different stages in their malaria prevention and control activities. While many countries will succeed in meeting the Roll Back Malaria (RBM) Targets Beyond 2011 and moving to a post scale-up phase, other countries may not achieve these targets for a number of years. In addition, some countries are now reaching a transition point where they have been focusing on targeted mass distribution to children under five years of age, but now need to scale up to full population coverage.

1.2 WHO Global Malaria Programme (GMP) LLIN universal coverage policy

Insecticide-treated nets not only repel, but also kill a proportion of the female mosquitoes that

try to bite[e]. Long-lasting insecticide-treated nets (LLINs) are designed to maintain their biological efficacy against vector mosquitoes for at least three years in the field under recommended conditions of use[f], with a corresponding reduction in the need for regular insecticide retreatment.

The WHO policy shift from targeted to universal LLIN coverage was made to provide more comprehensive and equitable protection. Individual use of a treated net is still one of the best possible forms of personal protection in malaria-endemic areas and remains valuable in public health terms[g] but when ITNs are used by a large proportion of the community, as is encouraged by universal coverage, the presence of a significant amount of insecticide also has a community or mass effect akin to the "herd immunity" of large-scale immunization. In areas where most of the population are using treated nets, this "baited trap" effect caused by the dual action of repelling and killing mosquitoes will in time reduce the transmission of malaria by the local mosquito population as a whole[h]. This large-scale use of nets can therefore confer significant protection to the entire human population, in the sense that in addition to the direct personal benefit to the person(s) sleeping under the net, nearby people with no nets may also be protected[ij]. Universal coverage assumes that nets are available to 100 per cent of the population and that at least 80 per cent of those with access will use the net each and every night, thus maximizing the benefits of treated nets by protecting the total population from malaria infection. The strength of this mass effect presumably increases with the level of local treated net coverage[k], giving an even greater incentive for countries to reach and maintain universal coverage.

WHO/GMP therefore recommends full coverage with LLINs of all people at risk of malaria in areas targeted for malaria prevention ("universal coverage"). In most high-burden countries, insecticide-treated net coverage is still below set targets (whether National Malaria Control Programme (NMCP) or global targets). The best opportunity for rapidly scaling up malaria prevention is the free or highly subsidized distribution of LLINs through existing public health services and their partners via a specific campaign or campaigns. Gains achieved should then be sustained through continuous distribution, EPI and ANC routine channels and, where appropriate, subsidized sales and through the private sector. LLINs should be considered a public good for populations living in malaria-endemic areas and during distribution should be systematically accompanied by provision of information on how to hang, use and maintain them properly.

Solomon Islands. © Rob Few, IFRC

The way in which full coverage should be achieved may vary according to the epidemiological and operational context. As young children and pregnant women are the most vulnerable groups, their protection should be the immediate priority while action is taken towards achieving full coverage. If the number of LLINs available is not enough for universal

Sierra Leone. © United Methodist Church

coverage in all at-risk communities throughout the country, it is often better to achieve complete coverage of all children under the age of five years than universal coverage of all age-groups in some communities and zero coverage in others. In areas of low transmission, where all age-groups are vulnerable, national programmes should establish priorities on the basis of the geographical distribution of the malaria burden. Countries with insufficient resources for full population coverage should embark on targeted distribution but should also ensure an advocacy strategy is put in place to secure additional resources to reach full population coverage.

The WHO GMP has called on NMCPs and their partners involved in insecticide-treated net interventions to:

- purchase only WHOPES-recommended/ approved long-lasting insecticidal nets (LLINs)
- distribute free or highly subsidized LLINs, either directly or through voucher/coupon schemes
- achieve full LLIN coverage, including in high-transmission areas, by distributing LLINs through existing public health services
- develop and implement locally appropriate communication and advocacy strategies to promote effective use of LLINs
- implement strategies to sustain high levels of LLIN coverage in parallel with strategies for achieving rapid scale-up[1]

1.3 The Global Malaria Action Plan (GMAP)

The Global Malaria Action Plan (GMAP) was created by the RBM partnership, in consultation with a large number of experts from relevant fields, including epidemiology and economics. While individual countries set their own goals for malaria control activities, the plan aims to foster global agreement on goals, together with strategies and activities to achieve them and support countries to move more quickly towards a "malaria-free" world. Like this AMP toolkit, the Plan evolves as new information becomes available.

The GMAP has four parts:

1. Malaria Today. Background on malaria activities leading to the current state of malaria control today, together with the vision and targets of the RBM partnership.
2. The Global Strategy. Short- and long-term strategies to reduce the malaria burden. The global vision.
3. Regional Strategies. Malaria control in each region: Africa, Asia-Pacific, the Americas, the Middle East and Eurasia. What is required to achieve targets in each region.
4. The Role of the RBM Partnership. What RBM will do to achieve its targets.

For many countries, funding is the main limiting factor impeding progress towards their malaria control objectives. While funding has increased significantly over the last five years, largely due to increased international attention to malaria, it still needs to be increased fourfold if RBM targets and the goal of universal coverage are to be met. While there is great variation in funding levels across regions and countries, many high burden areas are still receiving insufficient financing to reach their malaria control objectives.

The increased funding allocations to malaria from major donors have helped a number of countries move towards meeting the RBM 2010 targets and many more countries will be on track for meeting the 2015 Millennium Development Goals (MDGs) related to malaria. However, the policy shift to universal coverage and its associated need for increased resources has also posed new challenges to countries in terms of absorbing and implementing these resources.

1.4 New opportunities and new challenges in LLIN scale-up

While the shift in policy from targeted to universal coverage was based on sound scientific evidence, country/partner experiences with reaching universal coverage and therefore guidance on implementation has to date been limited. In 2007 almost no country had even attempted to reach universal coverage. While integrated campaigns had the advantage of EPI's experience with organizing mass campaign activities, the delinking of target populations (immunization often targets children under five years of age, while malaria universal coverage targets all age-groups) has meant less integration with EPI. In addition, with targeted distributions, National Malaria Control Programmes were able to use the population figures for children under five from EPI which were more accurate than using total population figures, often based on out-dated census data, and estimating number of households for meeting universal coverage targets.

The shift from targeted to universal coverage has also led to the new challenge of filling in gaps to reach universal coverage where a targeted distribution has recently taken place. Few countries have experience to date with these "mop-up" or "fill-in" campaigns and lessons will be learned in the coming years to add to the experiences presented in this toolkit.

Once countries have achieved universal coverage, the challenge of sustaining the gains achieved

Sierra Leone. © United Methodist Church

arises. While the scale-up process has been, in many cases, top down and centrally driven, it is likely that the "keep-up" process will be more driven from the district or community level (bottom up). There is a need for countries to maintain a tracking or monitoring system for LLINs distributed, including timing of distributions and number distributed through routine each year, to be able to identify areas where efforts should be placed to sustain achievements and to plan replacement of nets when they come to the end of their useful lifespan.

1.5 Scaling up use of LLINs to ensure impact

The recent focus on scaling up net coverage has led to great progress in the percentage of households owning one or more nets, but less focus has been put on ensuring that the LLINs distributed are used correctly and consistently. Utilization has lagged behind ownership, yet it is an integral part of "coverage". The importance of ensuring appropriate utilization of LLINs distributed means that activities to promote correct hanging and use must be planned and implemented with the same level of care and thoroughness as the distribution itself, using the best combination of local resources and creative thinking. Community health workers, volunteers, local radio, community and national leaders, and national radio and television are all channels that can be used to promote the use of nets all year round. The process of developing messaging, pre-testing materials and measuring the impact of the messages is also vital to achieve gains in net use, to report back on the impact of communication, and to share best practices. These efforts to increase net use among net owners appear to bear fruit. Low rates of use reported in some surveys are primarily due to a lack of sufficient nets to cover all household members; a very high proportion (80 per cent) of available ITNs is used[m].

1.6 Scale-up as part of a broad-based approach to malaria control

While scaling up malaria prevention with LLINs is an important step for improving malaria control and reducing malaria morbidity and mortality, it is one of a number of interventions that must reach universal coverage of the population at risk in order truly to reduce malaria transmission. NMCP policies and strategies are aiming for full access to effective and appropriate treatment, intermittent presumptive treatment for pregnant women and infants (according to country policy), indoor residual spraying (where appropriate) and other interventions. Scaling up and maintaining high coverage and use of LLINs is only one element in a broad-based approach to the control of malaria.

While rapid scale-up of LLINs has been successful in achieving high population coverage, questions remain about how gains can be sustained in the post scale-up phase. A recent review by the Malaria Consortium[n] concludes that "for the phase of sustained control and LLIN replacement, a mix of continuous delivery mechanisms through community, routine services and retail outlets is suitable as long as equity issues are addressed with subsidies".

There is still a great deal to be learned about continuous distribution systems and the role of various channels of delivery in scaling up and sustaining gains achieved. The AMP partnership will continue to collect reference materials, experiences and recommendations, and will make these available via the website and through AMP conference calls and minutes.

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2: Coordination

2.1 Coordination structures

Coordination can be defined as "the skilful and balanced movement of different parts at the same time"[1]. A successful campaign, whether integrated or stand-alone, begins with partner coordination under the leadership of the Ministry of Health (MoH). Coordination of partners during the planning and implementation of mass LLIN distribution allows for mobilization of in-country skills, personnel and resources to support the country to achieve its malaria prevention objectives.

The MoH and the National Malaria Control Programme (NMCP) must lead campaign planning and implementation and take responsibility for the success of activities. This leadership ensures country ownership and accountability for the campaign, as well as engagement of other government departments where necessary. In many countries coordination mechanisms, such as the Country Coordinating Mechanism (CCM) already exist but may be covering a broader mandate than the LLIN mass distribution. For mass LLIN distribution, a sub-group from the existing coordination structure will often come together, led by the NMCP, to undertake campaign activities.

Where countries are planning integrated campaigns (normally targeting children under five years of age with LLINs during vaccination or nutrition campaigns), the MoH's Expanded Programme on Immunization (EPI) coordination structure (Interagency Coordinating Committee or ICC) is usually expanded to include the NMCP and other malaria-focused partners who would normally not be involved in the vaccination/mother-child health (MCH) campaign.

[1] Usually related to coordination of body parts in sports like athletics, but equally relevant to different organizations working together.

Where countries are planning stand-alone campaigns (targeted or for universal coverage), the NMCP will need to establish a central level coordination structure (National Coordinating Committee or NCC) for campaign planning. This will often be a new coordination structure, or a sub-group of an existing coordination structure, and will need to be validated by the MoH (at the level of the Minister or the Director General). It requires clear terms of reference and a list of organizations that are members of the coordinating body. Early official validation of the NCC is important to the success of the campaign as it allows planning to begin and ensures involvement of key partners in all phases of planning and implementation.

Where the planned campaign is sub-national, coordination remains important at central level but must also be reinforced at regional and district levels to ensure success. Given that many countries have decentralized structures for health, district health management teams (DHMT) and regional health teams exist and are capable, from experience with organizing vaccination and nutrition activities, to plan and implement large scale health activities.

Where the planned campaign is national in scale, coordination is important at all levels and regional and district structures should be strengthened to lead activities in their areas.

In all cases (national and sub-national, integrated or stand-alone, targeted or universal coverage), and at all levels, clear terms of reference, roles and responsibilities and lines of communication need to be established.

For LLIN mass distributions, countries should consider involving a broad range of partners with a variety of different skills, expertise and influence. The range should include public and private sector,

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civil society and faith-based organizations and other technical and financial organizations supporting the MoH. Inclusion of a broad range of partners should be balanced against having a functioning and manageable coordination structure.

In past campaigns, key lessons learned about coordination include:

- late formation and validation of coordination structures delay campaign planning and implementation
- coordination structures put in place without identifying member organizations and committees and sub-committees do not function well
- lack of regular meetings of sub-committees delays development of key campaign supports (for example, data collection tools), thus delaying finalization and reproduction of documents
- although LLINs and financing may come from a variety of sources, it is crucial for all partners to recognize and be bound by the leadership role of the MoH
- where there is a limited number of MoH or partner staff dedicated to the campaign, the number of sub-committees should be limited to the three principal areas: technical/implementation, logistics and communication

Effective coordination requires:

- flexibility
- adaptability
- knowledge of roles and responsibilities
- open and transparent lines of communication
- ability of MoH, NMCP and partners to meet deadlines
- monitoring of activities relative to timelines and schedules
- crediting all partners in private and public settings to encourage ownership and involvement

2.2 National Coordinating Committee (NCC)

LLIN distribution activities require intense and constant action to be successful. Coordination of activities and partners is critical for ensuring that planning and implementation remain on schedule. The National Coordinating Committee should be officially established by the MoH early to allow for timely planning for the mass distribution. A minimum of six months is required for campaign planning, but nine to twelve months is recommended, particularly in the case of universal coverage campaigns where household registration is required to inform LLIN prepositioning and transport plans.

An effective NCC is normally composed of appropriate staff from the MoH and its partner organizations, personnel who will bring specific expertise from a number of different perspectives. Partners will come from major international organizations and from in-country stakeholders, and should include representation from the beneficiary community or communities.

The National Coordinating Committee may have a different name in some countries, but the overall purpose of the body remains the same. Among its key functions are:

- establishment and oversight of sub-committees (technical/implementation, logistics, communication)
- validation of the campaign plan of action and budget
- validation of the campaign timeline

- liaison with international partners for resource mobilization (human, technical, financial)
- reception and revision of reports from sub-committees regarding progress towards campaign implementation
- monitoring of preparations according to the established timeline and resolution of bottlenecks where these arise
- supervision and monitoring missions to the regions/districts where the campaign will take place before, during and after the household registration, LLIN distribution and hang-up activities
- validation of the results of the campaign (household registration, LLIN distribution and hang-up activities)
- preparation and validation of the final campaign report, including lessons learned, once activities have been completed

The NCC makes many of the technical decisions regarding the campaign and is responsible for the technical review and finalization of the Plan of Action (PoA). Since the NCC makes most of the final decisions regarding the campaign, it is vitally important to hold regular meetings during the planning and implementation phases. During these meetings, sub-committees can present their work for review and approval by the NCC members. To ensure clear communication and follow-up on issues arising, detailed minutes should be taken and action points and recommendations should be highlighted with the person responsible for follow-up identified. An e-mail group should be organized with the addresses of all members of the NCC so that even persons who were unable to attend the meeting are aware of the discussions and outcomes. Minutes are effective for building and strengthening partnerships, documenting lessons learned, and updating the MoH and local and international partners. Minutes are also useful for ensuring that progress around recommendations and action items is monitored and that donors are aware of challenges and bottlenecks affecting planning and implementation.

In addition to making technical decisions about campaign planning and implementation, the NCC should also be responsible for advocacy, especially if there are gaps in resources (LLINs, operational costs). The NCC should be made aware of any gaps in a timely manner and should then approach members of the government and private sector, as well as international partners, to try to mobilize additional support for the campaign. The NCC itself should include a broad range of partners possessing important resources that can be contributed to the campaign.

Technical, financial and human resources are all necessary for the implementation of a successful mass LLIN distribution. Technical partners, such as WHO, are important for assisting with data collection tools and data management, as well as development of training materials. Financial partners will vary from country to country, but should be identified and included in membership of the NCC from the outset, so that they feel involved with the campaign planning and are able to mobilize resources quickly when needed. Non-governmental organizations (NGOs) can often contribute important human resources through community health workers or volunteers working at community level, often at little cost, since they may be seconded from existing activities to work on the campaign.

The NCC is composed of a range of individuals who have responsibilities within their organizations in addition to being part of the campaign planning body. It is vital to ensure open and transparent communication to keep partners informed and engaged in the process. Communication amongst partners must remain strong throughout the entire planning, implementation and post-campaign phases.

Communication is key for mobilizing international partners and for promoting ownership at regional and district levels. Communication is necessary:

- at international level among partners and donors to the campaign

- at national level among partners and across government departments
- at regional and district level among campaign partners
- at community level, to ensure links with local leadership
- between all levels

Communication is key to coordination. Effective coordination of campaigns involving multiple partners will depend on regular meetings, conference calls, information bulletins (print or electronic), and inclusion of all partners on any official communication.

2.3 Sub-committees

Sub-committees are important for the functioning of a campaign: they divide the workload and capitalize on the skills and expertise available among partner organizations. The NCC should determine the number and type of sub-committees required and their membership. There are normally three core sub-committees: technical/implementation (including monitoring and evaluation), communication and logistics. In some countries, the monitoring and evaluation sub-committee may be an independent sub-committee, while in other countries a finance sub-committee may also be established. The number of sub-committees will depend on the number of individuals available within the NCC and their areas of expertise. Generally, in line with the importance of MoH ownership of the campaign, NMCP staff should chair sub-committees and be responsible for organizing regular meetings and keeping activities on track. However, in some cases, a partner organization may be in the best position to chair a sub-committee.

Terms of reference

As in the case of the NCC, it is important to define the terms of reference for each of the sub-committees so that members understand their roles and responsibilities. The terms of reference should be agreed by all members of the sub-committee and presented to the NCC for validation and approval. Where appropriate, the MoH should validate the terms of reference for the sub-committees. Examples of terms of reference for each of the sub-committees are included as Appendices 2A—2C.

Once sub-committee terms of reference have been established, members should determine the frequency of meetings to achieve their targets. It is important to set a regular day and time for the sub-committee meetings to allow members to block time in their schedules and ensure maximum participation. In many cases, meetings will become more frequent as activities become more intense and implementation begins. Ideally, sub-committees should meet on different days of the week (because of overlap in membership). Setting regular days and times ensures that sub-committee meetings will actually take place; if they are organized on an ad hoc basis, they often do not occur or have limited representation. As with meetings of the NCC, it is important that minutes are taken during meetings or, where the meeting is a working session, action points are identified (including persons responsible and time) for follow-up.

Each sub-committee must develop a plan, budget and timeline for activities:

- Technical/implementation sub-committee: campaign plan of action including monitoring and evaluation
- Communication sub-committee: communication and advocacy plan, including monitoring and evaluation
- Logistics sub-committee: logistics plan of action, including commodity management assessment

Each of these plans, and the associated activity timeline, should be developed early and presented to the NCC for review, comments and finalization. Once the activity timeline has

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been fixed, progress can be monitored by the NCC and action taken if activities fall behind schedule.

Where necessary, or where planning has not started on time, sub-committees may split into smaller working groups in order to achieve planning objectives. For example, the technical sub-committee could divide into different working groups to:

- develop the plan of action and budget
- produce training manuals
- develop data collection, supervision and monitoring forms
- develop the protocol for the post-campaign evaluation

2.4 Regional and district coordination

The size and scope of mass LLIN distributions require decentralized planning. Regional and district health structures are closer to where the campaign will actually be implemented, and more aware of the specific context and situation of households in their areas. While macro-planning necessarily takes place from the central level, micro-planning is the responsibility of the districts and regions in order to ensure sufficient commodities, sites and personnel. Regular communication between the central, regional and district health authorities is key to ensuring information is transmitted and received in a timely manner.

Regional and district health teams should work to identify organizations that are already implementing community-based activities in their areas to involve them in the planning process and capitalize on existing resources. This is especially the case for areas with special populations (such as refugees or nomadic people), areas with geographical barriers (river, mountain or forest areas, remote regions) and areas with socio-economic, cultural or other barriers to accessing

government-run health services. Regional and district coordination structures should be established with terms of reference for the coordinating body and a defined membership.

Campaigns are implemented at the district and community levels and a clear understanding of the needs of the target population is essential to success. The District Health Office (DHO) or equivalent is a critical partner and has to be well informed and included in all planning exercises. The DHO should lead partner coordination within its catchment area. Partners to recruit include health facility staff, civil society organizations, women's groups, political and traditional government authorities, local media or community personalities and religious leaders.

The success of any campaign ultimately depends on the target population. Communities should be involved early in planning the campaign, in order to ensure a sense of ownership, transferability and sustainability. Key partners include community leaders, religious leaders, community/neighbourhood health committees, community health workers, volunteers and representatives from families.

Supporting decentralized planning

Many countries have struggled to find ways to support the decentralized planning process and strengthen the capacity of regions and districts for implementation of mass campaigns. Nigeria, with its large population and geography, developed "State Support Teams" (SST), to provide support to the 36 states in the country as they worked through planning and implementation of the distribution of over 60 million LLINs. Roll Back Malaria and partners worked together to secure a separate funding source for the SST personnel.

COUNTRY CASE STUDY

Nigeria's coordination structure involves a Federal LLIN Campaign Coordination Network (LCCN) at central level with each state forming a LCCN at the beginning of the planning process. At federal and state level, there are three work-streams (equivalent of sub-committees in this toolkit): technical, logistics and demand creation (equivalent of communication in this toolkit).

In order to support states adequately with the planning and implementation process, the federal level formed three expert teams focused on the three work-streams. The expert teams were composed of members drawn from federal level and technical assistance. Two team leaders head each expert team (see figure 1).

From the three expert teams, four[2] State Support Teams (SST) were created which are multidisciplinary and able to support LLIN campaign planning and implementation across work-streams for holistic support. Each SST has a team leader who has been selected from one of the expert teams. Note that in figure 1, national staff are paired with a technical adviser. This was done to ensure the highest technical quality and build the capacity of the Nigerian national staff. It is intended that the role of the technical adviser will be reduced as the capacity of the Nigerian national staff is increased.

Each SST is responsible for a limited number of states based on the schedule of LLIN distributions in the country. The SST reports to the LLIN campaign coordinators who, in turn, provide updates to the Federal LCCN.

[2] Note that this was revised to six State Support Teams to match the volume of work for achieving the universal coverage targets with LLINs.

Figure 1: Support for national LLIN campaigns in Nigeria

			Coordinators • One NMCP • One technical adviser (TA)	
		Expert team Technical • Lead technical adviser • One TA	**Expert team Demand creation** • Lead demand creation adviser • One TA	**Expert team Logistics** • Lead logistics adviser • One TA
State Support Team 1	Team 1 Manager One national	One national One TA	One national One TA	One national One TA
State Support Team 2	Team 2 Manager One national	One national One TA	One national One TA	One national One TA
State Support Team 3	Team 3 Manager One national	One national One TA	One national One TA	One national One TA
State Support Team 4	Team 4 Manager One national	One national One TA	One national One TA	One national One TA

Nigeria's SST structure is one example of a way to reinforce decentralized planning. The Nigeria context is unique, but the need to ensure support to regional and district level planning is general across countries. Where resources (human or financial) do not exist to support decentralized planning occurring at the same time as national planning, countries should consider planning region by region to ensure that adequate support could be provided by the central level staff available.

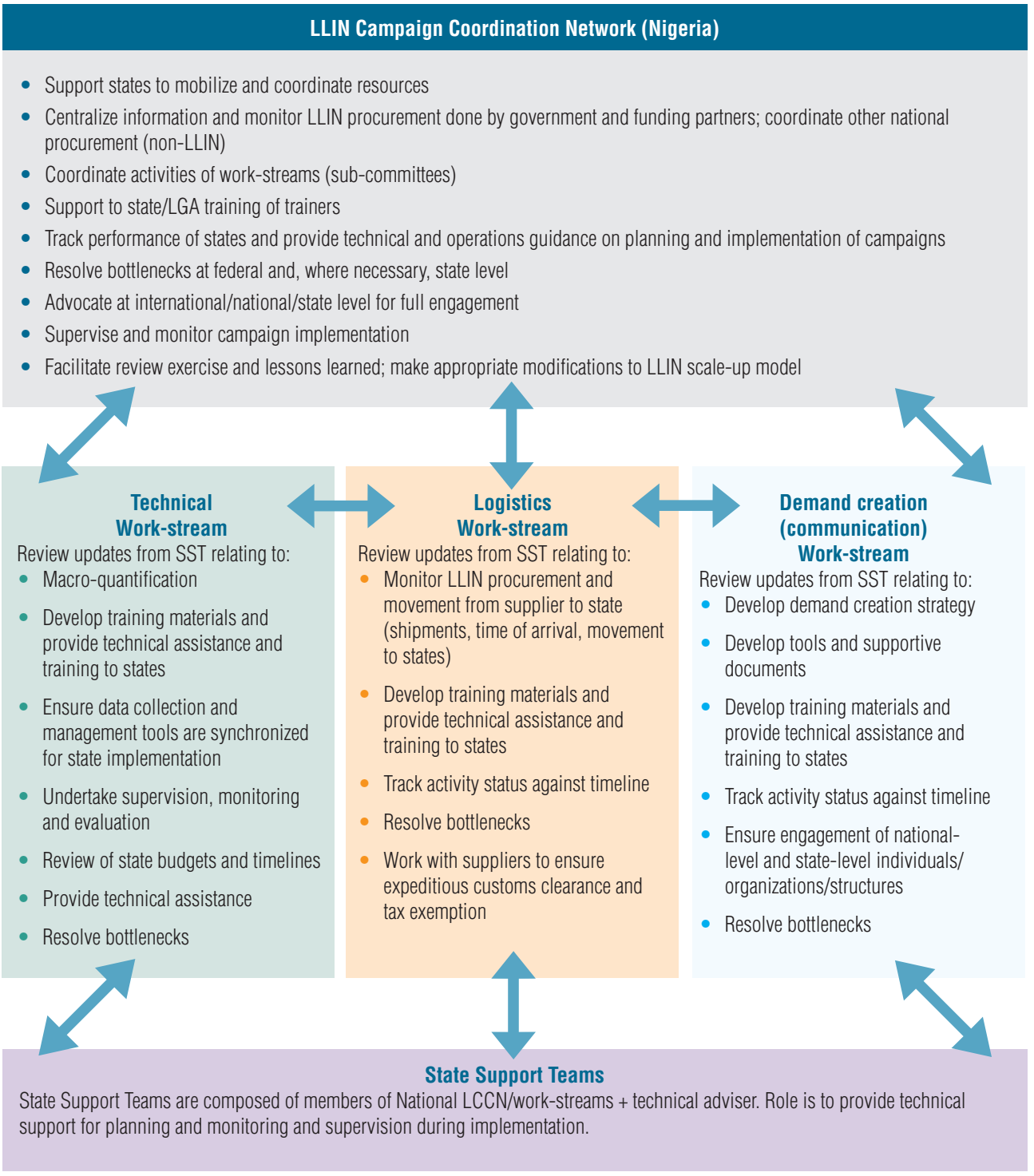
2.5 Coordination of available support

In many countries, strong coordination structures exist and technical and financial partners are present to support the MoH with achieving its objectives. In-country partners, such as WHO, UNICEF, PMI and PSI (among others) should be engaged in the planning and implementation of the LLIN distribution as they are able to contribute technical guidance to the MoH.

Engaging the private sector in campaign activities can be useful, especially to support the logistics activities, since private companies often have extensive experience of moving goods through the country. Support for communication activities is also welcome. In some countries, mobile phone companies have been approached and have provided free text messages to their customers about the campaign or about the importance of using LLINs.

In addition to technical, financial and private sector partners, countries should seek to engage NGOs, particularly community-based and faith-based organizations. Such partners may provide support for implementation. Where they are already involved in ongoing activities, they can both provide additional resources to the campaign itself and ensure continuing behaviour change communication following the distribution. Community and faith-based organizations can be instrumental in ensuring community participation and engagement in the campaign, and can assist with dispelling negative rumours about the campaign or the LLINs.

It should be recognized that a partnership of such a wide variety of organizations and individuals requires skilful handling for all to remain



equally committed to the mass distribution campaign. That skilful handling requires good coordination in order that the participation of partner organizations is maximized, and that communication between all is inclusive and transparent. Roles and responsibilities of partner organizations must be clearly defined at all levels, as well as lines of communication.

Once the coordinating infrastructure is in place, the planning process can begin. Chapter 3 recommends that planning begins as early as possible and that it takes place with the active involvement of all partners, coordinated under the leadership of the MoH and the NMCP.

Appendix 2A: Terms of reference for the technical sub-committee

1. Develop and review detailed operational plan.
2. Develop global budget for approval by the NCC.
3. Develop macro operational budget and timeline.
4. Determine human resource needs for beneficiary identification (and household LLIN allocation strategy) for LLIN distribution, for post-distribution activities, and for monitoring and supervision of activity implementation.
5. Calculate requirements for all management tools (household registration forms, vouchers, tally sheets, indelible ink markers, supervision checklists, monitoring tools, etc.) and ensure they are finalized, validated and reproduced on time.
6. Support other sub-committees to develop and reproduce training materials, including campaign background, basic logistics, social mobilization/behaviour change communication (BCC) training, monitoring and supervision. Ensure that materials are produced for all phases of activity:
   a. logistics training manual and instructions for planning and implementation, as well as commodity management assessment guidelines for post-campaign audit
   b. social mobilization training manual and messages, as well as supervision and monitoring tools (or additions to existing tools)
   c. manual for implementation of campaign (mapping for household registration, guideline for household registration, distribution site set-up, supervision, messaging, technical forms, etc.)
   d. guidelines for monitoring, notably where and how end process monitoring will take place
7. Develop and reproduce supports for trainers (central level), supervisors (regional/district level) and health workers and volunteers (community or health facility level).
8. Develop detailed training schedule for training of trainers (ToT), training at district level, etc. Determine the number and type of training sessions, personnel to be be trained, how many people at a time and for how long.
9. Monitor and supervise implementation of all activities from initial regional and district coordination meetings through micro-planning and recruitment and training of personnel, to the household registration, LLIN distribution and post-distribution activities.
10. Develop coverage and utilization evaluation protocol and questionnaire to assess effectiveness of all elements of campaign implementation, as well as the work of the sub-committees.

Appendix 2B: Terms of reference for the communication sub-committee

1. Develop communication plan of action, including communication objectives and target audiences.
2. Develop timeline of activities and responsibility for tasks. Develop a rational budget to support activities.
3. Develop key messages and supports (radio, television, posters, banners, etc.) for pre-, during and post-campaign.
4. Prepare briefing documents for advocacy aimed at:
   a. government structures, beginning with the office of the state leader
   b. regional and district health and political structures
   c. partners, private sector businesses, stakeholders, religious and traditional authorities, etc.
   d. press/media
5. Organize campaign launch events (agenda, invitees, resource requirements, etc.) at national and district levels.
6. Develop guidelines for community mobilizers, traditional and religious leaders, health facility staff and others involved in the campaign to provide information and key messages. This should include BCC/IEC strategies and key information about the campaign and how it will be organized.
7. Ensure that all materials are produced, pre-tested and validated on time for reproduction and transport to the lowest levels of the supply chain.
8. Organize media coverage for launch and first days of campaign. Where applicable, organize media coverage for handover of LLINs from donor to government.

Appendix 2C: Terms of reference for the logistics sub-committee

1. Develop a logistics plan of action (LPoA) based on national plan of action.
2. Estimate needs for commodities in partnership with the technical sub-committee (LLINs, indelible ink, vaccines, syringes, vitamin A, mebendazole, safety boxes), depending on integrated or stand-alone campaign.
3. Estimate transport requirements, including fuel for redistribution of supplies during implementation of campaign.
4. Establish district level logistics team (four to five people) who will be responsible for development of plans, control of finance and reporting.
5. Examine situation for warehousing and stock control and suggest possible solutions to problems encountered. Examine requirements for cold chain, incineration or disposal, if appropriate.
6. Support district level micro-planning.
7. Compile all district level plans and requirements into global, national logistics plan for the distribution campaign.
8. Develop global logistics budget based on 7 (above) and submit to the technical sub-committee.
9. Develop manual for logistics teams at district level (including supply and cold chain management, LLIN requirements, district micro-planning with questionnaires).
10. Develop detailed positioning and storage templates by districts, storage points and villages.
11. Develop a preliminary transport plan for LLIN movement.
12. Develop a Gantt chart (timeline) of logistics events and harmonize with national Gantt chart.
13. Develop training guidelines for district logistics teams.
14. Conduct field assessment trips as needed prior to LLIN deliveries.
15. Confirm physical security measures are developed and in place prior to LLIN movement/storage at all levels.
16. Conduct commodity management assessment to assess the efficiency of the logistics operation.

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3: Planning for mass distribution campaigns

3.1 Mass distribution as part of the overall LLIN strategy

LLIN mass distribution strategies vary by country, each having its own objectives and challenges. Common to all, however, is the crucial requirement to plan mass distributions early, ensuring that all the details of the country's strategy, objectives and specific situation are considered. As LLIN distribution campaigns have increased in size and scope with the shift to universal coverage, early and coordinated planning has become more and more important.

Good planning is key to the success of any mass distribution campaign, whether stand-alone or integrated, national or sub-national, universal or targeted coverage.

This chapter contains advice on planning different kinds of mass distribution campaigns, universal coverage and targeted, both integrated and stand-alone, and mop-up or fill-in. The advice and recommendations are based on the experiences of countries who have implemented such campaigns, and the lessons learned from doing so. While the advice necessarily looks at the broad picture, recommendations and lessons learned can be adapted and very generally applied across countries. It is important, however, to be aware that as more countries implement mass distribution campaigns, the experience grows and recommendations, suggestions, examples of good practice and references require updating. The latest updates can be found on the Alliance for Malaria Prevention (AMP) website[a], while ongoing updates will be announced via AMP conference calls and minutes, and through the Roll Back Malaria (RBM) e-update[b].

While this toolkit concentrates largely on mass distribution of LLINs, it should be emphasized that such distributions are only one part of a holistic National Malaria Strategy. Each country should have a policy describing how LLIN coverage will be scaled up, sustained and monitored over time, taking into consideration LLIN durability and recommended timing for replacement. A long-term strategy for continuous LLIN distribution should include multiple channels for distribution of nets including routine continuous delivery through antenatal care (ANC) or Expanded Programme on Immunization (EPI) visits, subsidized and private sector sales and mass free distribution when necessary and appropriate[c]. Timing for mass LLIN distribution campaigns should be based on the condition and age of LLINs previously distributed, as well as on the availability of nets through other continuous distribution channels. Through continuous monitoring and evaluation of net coverage and data collection to assess country-specific net durability and decay rates, countries should begin to work towards a policy whereby mass coverage campaigns are triggered when coverage decreases below specified levels. Where continuous distribution systems are well established, mass distribution campaigns may not be needed to maintain universal coverage levels.

Countries that are planning for mass distribution of LLINs as part of their proposals to donors such as the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) should ensure that their campaign strategy is well thought-out prior to submission of the application. Guidelines (see Resource R3-1) for planning LLIN distribution campaigns (as well as continuous distribution through routine health services) are produced each year by the Harmonization Working Group (HWG) as part of the advice provided for development of Global Fund proposals, and an additional template (see Appendix 3A and Resource R3-2) with items generally included in

the budget for mass distribution campaigns has also been produced by AMP. New quantification guidelines were approved in 2010 based on the experiences of countries implementing universal coverage campaigns involving household registration, and these should be used to guide country macro-quantification and strategy development (see Resource R3-3). Advice on how to quantify when accounting for already existing nets is also available, including calculation estimates for "decay" rates of nets (see section 3.3 Macro-quantification of LLINs). The calculations are, however, based on a median survival time of three years for a LLIN, and should be adapted to each specific country situation based on guidelines for monitoring durability of LLINs released by WHO (see Resource R3-4).

Technical support to countries at the planning stages of LLIN mass distribution is available through AMP, via the RBM partnership.

3.2 Defining an implementation strategy

The MoH and partners will need to define an implementation strategy based on the MoH policy for LLIN distribution, the targeted population and the number of LLINs available to the country through existing commitments. Deciding on the implementation strategy is a key action, as this will give the basis for the number of LLINs, personnel and supplies needed.

At the outset of planning, prior to proposal development and submission to donor organizations, there are a number of questions to be asked and key decisions to be made in order to determine needs for both LLINs and personnel. Most important of these are:

1. What is the scope of the LLIN distribution (national, sub-national)?
2. Which partners (international organizations, NGOs, community-based, private sector, etc.) are present in the targeted area? What contributions may be expected from partners?
3. What is the existing LLIN coverage in the targeted area relative to the National Malaria Strategy objectives that have been set for prevention?
4. Do existing LLINs need to be taken into account and, if so, according to which criteria (e.g. how long the net has been hanging, condition of net, etc.)?
5. Based on the existing coverage and whether existing LLINs are to be considered, will the campaign be targeted (e.g. to children under five) or universal coverage?
6. Will the LLINs be given to beneficiaries through fixed site or door-to-door distribution?
7. What is the method by which LLINs will be allocated to beneficiaries (e.g. household census to count people/nets/sleeping spaces, fixed number of nets per household, one net per child under five, etc.)?
8. What method, if fixed site distribution, will be used to identify beneficiaries at distribution sites (e.g. household register, voucher, wristband, under five vaccination card, etc.)?
9. What method, if door-to-door distribution, will be used to identify households that have received LLINs (e.g. chalk marking, sticker, door sign, etc.)?
10. Is there a net culture already existing in the area? If not, which activities will promote correct hanging, use and maintenance of LLINs? If so, how will correct hanging, use and maintenance of nets be reinforced?
11. Which other activities for malaria prevention, such as indoor residual spraying (IRS), are taking place in the targeted area?
12. Are there systems in place for continuous distribution of nets, either through health facilities or through subsidized or private sector sales?

In most cases, countries planning to scale up with LLINs will opt for universal coverage distribution, either integrated with other interventions or as a stand-alone activity. In other cases, such as when the quantity of LLINs is insufficient to meet the needs of the total population, or when universal coverage has been reached and mass distribution is being included as part of a sustainability

Sierra Leone. © United Methodist Church

strategy, LLIN distribution may be targeted to specific sub-national geographic regions or to particular groups, such as children under five years of age, refugee populations, people living with HIV/AIDS (PLWHA) or other at-risk groups. Distribution may either be integrated with other health interventions or implemented as a stand-alone activity. In still other situations, to achieve full coverage of the population at risk, the distribution strategy may be to fill in or mop up gaps from a previous targeted distribution or from sub-optimal coverage during a universal coverage distribution.

A recommended method of identifying the most appropriate implementation strategy is to use a SWOT analysis (strengths versus weaknesses, opportunities versus threats) of all the factors that need to be considered. Among these are the following:

- MoH and NMCP policy for malaria prevention with LLINs
- resources available, notably LLINs and finances for operational costs
- current coverage levels in the country (including estimated lifespan/timing for replacement of previously distributed LLINs)
- regional and seasonal variations in endemicity or burden, population density and whether largely urban, rural or hard-to-reach, access to treatment and health services, political situation, and so on
- quantity of LLINs effectively delivered through continuous distribution systems (e.g. through antenatal care)
- possible existing platforms, such as vaccination campaigns or child health days, for integrated distribution
- LLINs available for delivery through various channels for the year of the campaign and the years following (LLIN supply pipeline)

Other factors may also be important in specific country situations and contexts and these should be included in all discussions on the implementation strategy and in the SWOT analysis. Taking all factors into account, the implementation strategy is likely to follow one of three models:

1. universal coverage
2. a targeted campaign covering specific populations at risk of malaria
3. a mop-up or fill-in campaign to achieve universal coverage after a previous targeted campaign or sub-optimal universal coverage distribution

Any of the three models can be stand-alone or integrated, national or sub-national.

Universal coverage campaigns

Universal coverage is designed to reach the entire population at risk of malaria, reflecting the Roll Back Malaria Targets Beyond 2011 (see Resource R3-5) and MDG 2015 targets and priorities. While targeted campaigns have focused on the groups with the highest morbidity and mortality from malaria, a universal coverage campaign aims at covering all populations at risk, both to ensure personal protection and to reduce overall transmission of malaria. Universal coverage campaigns can conveniently be categorized based on geographical reach (national, sub-national), content (integrated with other interventions or stand-alone), and implementation strategy (fixed site, house-to-house distribution). National universal coverage campaigns are possible when

there are sufficient LLINs at one time to meet the total country need. Sub-national universal coverage campaigns are normally planned where the LLINs are not sufficient to meet the entire country's need, or where coverage levels in certain areas are lower and need to be increased to meet or maintain the universal coverage objective set by the country. To date, the most common universal coverage approach has been stand-alone.

Often, given the large resource requirements in personnel, LLINs and financing, and procurement and delivery timelines from multiple suppliers, national universal coverage campaigns are rolling. This means that although the final objective is national universal coverage with LLINs, the implementation may be district by district or region by region until all areas have been covered. Reaching national universal coverage in these situations may take anywhere from a few months to a few years depending on LLIN availability and delivery to the country.

Stand-alone universal coverage campaigns have been most common in country efforts to reach the RBM and MDG 2015 targets. They may be easier to implement than integrated universal coverage campaigns as there is a single intervention being given to the entire population at risk, as against multiple interventions and multiple targeted age-groups. However, with both stand-alone and integrated universal coverage distributions, requirements for data collection and analysis are significantly greater than with integrated or stand-alone distribution to children under five years of age and must be planned for accordingly.

Universal coverage campaigns involve four major phases of activity:

1. detailed and timely micro-planning to ensure efficient implementation of the campaign
2. household/beneficiary registration and provision of voucher/wristband or other identification
3. distributing LLINs
4. promoting LLIN hanging, utilization and maintenance

The micro-planning process at district and community level will provide more detailed information on households and distribution points, leading to more efficient campaign implementation. It is imperative to undertake micro-planning early in the campaign process (4—6 months before) and to allocate sufficient time and resources for its implementation. Adequate training, supervision, guidelines and detailed templates should all be planned from the outset. Micro-planning is a vital strategic step, and must be carried out across all areas covered by the campaign in order to plan optimal use of resources.

For all universal coverage campaigns, whether stand-alone or integrated, it is important at the macro-planning stage to determine the means by which households will be allocated LLINs (either by counting individuals or sleeping spaces or by assigning a fixed number of LLINs per household). Means of identification at distribution points, whether this is in the community or at the household itself in the case of door-to-door distribution, must also be determined (vouchers or coupons, wristbands or other means of identification, etc.)

Niger. © John Heskew, IFRC

If the method of LLIN distribution is at distribution points (versus door-to-door), voucher redemption for universal coverage campaigns often takes place at sites that mirror the EPI mass campaign model of fixed (at a health facility), advanced (at a school or other public structure, covering populations five to ten kilometres from the health facility) and mobile (in villages more than ten kilometres from the health facility). In the case of stand-alone LLIN distributions, it is not efficient to deliver to all mobile sites, primarily due to the bulk of nets and their transport requirements, and it would be usual to have a community distribution point where sufficient quantities of nets are stored and distributed to a number of smaller hard-to-reach villages within walking distance.

Integrated universal coverage campaigns involve delivery of multiple interventions to the same or different target populations. For example, in some countries, vouchers for LLINs, based on the number of people in the household or based on a fixed number of nets per household, are provided during door-to-door health activities (administration of vitamin A and/or mebendazole, polio vaccination, and so on). In this situation, a country can combine social mobilization messages for a broader healthy population campaign with the LLIN distribution.

Integrated campaigns have the advantage of building on the EPI's experience of mass vaccination, mass drug administration, etc. A further advantage is the sharing of some costs with EPI, such as mass communication and staff at distribution sites. Finally, in countries where the population is sparse and caregivers have to travel a long distance to access health facilities, combining campaign interventions is convenient for beneficiaries.

Appendices 3B and 3C give examples of timelines for stand-alone and integrated campaigns, provided on the Resources CD in spreadsheet format (R3-6 and R3-7).

Targeted campaigns

A campaign is considered targeted when it is designed to reach a specific segment of the population. Until recently, in most cases, targeted campaigns focused on children under five years of age, whether on a national or a sub-national basis. In some instances, targeted campaigns have also included broader age groups (for example where LLIN distribution is combined with yellow fever vaccination or with mass drug administration) and pregnant women. In other countries, however, pregnant women are not included in the campaign LLIN distribution as it is health policy that they should attend antenatal care to receive a LLIN along with the full package of antenatal services. It may also be difficult to identify pregnant women unless they are registered for antenatal care, which may exclude women with limited access to health care.

Targeted LLIN distribution campaigns can be integrated or stand-alone. Stand-alone targeted campaigns distribute LLINs to the focus population. Since LLINs are the only intervention, it is important to have a means of identifying the beneficiary population and needs for coverage. Where LLINs are being distributed to children under five years of age through a stand-alone distribution, use of target population information from the EPI for macro-quantification of needs is strongly advised.

LLIN distribution campaigns targeting children under five years of age have often provided multiple interventions to the same age group, and are referred to as integrated. In 2002, the first pilot project for integrating distribution of LLINs with a mass measles vaccination campaign took place in one district of northern Ghana. Since that first pilot, integrated campaigns have included LLIN delivery combined with polio and/or measles vaccination, vitamin A supplementation, presumptive treatment for intestinal worms, distribution of soap and mass drug administration (MDA) for neglected tropical diseases (NTDs) and other diseases, including malaria.

Targeted campaigns can be national or sub-national. Where countries have good LLIN monitoring and tracking data, sub-national targeted campaigns may be organized in order to bring decreasing coverage back to the national objective. Sub-national campaigns may also be organized where LLINs are insufficient for national coverage and only specific, high-risk districts or regions (because of particular vulnerability or low existing coverage, for example) are selected for the LLIN distribution. Targeted campaigns on a national scale may be used as part of a continuous LLIN distribution strategy where resources allow and/or while other channels for LLIN delivery are being built up or reinforced.

Mop-up or fill-in campaigns

The shift to universal coverage of the total population at risk of malaria presents a major challenge for those countries transitioning from targeted distribution of LLINs to households with children under five years of age and pregnant women to LLIN coverage in all households.

COUNTRY CASE STUDY

In 2010, Senegal and Cross River State in Nigeria worked on mop-up campaigns following earlier integrated campaigns targeting households with children under five years of age. In both countries, trained health workers or volunteers undertook a household registration to determine:

- the total net need for each household (this was based on one LLIN for two people, rounding up in the case of odd numbers of people in the household, but Senegal also looked at the number of habitual sleeping spaces in each household)
- how many nets each household already had
- how many nets in each household were still viable (in Senegal this number was based on net condition, while in Cross River State, it was based on how long the net had been hanging)
- how many new nets each household would need for full coverage

Both countries had previously undertaken post-distribution surveys which showed high household coverage with LLINs, but during the mop-up exercise they experienced challenges with finding nets in households. Significantly lower numbers of nets were found (50—60 per cent) than would have been expected based on the surveys.

In a follow-up qualitative survey in Cross River State, it was found that there are a number of reasons why this was so, including possible behavioural factors that influence perceived net durability and, therefore, use. A number of beliefs that affected the reported number of viable nets were expressed by respondents, including that nets were only good for 18 months, were no longer viable after two washes, or were ineffective after washing in cold water or bleach as it destroyed the chemical entirely.

The survey also found that the majority of LLINs not present in households had been destroyed or damaged by use or had been given away. A number of additional nets were "found" during the survey, many stored still in their packages for use at a later time.

In both countries, it seemed that families often hid nets once word spread that ownership of nets meant no or fewer new nets would be received. Despite efforts to encourage families to hang pre-existing nets prior to the household registration in Senegal, people hid nets in order to receive more.

In countries where population coverage with LLINs is high[d], it may be necessary to take into account existing nets in households in the quantification of needs. A number of issues need to be addressed, including how to quantify LLIN needs, how to identify houses with existing nets, how to determine whether existing nets in households are still viable, and how to communicate positively with those households who already have the number of nets required for full coverage and will therefore be excluded during the LLIN distribution. Campaigns that achieve sub-optimal coverage during previous targeted or universal coverage distributions for whichever reasons present a similar challenge and may require mop-up campaigns.

Mop-up campaigns are complicated and costly. Quantification for mop-up is problematic given that, in addition to modelled variables such as LLIN expected decay rates (see 3.3 Macro-quantification of LLINs), there are a number of other variables, such as respondents hiding nets or bias on the part of the health worker/volunteer, that are difficult to factor in. In both Senegal and Cross River State, registered need for universal coverage to be achieved via the mop-up campaigns was higher than the number of LLINs procured based on macro-quantification estimates.

Issues with integrated campaigns

Integrated campaigns should be effective for delivering a number of interventions to a specific target group, but they do require special efforts and careful planning to ensure coordination and effective training of all personnel involved in the campaign to reduce any risk of adverse effects and to ensure all interventions are received by all targeted beneficiaries.

When planning for integrated campaigns, it is important to reduce the level of complexity as much as possible. For example, if an integrated campaign is taking place on a sub-national or a national scale, the target group for the interventions to be provided should be as similar as possible (e.g. all children under the age of five or specific sub-groups within this age bracket). In addition, the same interventions should be provided throughout the geographic area of the campaign rather than targeting specific districts in a region with different interventions.

With integrated universal coverage campaigns, it is important to assess the choice of the different target populations and the method of delivery. An example might be distributing LLINs to the full population at the same time as giving measles vaccination for children 9—59 months at fixed sites. In that case, a number of questions should be asked and possible negative consequences assessed:

- How will LLIN beneficiaries be identified?
- How will crowd control be addressed?
- Will distributing LLINs in the same location as the vaccination be disruptive, or have possible adverse effects on either intervention?
- Is it possible to divide the site into two distinct areas?

Minimizing potential negative consequences is part of the planning process. This may include addressing problems with coordination of partners, and ensuring personnel are well-trained and supervised. Where it will be possible to achieve success for all interventions in an integrated campaign with limited negative consequences, integration may be the right choice for the country.

The AMP toolkit version 1[e], published in 2008, provides advice and recommendations for the development of integrated campaigns.

Beneficiary identification

Regardless of the campaign strategy chosen (integrated or stand-alone, targeted or universal coverage), there needs to be a clear method of identifying beneficiaries who should receive nets. In the case of integrated campaigns targeting

children under five years of age, this is relatively simple as there are ways of checking children's ages (for example, vaccination card, asking the child to try to touch his or her ear[1]) at the point of service delivery. Where children under five are the targeted age group, additional means of beneficiary identification are not necessarily required.

In the case of universal coverage distributions that are using a fixed site strategy, it is critical to establish a means of identifying beneficiaries at distribution points early in the planning process to allow for appropriate budgeting and timely procurement of any unique identification tools. Where distribution is door-to-door, beneficiary identification can take place at the point of service delivery (the household).

Countries undertaking universal coverage distributions using a fixed site strategy have used a number of different methods for beneficiary identification:

- **Household registration form:** in most countries, a household registration form is filled out even where other means of beneficiary identification are being used. In some countries, the household registration forms have been used at the distribution sites to provide LLINs to beneficiaries. This method has the advantage that households are not told how many nets they will receive so there are no unmet expectations if there is a shortage of nets at the distribution site. The disadvantage is that, without a specific identifier and with the large amount of data collected, it is difficult and time-consuming to find the names of household heads on the sheets of paper and can cause problems with crowd control if waiting times are long.
- **Vouchers or coupons:** many countries use vouchers, in addition to a household registration form, to identify beneficiaries. Some countries have used coloured vouchers, with different colours representing either different numbers of nets or, in order to regulate crowd control, different distribution points where beneficiaries must go to be served. Vouchers should have two parts, one given to the beneficiary and the second (the counterfoil) remaining in the booklet for later verification if necessary. Depending on the level of accountability required by the country and the donor, the voucher booklet may be sufficient without an additional household registration form. Advantages of using vouchers include their procurement in-country (as long as vouchers are not able to be falsified) and smoother flow at distribution points. Possible challenges include a difference in nets provided versus the number written on the voucher, because of shortages of nets identified post-household registration, and loss of vouchers between household registration and LLIN distribution. In the case of the latter, the household registration form could be used to verify the identity of a beneficiary.
- **Wristbands/bracelets:** these plastic bracelets are snapped on to the wrist and cannot be removed except by cutting. During the household registration, one person (not necessarily the head of the household) who will be available to collect the net(s) on distribution day on behalf of the household will receive a wristband. There are various methods for indicating how many nets the household should receive, such as colour of wristband. Volunteers undertaking household registration and identification of beneficiaries must be trained to explain the purpose of the wristband and to minimize any reluctance to wear it. They should also make it clear that wristbands that have been cut prior to distribution day cannot be redeemed for nets. On distribution day, the wristband is cut off, exchanged for a net or nets and collected in a box for later verification. There may, however, be some practical disadvantages in using a wristband. Its use relies on the person with the wristband being physically present on the day of the distribution, taking no account of possible illness, absence due to work commitments, and so on. As they are not valid when cut, another member of the household

[1] As a general rule, children under five years of age cannot reach over their heads to touch the opposite ear.

cannot take the original person's place. They must be procured internationally and are more costly than the vouchers. If used, they must be included early in the planning and budget and ordered at the same time as LLINs.

Wristbands are a good alternative to vouchers where:

- there is a lag of more than one month between registration and distribution
- everyone involved (central, district, and village level supervisors, trainers, registers, distributors, community and religious leaders, etc.) is convinced of the utility of wristbands
- budget can support additional cost of wristbands
- timeline can allow for extra shipment time of wristbands
- there are no known cultural/religious barriers to wearing wristbands

A comparison between vouchers and wristbands

	Vouchers	Wristbands/bracelets
Visual		
Description	Piece of paper or card, redeemable for 1, 2, 3 or more LLINs. May have a unique identifier number. Many colours.	Plastic wristband with snap closure, similar to those issued to newborns in hospitals. Cannot be removed without being cut with scissors/knife. Many colours. Length of wristband can vary.
Price	Generally cheaper, especially if produced domestically.	Generally more expensive, depending on size of order and variety of colours. International procurement and shipping required.
Production	Usually produced in-country	Produced internationally
Durability (especially relevant where there is a 1+ month lag between registration and distribution)	Can be damaged	Longer-lasting
Water-resistance	Should avoid getting wet. Lamination improves water-resistance but also increases price	Waterproof
Risk of loss/sale/trade	Perceived risk of loss/sale/trade, although there is no hard evidence that this happens	Very low risk. Once wristbands are attached to the wrist, they cannot be removed without being cut. They cannot be traded or sold and then reattached to another wrist.
Risk of falsification/ reproduction	Perceived risk of falsification, although there is no hard evidence that this happens	Much harder to falsify domestically, particularly when colour coded
Shipment time	None if produced domestically	Minimum 6 weeks freight
IEC opportunity	Some space for messages	Limited space
Cultural/religious /political barriers to acceptability and use	None reported	There is limited experience with wristbands to date, but there is no evidence of any concerns that may constitute a barrier to use
Waste	May be burned following verification	Should not be burned. Proper disposal guidelines should be followed, possibly requiring transport back up the supply chain

COUNTRY CASE STUDY

In 2009, Sudan piloted the use of the plastic wristband/bracelet with great success. Manufacturers may have the ability to attach two or more removable "tabs" to the wristband. Sudan labeled one tab "distribution" and the other "hang up" and intended to collect those tabs at the time of LLIN distribution and door-to-door hang-up campaign, respectively, as a way to monitor the campaign. Due to lack of durability and permanence of the tabs, however, this system is not recommended until tab attachment techniques improve.

3.3 Macro-quantification of LLINs

Once the implementation strategy has been decided, the macro-quantification of LLINs can take place. This is a complex task that must be done early in the planning process, before the detailed plan of action has been developed, as it will often form part of the initial proposal application for funding. Moreover, because of the long lead time for procurement and because LLINs will almost certainly have to be imported, they will need to be ordered early to ensure timely delivery. In most cases, needs are estimated by the Ministry of Health, technical partners and the funding organizations. See Chapter 4 for details of LLIN procurement.

Universal coverage quantification

Universal coverage has been generally accepted to mean one LLIN available for every two people where LLINs are part of the national prevention policy[f]. Most countries have now revised their National Malaria Strategy to reflect the universal coverage objectives. See Resources R3-5 for the most recent RBM targets.

When universal coverage distributions first began, there was limited operational experience to draw on, since the methodology differed significantly from targeted LLIN distributions. A number of methods have been used for allocating LLINs to households, each with its own challenges:

1. Setting a fixed number of LLINs per household based on the average household size (typically from the national census), for example, providing two or three LLINs (depending on rounding up or down and available nets) to a household of five people. The operational definition of a household is important for quantification. This method is not recommended as setting a fixed number of LLINs per household will over- or underestimate need in at least half of cases[g].

2. Counting the number of people living in a household and dividing by two to determine the number of LLINs required. In the case of uneven numbers of household members, countries have rounded up or down depending on policy and available LLINs. When rounding down, the intra-household coverage will be lower than when rounding up[h].

COUNTRY CASE STUDY

In Mali, where net culture is well-established, and where the percentage of households with any net was over 80 per cent, the number of nets required was based on rounding down for uneven numbers of persons in the household. This was a rational use of resources in an area with existing high coverage.

3. Counting the number of sleeping spaces, which can be quantified with the average household size and some information about common sleeping patterns (generally two persons per sleeping space, but this varies). Difficulties with counting sleeping spaces include lack of physical access by assessor, basing number of sleeping spaces on reports, which can be inflated, and determining a working definition of a sleeping space in places where people sleep outside for part of the year. In addition, the number of sleeping spaces in a household increases as socio-economic status rises, thus leading to more LLINs being provided to the least poor households[i].

4. In some countries, taking into account household structures, living and sleeping patterns, space constraints for hanging and available LLINs, a maximum number of nets per household has been established regardless of the methodology for LLIN allocation.

Quantification can be determined with data from a population-based survey or census that provides data on household size. These data can be used to estimate the percentage of households with one to three people, four to six people, and so on. Where estimated or average household size is being used as the basis for the macro-quantification, it is recommended that the two sets of figures for urban and rural areas should be used to improve accuracy of estimations. Rural areas generally have larger average household sizes.

When universal coverage was first announced as the objective for malaria prevention with LLINs, it was estimated that one LLIN was required for every two people. Based on this simple equation, countries undertaking early universal coverage campaigns estimated their total need for LLINs by dividing their population by two. During implementation, given that most countries had exceptionally low coverage of LLINs prior to the campaign, the LLIN allocation strategy was one LLIN for every two people in a household, rounding up in the case of an odd number of people. This method of LLIN allocation should improve the intra-household coverage of people sleeping there.

However, a number of countries implementing universal coverage campaigns and using this method found that the recommended calculation for macro-quantification did not provide sufficient LLINs to reach universal coverage. Based on evidence collected from these countries, as well as an analysis of population-based survey data (primarily demographic and health surveys (DHS)), the quantification guideline has been changed by WHO from total population divided by two to total population divided by 1.8 (see Resources R3-3)[j]. Although the 1.8 factor accounts for rounding up in the case of uneven numbers of people in a household, it does not account for inaccurate or out-of-date population projections, because of the time lag between last census and campaign, or population movement and demographic trends (for example, to smaller or larger household size). Population projections need to be based on proposed campaign dates, with countries being aware that the time lapse between proposal submission and campaign can be as much as two years in the case of Global Fund grants.

Evidence that may lead to further revision of the quantification guidelines for reaching universal coverage is currently being collected from countries implementing mass LLIN distributions[k]. The AMP website[l] will be updated when any revision occurs.

Targeted campaign quantification

In general, quantification for campaigns targeting children under five years of age should be based on the most recent EPI data available. Preferably, these data should be from a recent mass immunization campaign since more children tend to be reached through this platform. The number of children vaccinated can be used for projecting the number of children expected at the time of the LLIN distribution campaign. Typically, integrated campaigns have the objective of providing one LLIN to every child, with nets acting as an incentive to attend for other interventions. Where children are not provided with a LLIN, refusals for other interventions may increase.

While EPI includes a loss factor in estimates for vaccines, vitamin A and mebendazole, **no loss factor should be included when quantifying needs for LLINs.** Where possible, quantification of LLINs for a targeted campaign should be based on a realistic projection of the target group population. If it can be justified, a small percentage over the estimated population should be added in case of inaccurate population figures or out-of-date census data. Although many donors will not accept a margin of error in requests for funding,

countries should consider looking to other (in-country or international) partners to provide additional nets to allow for a buffer in case gaps are identified during distribution of LLINs to children under the age of five years.

Accounting for existing nets

Wherever possible, the campaign strategy should be universal coverage, since mop-up campaigns are difficult and costly. In some countries, however, where population coverage with LLINs is high[m], it may be necessary to take into account existing nets in households in the quantification of needs. It is important for countries to undertake their own net durability studies, as condition of nets will vary according to the country situation. The figures in the table below are based on a median survival time of three years for a LLIN, and will need to be adapted to address the results obtained from country-specific durability studies.

In addition to country-specific LLIN durability studies, countries are encouraged to undertake an assessment to determine the actual situation with previously distributed nets. The assessment serves two purposes:

1. It allows for a data-driven decision on whether accounting for existing nets will be cost-effective given the number of LLINs expected in households and the percentage actually found and in good condition[2].

2. Where the percentage of nets found in good condition is high enough that accounting for existing nets is cost-effective, it allows for a better means of quantification based on the percentage of nets found versus what would have been expected according to the predicted loss rates presented below.

If a country determines that the LLIN coverage with viable nets is high enough to make accounting for the existing nets cost-effective, which will largely be in countries with established and well-functioning continuous distribution systems, the quantification for universal coverage (total population divided by 1.8) should be used to provide the total need for LLINs. Assuming the three-year survival time, the number of LLINs already distributed over the last three years and considered to be available in households should be calculated and subtracted from the total need, working with a decay rate of 8 per cent at one year (0—12 months), 20 per cent at two years (13—24 months) and 50 per cent at three years (25—36 months). These rates of loss are based on data available to date and may change as more data become available. The table below illustrates how the calculation should be done.

It should be noted that mop-up campaigns following recent mass LLIN distributions have found fewer nets than expected during the household registration. While there is no hard evidence to account for the lower figures and to provide reliable quantification guidelines, it is thought that reasons include insufficient education about proper care of nets, daily wear and tear, and behavioural factors, such as nets being hidden by beneficiaries in order to receive more for the household.

Example calculation for 2013

Year nets distributed	Quantity distributed	Quantity lost	Quantity remaining available
2010	50,000	50% of 50,000 = 25,000	25,000
2011	100,000	20% of 100,000 = 20,000	80,000
2012	10,000	8% of 10,000 = 800	9,200
Total existing nets 2013			**114,200**

[2] "Good condition" must be clearly defined and should be included as a topic in training.

COUNTRY CASE STUDY

In Cross River State, Nigeria, a small qualitative survey was undertaken to try to determine what had happened to nets distributed in late 2008. Household registration in early 2010 found only around half (52 per cent) being reported as still existing in households. During the qualitative survey, 21 per cent more nets were found. Most of these nets were found in their packages, stored for use at a later date even though not everyone in the household was protected by a LLIN. These nets raised the percentage of existing nets to between 60 and 65 per cent of the original distribution.

During the qualitative survey, one-third of households reported receiving nets during the 2008 campaign but not having them currently. Of these households, 44 per cent reported "giving away" the nets and 40 per cent stated that the nets had worn out (60 per cent of these were subsequently burned). The remaining households either stated that they used the nets for other purposes or did not know what had happened to the nets they had received.

The survey showed substantial rates of loss and wear of LLINs distributed during the previous campaign, but it also showed considerable rates of retention and use. Although not representative because of the limited number of settlements included in the survey, the results will be used to guide communication messages, as well as quantification of additional nets required, to ensure full coverage, high utilization and better maintenance and repair of LLINs distributed.

For planning purposes, based on recent experiences in Senegal and Cross River State, a figure between 50 per cent and 60 per cent of expected existing nets is likely to be found. However, local analysis of the situation (coverage figures and condition of LLINs) prior to planning will allow for a context-specific assessment of the cost-effectiveness of accounting for previously distributed nets.

3.4 Quantification of other campaign materials

It is important to quantify the needs for campaign materials and personnel early to develop the estimated global budget and to allow for early tendering for key materials. All quantification for the purposes of the initial plan and budget takes place centrally as part of the macro-planning process. Final quantification of campaign materials, which will fix the global budget, must be based on micro-planning informed by the local situation. This will ensure that the materials provided are sufficient to meet the identified needs for implementation at the operational level. When micro-planning is completed early enough, and the global budget is fixed, there will be time to advocate for further resources if funding gaps are identified.

For quantification of campaign materials that is based on the number of households (e.g. household registration forms, vouchers, registrar identification, nails and hooks, etc.), it is very important to have a clear definition of a household, particularly in areas with a high percentage of polygamous families.

Once a definition is established, the number of households in the targeted LLIN distribution area should be calculated, and at least a 10 per cent margin of error added in the event of inaccuracies with population figures and average household sizes.

International procurement	National and local procurement
• LLINs (hooks and string may be included in the call for tenders as part of the specifications) • Wristbands or bracelets, if applicable (generally for universal coverage campaigns) • Indelible ink markers, if applicable (generally for integrated campaigns)	• Implementation guidelines • Government/media briefing documents • Vouchers/pens • Posters/flyers/banners • Identification, such as t-shirts, caps, badges, aprons • Training manuals • Data and supply chain management tools, including waybills, stocksheets, tally sheets, supervision checklists, rapid survey forms, household registration/summary books • Vehicle rental, fuel • Nails or hooks, string (unless provided with the nets), hammers • Chalk, stickers or cards for marking visited households • Rope (cordoning at distribution site), cutting device (for bale strapping), scissors • Campaign cards (for marking off different interventions in integrated campaigns) • Waste management, e.g. transport

Experience from countries implementing universal coverage campaigns has shown that average household size is often underestimated, leading to a shortage of campaign materials. The ten per cent buffer on the number of households should help to mitigate this problem.

The table above contains some of the materials to be quantified and the level at which they need to be procured. For materials requiring international procurement, it is important that enough time is planned between ordering and the campaign start date to prevent implementation delays. When estimating time for goods acquired through international procurement, it is important to take into account not only the date of arrival in the country, but also the time needed for customs clearing and in-country transportation before the goods reach the place where they are needed.

Wristbands/bracelets

If it is decided that wristbands or bracelets will be used for beneficiary identification, they will need to be procured internationally. Timely planning is therefore required to ensure that they have been delivered to the implementation areas before the household registration process begins. In general each household will receive one wristband indicating the number of nets to which the household is entitled. Households in the targeted LLIN distribution area should be calculated (including the 10 per cent buffer), and a further 10 per cent margin of error should be added to arrive at the number of bracelets to be procured.

Where is it probable that population data are inaccurate, the margin of error should be increased. It is important not to underestimate needs as international procurement means that any late gaps cannot be filled and alternative methods will be required. During micro-planning, more accurate population figures should be used to ensure that the appropriate quantities are pre-positioned in health facilities for the household registration, including a surplus in case of need. The surplus must be carefully managed and used only when proven necessary to avoid having insufficient nets for the number of people with bracelets.

Indelible markers

Indelible markers are often used on the nails of beneficiaries as an effective way to keep track of receipt of LLINs. Indelible markers have largely

been used during integrated campaigns to prevent children from receiving interventions more than once in order to receive more LLINs. Indelible markers are not so relevant for universal coverage campaigns where beneficiaries receive nets based on identification such as vouchers, coupons or bracelets. It is difficult to calculate needs for indelible ink markers, as there are quality, user and environmental elements to consider. Most indelible ink markers are said to mark 500 nails, but when caps are not put on immediately after use or when used in dry climates, it can be fewer. Experience has shown that one marker generally makes between 250 and 375 marks. A buffer stock of around five per cent should be added to the quantification.

Vouchers

Vouchers which are exchangeable for LLINs may be used in a number of different ways and quantification depends on the method:

- One voucher for every LLIN available for distribution: in this case, the number of vouchers to be printed is equal to the number of LLINs available. It should be kept in mind, however, that with a large volume of vouchers, there is always a possibility of misprinting or inaccurate quantities being produced or delivered. Countries should print a buffer stock of vouchers (at least 10 per cent) that are held at a central location (such as the district health management team office) for use if necessary. There should be an established process for verifying that additional vouchers are necessary before they are released from the central location for use.
- One voucher for each household: in this case, a similar method of quantification can be used as described above for wristbands/bracelets.
- Coloured vouchers representing different numbers of nets: in this case, it is necessary to establish the strategy, estimate the number of households in each category and produce vouchers accordingly. The table below provides a hypothetical example of this method of quantification. It remains important to determine the buffer stock of vouchers that will be printed.

It should be noted, however, that rural household size is generally larger than urban, and using a country average might result in underestimating requirements for rural areas. Calculations using a different average size for urban and rural households should result in the allocation of a more accurate number of vouchers in various settings.

The importance of micro-planning cannot be emphasized enough (see Chapter 7). Micro-planning is critical in order to finalize needs estimates, timelines and the global campaign budget.

Tools, materials and training for micro-planning

Micro-planning involves gathering detailed information from the district/community levels regarding the need for LLINs and other commodities, personnel, data recording and reporting forms, communication materials and so on. Templates, tools and guidelines to be used for micro-planning purposes need to be developed and/or adapted for use at different levels. To ensure that the data collected are as accurate and

Number of people in household	Percentage of households in category	Estimated number of households	Vouchers required with buffer (10%)
1—3 persons	20%	20,000	22,000 red
4—7 persons	60%	60,000	66,000 blue
8—11 persons	15%	15,000	16,500 yellow
11+ persons	5%	5,000	5,500 green
Total	**100%**	**100,000**	**110,000**

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complete as possible, staff responsible for their collection and collation need clear instruction materials on the use of micro-planning tools and templates.

Training materials for implementation

From the outset it is important to make an accurate calculation of the training sessions required, and to quantify the training materials that need to be developed, printed and disseminated to the appropriate locations in a timely manner. In general, training will need to take place at central, regional, district and health facility/community levels. In order to maximize human resources, training is generally given on a cascade or training of trainers (ToT) model, with each level given the skills and knowledge to facilitate training for the level below. It is advisable, given the complexity of universal coverage campaigns in terms of data collection, to carry out a minimum of two training sessions for each level, one focused on the household registration and the second focused on the LLIN distribution and post-distribution activities. Where possible, the post-distribution activities should constitute a separate, third, training.

The number of training sessions, and therefore the training materials to be procured, will depend on the number of people to be trained at each level. In general, countries should set an upper limit on the number of participants in a single training session in order for the training to be interactive and to facilitate learning. Training sessions should be long enough to include practical experience with the data collection tools, including visits to households or simulated LLIN distribution role-plays. For training of personnel for the household registration, a minimum of two days is recommended, with an additional two days' training for distribution and hang-up activities. This will ensure that the quality of data is good and that their collation and analysis are less time-consuming.

During the training at each level, participants will be provided with various materials and should be given practical training in their use. At central, regional, district and health facility levels, all trainees should be provided with a training manual, data collection and summary sheets, supervision and monitoring checklists and volunteer job aids in order to ensure quality

of training throughout the various cascade levels and during implementation of activities. If there is an additional implementation guideline that supervisors should use during their work, this should also be provided during the training.

For the training of volunteers at the community level, where literacy may be lower than at the higher levels, job aids relevant to each phase of activity should be provided, in addition to data collection and summary sheets. Training manuals are not as useful at this level and may lead to confusion if participants do not understand what is written. Volunteers do not need very detailed information, and the training they receive should be focused on precisely what they are expected to do and say.

It is recommended that all training sessions are followed by a post-test or other culturally appropriate means of assessing knowledge and comprehension, as well as assessing the effectiveness of the training process. Post-test materials will need to be developed.

For each training session, a package of support materials should be put together (flipchart paper, markers, chalk, etc.) with a cost per package to be included in the budget. One support package per training should be sufficient. There is also a need to include a package of practical materials, such as paper, pen or pencil, eraser, calculator and a folder for participants in each training session. Contents will vary according to the type and level of the training session and the functions of participants. Once the contents have been determined, total cost of training materials can be calculated by establishing a cost per package per training participant.

Household registration forms, data collection tools and household marking

An accurate estimation of the quantity of household registration forms and other data collection tools required is important as shortages during implementation can have a negative impact on the campaign.

Forms used during household registration should have duplicate carbon copies (or photocopies if carbon copies are not available) and should be bound into books to ensure papers do not get lost. One copy will be kept at the distribution point to be used in the case of lost vouchers, and one is kept by the district to allow for summarizing and analysis of data by the immediate and higher level supervisors. The books should accord with what each volunteer is expected to achieve each day. For example, if a volunteer is expected to register 200 households over 10 days, then a book with sufficient pages for this number of households (typically 20 households per sheet), plus some extra pages should be printed. A ten per cent margin of error should be printed for cases where the population estimates may be inaccurate, or for cases where the printing is of inferior quality and the books cannot be used.

In addition to the household registration books, summary forms, including a ten per cent margin of error, must be printed to facilitate data collation and analysis. Summary forms will be necessary at each level: health facility, district, regional and national, and the numbers required will depend on the number of facilities, districts and regions as well as on the method for data retrieval and management (daily, weekly, end of activity summary, etc.). To avoid confusion, however, it is advisable to keep the number of different forms to a manageable number, and to collect, collate and analyse only information and key data that are relevant to the exercise.

Where countries have mobile phone coverage over the majority of the area where the campaign is taking place, they may wish to consider limiting the paper-based summarizing of household registration data and implementing a system where data is transferred by text message (SMS) from supervisory level upwards to facilitate collation and analysis. It is particularly important to limit the number of pieces of information that

need to be transmitted each day to reduce risk of errors. As an example, four data points should be sufficient: name of village, total number of people, total number of vouchers distributed, total number of nets needed. If a mobile phone-based system is chosen, there will be a smaller budget for photocopying but increased costs for the purchase of air time to ensure no problems with the transmission of the data.

Regardless of the method for data collection and transmission, there should be a budget for personnel at the district level to be specifically focused on the management of incoming data to improve the quality of the data collation and to reduce time for data management.

Finally, for the household registration and for hang-up visits, it is important to have a way of marking households that have been visited to avoid duplication of activities. A number of visual methods have been used to show houses that have been visited, so that it is easier to identify those that have been missed or require follow-up visits. These include chalk marks, stickers and cards, placed out of the reach of children. Whichever culturally appropriate method is employed, the chalk, stickers or cards must be included in the quantification requirements. Stickers and cards, if based on macro-quantification numbers, require one per household plus a buffer stock of at least 10 per cent, or more if population data are out of date. For chalk, the quantification should be based on how much information will be written (e.g. date and volunteer initials, or just an "X" mark), and on the number of households a volunteer is expected to cover in a day. In general, a volunteer visiting 20—30 households per day would require between two and four sticks of chalk per day for each day of the household registration or door-to-door hang-up visit. However, to avoid volunteers running out during the activity, additional quantities should be procured for each health centre/district.

During the distribution, site personnel will use a tally sheet to record the number of LLINs distributed. The calculation for tally sheets required should be based on the number of sites and the number of days of distribution (a new sheet should be used each day) plus a 10 per cent margin of error.

During door-to-door hang-up activities, volunteers will use a household visit form to record information. These should be produced according to the guidelines above for household registration, but the quantity should be modified according to the strategy adopted (see the section in 3.5 below on Hang-up).

The number of supervision and monitoring checklists, as well as the number of rapid surveys to be printed will depend on the number of supervisors and monitors, as well as on the protocol for implementation of the rapid surveys. This will be country-specific, but supervisors and monitors should be provided with a number of checklists and monitoring forms/questionnaires per day plus a buffer stock in order to undertake their tasks.

Communication supports

In order to ensure sufficient resources are allocated for communication supports from the initial macro-planning, it is important to identify what is needed for each phase of activities and in what quantities. Items that may need to be quantified include job aids for volunteers undertaking social mobilization or other communication activities, advocacy folders for government officials and donor organizations, television or radio spots on CD or cassette to circulate to television and radio stations to ensure consistency of messages, print materials to identify sites or for launch events and air time for radio and television spots before, during and after the campaign.

While every effort should be made in advance of the household registration to inform beneficiaries about what will happen and why, ensuring that volunteers visiting households have adequate

identification is vital. Beneficiaries must understand that the volunteers have a valid health-linked reason for visiting their household and collecting information. This is particularly important where beneficiaries may be uncomfortable with the government collecting detailed information about them or where elections are being held soon. Volunteers can be identified through t-shirts, bibs, aprons, badges, hats, or bags/folders with a campaign logo.

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LLIN distribution and hang-up materials

In addition to the data collection tools, certain materials are required at distribution sites to facilitate the work of the distribution teams. These materials include scissors, a cutting device (many bales are now strapped with metal, requiring a knife or other sharp tool to cut the ties), rope (to form lines for more effective crowd control and to provide a barrier between the distribution site and the LLIN storage area) and writing materials. In addition, each site should have a box for collection of vouchers or wristbands and large bins or bags for the collection of waste at the site.

For door-to-door distribution, the methodology will need to be determined early on to ensure supplies are procured on time and in sufficient quantities. If the methodology is to physically hang all or some nets in every household, the volunteer will need to be provided with materials for hanging: hammer, nails, string, hooks or other items that are commonly used in the area based on typical household construction. Countries should consider procuring hooks, nails and string with the LLINs to be included in each package, and procuring sufficient hammers for the volunteers locally. If the methodology is to distribute nets door-to-door without physically hanging, then volunteers will only need supplies common to either methodology: large bags to carry nets, job aids for dissemination of key messages, communication materials to be given to beneficiaries on hanging, use and proper care of nets and data collection forms.

For post-distribution door-to-door hang-up after fixed site delivery, there are a number of different approaches, and quantification of materials required will depend on which approach is adopted. Visits by volunteers may be, for example:

- to disseminate key messages about hanging, use and maintenance of nets
- to help householders with hanging nets not hung or incorrectly hung

If the latter, decisions need to be made on provision of materials to volunteers for the hang-up activity. Will volunteers receive hammers, nails (and which type – regular or concrete or a mix), string or other tools to hang the nets? What are the main ways that people hang their nets (and how much string, on average, would be required for each net)? Is the plan to hang all nets at a household or only one to demonstrate how it should be done? Is there a break between the LLIN distribution and the hang-up? If so, what percentage of LLINs should have been hung during that period (to provide an estimate for the materials required for hanging the remaining percentage that have not been hung)?

Waste management

At the time of writing this toolkit, no policy guidelines have yet been agreed upon for the

management of waste, notably plastic packaging, created during the mass LLIN distribution campaigns. WHO is currently working on the development of a guidance document on disposal of LLIN packaging. The interim recommendations from WHO[n] are:

DO NOT

1. Burn LLIN bags in the open air by any method other than the proper incineration conditions (see below).
2. Re-use LLIN bags for any purpose.

DO

1. Recycle LLIN packaging only through recyclers that understand the necessity of recycling non-biodegradable pesticide-tainted residues only into non-consumer products.
2. Incinerate LLIN bags ONLY if specified high temperature incineration conditions for pesticide-tainted plastic can be guaranteed and FAO/WHO and Basel Convention guidelines[3] can be strictly followed.
3. Store LLIN packaging only if future safe incineration or recycling is expected: the storage facility must be dry and secure.
4. If recycling or incineration is not possible and if the manufacturers provide directions on methods for safe disposal, follow these. If not, bury any potentially insecticide-treated plastics in soils with low permeability, away from any residences, preferably down gradient from any known domestic water sources but at least 100 metres from wells or other domestic water intakes or high water marks of lakes/wetlands. Material should be buried to a depth not exceeding one metre above the highest annual water table and compacted soil should cover the buried plastic to a depth of one metre or more.

[3] Basel Convention Technical Guidelines specify that "The condition for the optimal incineration of material is: Temperature of 850°C—1100°C for hydrocarbon wastes and 1100°C—1200°C for halogenated wastes; sufficient (gas) residence time in the incinerator (EU legislation requires 2 seconds as a minimum)."

At the time of procurement of LLINs, countries can specify packaging requirements when issuing a tender. For example, in Uganda the NMCP avoided the plastic packaging by ordering naked nets that came in wrapped bales but without individual packages. Some suppliers also offer alternatives to plastic packaging, such as bio bags, a solution that can be explored at the time of LLIN procurement and tendering.

For budget purposes, it is important to estimate the transportation requirements if packages are being moved to a location with an incinerator or to a central point for burying. For these estimates, it is necessary to factor in the movement from the lowest point in the supply chain (often the distribution point which is where the packages will have been maintained) to the final destination. This should be estimated in conjunction with logistics staff since the process is essentially a reversal of what was done to move the nets down to the lowest points in the supply chain.

3.5 Quantification of personnel

Quantification of personnel needs should closely mirror the implementation plan, ensuring that there are sufficient people to carry out all the required tasks at different phases of the campaign. Trained personnel may be required at central, regional, district and health facility/community level, depending on the scale of the campaign. Personnel are required for all phases of the campaign and the number of people needed in each phase will depend on the strategies adopted. For example, if household registration is door-to-door and LLIN distribution is from fixed sites, in general fewer people will be required for the LLIN distribution than were needed to reach every household during the registration. However, in the case of door-to-door LLIN distribution, the personnel required for household registration would be the same as the number required for distribution (although the registration and distribution may be done in a single step).

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As for the quantification of campaign materials, the quantification of personnel, where based on the number of households, should be based on the estimated number of households plus a buffer of 10 per cent to allow for inaccurate population data and/or smaller average household size. The buffer will allow for additional personnel to be identified for hard-to-reach areas during the micro-planning.

Household registration

When quantifying personnel needs for household registration, distances between households will affect the number of households that a registrar can cover in one day, as will the amount of information being collected and the average literacy level of the registrars. The number of days allocated to household registration will also affect personnel quantification. Where there are few days to reach every household during the registration, more personnel will be required to accomplish the task. To calculate the number of people needed to reach all households during household registration, it is recommended that the following figures be used:

- 25—30 households per person per day in urban areas
- 20—25 households per person per day in rural areas

If a registrar works in an area where houses are closer together, it may be possible to register more households per day than in areas where the population is highly dispersed. The quantification is based on the household registration taking approximately 15 minutes per household (introductions, explanation of purpose of visit, asking questions of the beneficiary and recording information, responding to questions from the beneficiary and disseminating key messages about the dates and procedure for the LLIN distribution) and a registrar working a maximum of six to seven hours per day (including time for walking between houses).

When planning for the household registration, the plan of action will provide macro-estimations of the number of personnel required in each district or health facility catchment area.

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However, at the micro-planning stage, it will be important for the local context to be taken into account, which may increase the number of personnel required in order to reach populations living in areas that are difficult to access.

During the household registration, supervision is of utmost importance to ensure the quality of the activity and management of the data collected. Supervision should occur from all levels (community, health facility, district, regional and central) and supervision planning should take place to ensure that all areas are reached and there is no duplication of activities. In order to quantify the number of community/health facility supervisors (those who undertake "immediate" supervision of the registrars) required, a calculation of one supervisor for every ten volunteers should be used in rural areas, while this can be increased to one supervisor for every fifteen volunteers in urban areas. At central, regional and district level, supervisors are more focused on ensuring that data are collated correctly by the immediate supervisors, and transmitted and collated at each higher level using whatever data management system (paper-based, cell phone-based, etc.) has been planned and budgeted for.

Supervision of activities is important to assess volunteer performance and overall coverage during the implementation of the activities and to allow for immediate corrective action where households have been missed. The corrective action taken will depend on the issue. Where households have been missed (for example fewer than 8 out of 10 were visited and registered according to monitoring data), the supervisor should discuss the situation with the volunteers responsible for the area during their daily meeting, ask the volunteers to ensure the area is covered the following day and follow up to confirm that action has been taken. Where the problem is with data collection or summarizing daily data, the corrective action may include on-the-job training where the supervisor accompanies the volunteer to a few houses to observe and then discuss how the visit can be improved. The supervisor may also work directly with the volunteers at the end of each day to ensure that the summary of their data is correct. It is important that there are sufficient supervisors to ensure that all volunteers can be met and supervised, notably during the first days of the household registration where errors are most likely to occur.

Independent monitors should be considered for the household registration phase in order to reinforce the quality of the activity. Independent monitors will be most useful in the early days of the household registration as supervisors are too busy to undertake monitoring as well as supervision of volunteers. The number of monitors needed, as well as guidelines and questionnaires, will depend on the monitoring strategy and methodology put in place (see Chapter 7).

LLIN distribution

The number of personnel for the LLIN distribution will depend on the number of sites and the number of days of distribution. Generally, the number and location of sites will be based on the EPI mass vaccination campaigns to ensure use of sites with which the population is familiar. However, it will be necessary to see if the number of sites used by the EPI is sufficient to allow for a successful

LLIN distribution with minimal crowd control problems. It would also be necessary to look at the most appropriate community distribution points to act as alternatives to mobile sites and to serve multiple villages within walking distance. In general, the number of distribution sites required (when macro-planning) will be based on either the number of beneficiaries to be served (number of people that can be served per day) or the number of LLINs to be distributed per day.

The number of days of distribution is typically a function of the number of sites and the number of LLINs to be distributed. In general, LLIN distribution takes between four and seven days. In urban areas, a distribution site team can expect to serve between 300 and 400 beneficiaries each day, while in rural areas the number of beneficiaries expected per day is 150 to 200. In many cases, countries opt to limit the number of nets to be distributed from any single site in order to minimize crowd control issues. In this case, the number of days for distribution could be determined as follows:

Number of days for distribution

Urban area: maximum of 6,000 LLINs to be distributed
400 beneficiaries per day estimated
3 LLINs per beneficiary based on average household size
400 x 3 = 1,200 LLINs per day to be distributed
6,000/1,200 = 5 days

Rural area: maximum of 2,000 LLINs to be distributed
150 beneficiaries per day estimated
4 LLINs per beneficiary based on average household size
150 x 4 = 600 LLINs to be distributed per day
2,000/600 = 4 days

Alternatively, the number of days of distribution can be based on the number of distribution sites. If, for example, a country opts to limit the number of sites to those used by EPI, then the National Coordinating Committee and supporting sub-committees will need to calculate the number of nets for each site and then determine the number of days required for a successful distribution. In this case, the number of days for distribution could be determined as follows:

LLIN distribution based on number of sites

Total LLINs to be distributed: 500,000 in urban areas + 200,000 in rural areas
Total number of sites: 300 fixed (urban/peri-urban), 120 advanced (rural)

Urban: 500,000 LLINs/300 sites = 1,667 LLINs per site
Estimate 300 beneficiaries per day and average of two LLINs per person (600)
Number of days = 1,667/600 = 3 days of distribution

Rural: 200,000 LLINs/125 sites = 1,600 LLINs per site
Estimate 200 beneficiaries per day and average of three LLINs per person (600)
Number of days = 1,600 /600 = 3 days of distribution

Where the number of days for the campaign is set, such as when LLINs are integrated with another platform, it will be necessary to calculate the number of nets that need to be distributed each day. Since distribution numbers may be larger than normal and there will be more beneficiaries expected at a site, it will be necessary to plan for additional personnel to manage the larger numbers per day and the related crowd control issues.

During distribution, the recommended number of personnel per site is:

Urban sites, minimum of six people, expecting 300—400 beneficiaries per day:

- two persons for crowd control and net security
- two distributors
- one person to mark tally sheet
- one person to provide health education messages and net hanging demonstrations

Rural sites, minimum of four persons, expecting 150—200 beneficiaries per day:

- one person for crowd control and net security
- one distributor
- one person to mark tally sheet
- one person to provide health education messages and net hanging demonstrations

Supervision is important during the LLIN distribution, particularly on the first days when the majority of beneficiaries will come to sites to receive their nets, with potential crowd control issues. For macro-quantification purposes it is recommended that there is one supervisor for five to ten sites in urban areas and one supervisor for five sites in rural areas (as these are likely to be more dispersed). During micro-planning, it will be important to verify the number of supervisors required to ensure that difficult access areas will have adequate supervision.

As for the household registration activities, monitoring is vital to be able to provide corrective action, such as redistributing nets in areas with stock-outs, or enhancing communication when LLIN household coverage (LLIN ownership) or utilization (distributed nets not hanging) falls below an agreed cut-off, such as fewer than eight out of ten households.

Hang-up

Each country will need to assess what is required to ensure that the nets distributed during the campaign are hung and used, as well as repaired and maintained. Where possible, the hang-up strategy should be based on an assessment of existing data about use of mosquito nets in the country. In some countries, such as Mali and the Gambia, there is a long tradition of mosquito net use and these positive behaviours only need to be reinforced. In other countries, there is little experience with widespread use of mosquito nets, and the population may require more information about correct hanging and use to ensure that the LLINs distributed have their desired impact. In addition, knowledge of likely net durability in terms of physical integrity and insecticide concentration, as well as awareness of perceived net longevity by beneficiaries, will feed into the design of hang-up strategies and messages.

Among other methods, hang-up can be carried out through mass media campaigns, community events and door-to-door visits. Where a country

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chooses door-to-door hang-up activities as the strategy for encouraging correct, nightly use of LLINs, one of the key questions to ask is whether the objective is to visit 100 per cent of households targeted during the campaign or whether a smaller percentage (e.g. 75 per cent) will be targeted under the assumption that some information will pass between households without a visit by a volunteer. In addition, the NMCP and partners will need to determine whether door-to-door hang-up will take place:

- nationally
- in areas showing low utilization following monitoring and evaluation activities
- in both urban and rural locations

Once these decisions have been made, macro-quantification of personnel required for door-to-door hang-up should be based on the same rationale as personnel required for the household registration, with appropriate modifications made according to the strategy selected. The number of supervisors and monitors required for the door-to-door hang-up should be the same as the recommendations for the household registration.

Supervision and monitoring

Supervision and monitoring are crucial during LLIN mass distribution to ensure quality of activities and success in the overall roll-out of the campaign. In each of the sections above, recommendations for quantification of the lowest level supervisors have been provided. In addition to these "immediate" supervisors of the registrars, distribution teams and hang-up volunteers, it will be important to mobilize and train supervisors from the district, regional and central levels to reinforce the work of the immediate supervisors of the registrars, and to assist with data collection, collation and analysis during all phases of activity. The number of supervisors at each level will be dependent on the total population of the area and the number of campaign personnel requiring supervision. Terms of reference, or a clear list of tasks and responsibilities for supervisors at each level should be developed to help determine the number required.

In addition to supervisors, many countries identify and train people to act as monitors during the campaign. Monitors oversee a defined area, using assessment forms to give an objective view of how the campaign is progressing at any phase of the activity. Monitors do not take corrective action in the field: this is the role of the supervisor. The monitors will provide feedback to the supervisory team during the daily evening meetings for immediate remedial action if necessary. At the end of the campaign, they should produce a report with recommendations for future activities. The number of monitors will depend on the number of households or sites that are to be visited and the geographical location of the distribution.

Communication

At the community level, for all phases of the campaign, social mobilization activities will require trained personnel to ensure a high level of community participation in the campaign activities. Potential beneficiaries need to know dates and locations of the LLIN distribution, information about registration and distribution and what to expect from household visits, as well as the importance of keeping the voucher or other identification material provided to be able to receive LLINs. Quantification of personnel will depend on the method of social mobilization, size of area, number and size of communities to be reached and geographical characteristics. Many communities have existing "traditional communicators", such as town criers, who are well placed to deliver these types of messages. Local radio stations are also a good method of spreading messages about the campaign.

For further detail on communication activities, see Chapter 6.

3.6 The detailed planning process

Following the decision to scale up coverage of LLINs via mass distribution to a level where it can be sustained through other continuous distribution channels, the first step is to undertake a detailed planning exercise, based on strategies for LLIN allocation to households, identification of beneficiaries, LLIN distribution and hang-up to promote utilization.

There are as a general rule many partners involved in campaigns (see Chapter 2, Coordination) and it is crucial that they are part of the planning process and that all actors agree on the campaign strategy, the target areas and groups where coverage is not national or universal, and the resources required for campaign implementation.

Following submission and approval of proposals, which will include general macro-quantification of LLINs and operational costs for the mass distribution, detailed campaign planning should begin. It is advised that the start date for developing the plan of action should be at least nine to twelve

months, and certainly a minimum of six months, in advance of the campaign dates. The earlier planning begins, the earlier that gaps (financial, LLINs, technical support) can be identified. In general, countries tend to start planning late and identify gaps too close to the campaign start date for partners to have sufficient time to advocate for filling them. When countries are able to finalize a plan of action or implementation guideline, a timeline of activities and a budget showing partner contributions and gaps well in advance of the campaign start date, it allows time for in-country and international partners to raise funds for LLINs or operational costs or identify technical assistance to assist countries with filling capacity gaps. Very detailed, accurate and early planning should ensure that, once the campaign begins, there are no gaps remaining to be filled.

In the case of universal coverage distributions, campaign planning must be led by the MoH and should include the key partners who are contributing to, or committed to, the LLIN distribution. Where there are multiple partners involved in a campaign, it may be best to identify a small working group (say between two and five people) of technical individuals representing key partners to elaborate the proposed plan, timeline and budget for circulation to the broader group. The working group should contain representation from the logistics, communication and monitoring and evaluation sub-committees as needed, who should develop sections of the overall plan of action relevant to their areas of expertise and in agreement with the separate logistics, communication and monitoring and evaluation plans. Once the key campaign documents have been developed in draft by the working group, they can be shared with the National Coordinating Committee and/or the technical sub-committee for their input and final approval.

In the case of integrated campaigns, where LLIN distribution will coincide with either supplementary immunization activities (SIAs) or mother-child health (MCH) days, it is vital that the malaria partners join the existing coordination structure, the Inter-agency Coordinating Committee (ICC), which is often led by EPI staff. During planning for integrated campaigns, malaria partners should participate actively to ensure that the LLIN distribution is included in the campaign plan of action, budget and timeline. They should ensure that details are included of how LLIN distribution will give added value and not be disruptive to the already planned activity. When LLINs are added on to an existing platform, or where other interventions are added on to a planned LLIN distribution, it is critical that each partner brings their own financial resources to the table to avoid stretching already thin resources for the other interventions.

The plan of action, timeline and budget are the main documents to be developed, reviewed and validated by partners. The sooner the plan of action can be completed and validated, the better the chances are that all partners will be able to implement those commitments to the campaign that were made during the planning for health activities for the coming fiscal year. If timely, the detailed plan of action may also allow partners to put any extra resources into filling gaps to ensure the success of the campaign.

Early budgeting is vital. Without a budget it is difficult to justify requests for funds for activities or convince partners to fill unseen gaps. Early budgeting should be tied to establishing a mechanism that allows funds to be disbursed in a timely manner, avoiding delays in implementation.

3.7 Developing the plan of action

Once the major decisions about implementation and quantification have been taken, the campaign plan of action should be developed. It should contain detailed information on the broad spectrum of activities that need to take place before, during and after the LLIN distribution campaign. The plan will be used for a number of purposes, not just for informing partners and those involved in implementing the campaign. It will also serve as a tool for advocacy, for securing both in-country and international support and funding. In addition, it is a valuable source of data to inform the final campaign report.

The following structure is recommended for the plan of action:

Plan of action

Section title	Elements to include	Comments
Executive summary		A summary (1—2 pages maximum) of the key activities, issues and challenges. In order to summarize the most important points, this section would generally be written last, once all elements had been included in the document.
Country overview	Population data (size, urban/rural) Geography/climate Health system, structure and access Map of country Table of key indicators (health, socio-economic)	Various sources of data[o] exist for population figures. In theory, the national census should provide accurate figures, but in countries with a long time period between the last census and the campaign planning process, one should assume that figures will not be reliable. Other sources of data on population should be considered and a best estimate made. Where the population figures are being taken from a non-census source, appropriate justification should be provided for the population source(s) utilized. Planning should also take into account areas that may experience large fluctuations in population, due to conflict or natural disaster, mining, seasonal agriculture or labour migration, or cross-border movement.
Context, analysis and justification	Malaria-specific data[p] Mara map[q] National malaria strategy (LLINs, treatment, IRS) and plans for achieving universal coverage of all interventions Experience from past campaigns Current campaign funding situation Progress towards MDGs	This section should be specific to the country and should explain how the planned LLIN campaign fits into the current national malaria strategy and how it will help the country to reach universal coverage with prevention in a bid to achieve the MDGs. In countries where malaria transmission differs by region, it will be important to explain which other interventions are used to target non-endemic areas. If a country has already implemented a mass campaign, it is important to refer to that experience, provide any results from the LLIN distribution (from a survey or administrative coverage) and identify key lessons learned that should be taken into account during the planning and implementation of the current campaign. If available, include the coverage data on ITN ownership and use from the most recent national population-based survey, such as the Demographic and Health Survey (DHS), the Malaria Indicator Survey (MIS), or the Multiple Indicator Cluster Survey (MICS). This section should identify the total LLIN needs for the campaign and the various funding partners who are contributing the LLINs. In addition, partners pledging resources for operational costs should be identified when explaining the current campaign funding situation.
Goal, objectives, expected results	Overall goal Specific objectives Expected results	In general, the LLIN distribution campaign should have a single goal that is linked to achievement of national malaria objectives, the RBM universal coverage targets and achievement of the MDGs. For example: "The goal of the LLIN distribution is to achieve the 2015 MDGs by reaching 100% coverage of the population at risk of malaria and 80% utilization of the LLINs distributed in order to reduce malaria transmission and achieve universal coverage for prevention of malaria." A number of objectives will be identified as necessary for achieving the goal, including: reach 100% of households to identify beneficiaries and provide vouchers for LLINs; distribute LLINs to 100% of beneficiaries presenting a voucher at distribution posts; ensure 80% of LLINs distributed are hanging in households. The expected results should directly relate to the objectives set.

Plan of action (continued)

Section title	Elements to include	Comments
Procurement	Overview of LLIN procurement	The procurement section should describe when and how LLINs were ordered (e.g. through third party procurement, independently), timelines for arrival and delivery level (centralized or decentralized). The section should briefly describe the roles of various stakeholders (supplier, freight forwarder, NMCP and partners) in the arrival, customs clearing and delivery of nets to the first destination in the country and the chain of responsibility for the LLINs (where LLINs are handed over to the NMCP or other implementing partner throughout the supply chain). The LLIN suppliers and specifications of bales and packaging should be listed. The LLIN pipeline monitoring process should be described.
Strategy	Overview of overall implementation strategy for all campaign phases Definition of household/ operational definition of household Macro-quantification of LLINs, personnel and other needs Micro-planning Training Household registration and beneficiary identification Distribution of LLINs Hang-up to improve LLIN utilization Supervision and monitoring Data collection and management Evaluation	This section is the overview of the entire campaign, from micro-planning through to end of campaign evaluation. The section should describe how households are defined for the purposes of the campaign (operational definition) and should describe the LLIN allocation (including whether existing nets will be taken into account) and beneficiary identification (voucher, wristband/bracelet, etc.) strategies. It should describe how the distribution will take place (fixed site, door-to-door, etc.) and which follow-up activities are planned to ensure utilization of the nets (media campaign, door-to-door visits, etc.). In a table (using Excel or similar spreadsheet software) annexed to the plan of action, macro-quantification of LLINs, personnel and other needs should be presented for each phase of activity based on the guidelines provided earlier in the chapter. Where possible, the macro-quantification estimates should be to health facility level, but at minimum should be to district level. The micro-planning process should be described, including any briefings or trainings prior to the planning activity, information to be collected/verified, and supervision and support during the micro-planning and consolidation and analysis of results. The plan should describe how the information collected from the operational level will be incorporated in the district, regional and national plans and budgets. Training should be described in terms of the levels where training will take place, the phases of activity for which there will be training and the duration of the training sessions for each phase and at each level. Supervision and monitoring activities, and the various levels and phases of activity at which these will occur should be explained with a brief description of the key tasks and responsibilities. During universal coverage campaigns, a great deal of information is collected that needs to be cleaned, analysed, collated and validated to determine LLIN needs from the household registration, LLINs distributed during the distribution and LLINs hanging at the end of the immediate post-distribution activities (where the hang-up strategy is door-to-door). The data management chain and data transmission methods (e.g. paper or mobile phone based, etc.) should be described in detail and timelines for reporting should be included. If a post-campaign coverage and utilization survey is planned, this should be noted in this section of the plan of action and elaborated on in the monitoring and evaluation plan annexed to the PoA.

Section title	Elements to include	Comments
Logistics	General background Supply chain Timeline of key milestones Training Micro-planning Transport Storage Security Commodity management assessment	This section should provide a brief overview of the logistics operation, but details will be found in the logistics plan of action that is annexed to the overall campaign plan of action. The logistics section in the campaign plan of action should indicate the supply chain management process from the entry point to the first level of storage (note that this information may have already been provided under procurement, depending on where nets are being delivered). A timeline of key milestones (such as arrival of nets in country, micro-planning, LLIN movement through the supply chain) should be provided. A more detailed timeline of all activities is contained in the logistics plan of action. The section should briefly describe the training and tools that are necessary for good supply chain management. The micro-planning process is important for the success of the campaign logistics and a brief overview of that process should be included. The various levels of transport and storage, as well as security throughout the operation, should be highlighted. Security measures are paramount throughout the supply chain and should be mentioned in brief terms, with detailed activities found in the logistics plan of action. While much of the supervision and monitoring of the LLIN supply chain is internal to the trained logistics team, a commodity management assessment to evaluate the use of key documents throughout the supply chain should be included.
Communication	Communication objectives Strategies and key activities planned for advocacy, social mobilization and behaviour change communication: • pre-campaign • registration • distribution • post-campaign Training Monitoring and evaluation	This section should provide a brief overview of the communication activities, but details will be found in the communication plan of action that is annexed to the overall campaign plan of action. The communication objectives, which are linked to the overall campaign objectives, should be described. An overview of strategies and key activities planned for advocacy, social mobilization and behaviour change communication pre-campaign, during registration and distribution and post-campaign should be provided. Training, as it is related to communication objectives and the overall contribution of the communication sub-committee to the various training manuals, should be explained. The communication-specific training elements for each phase of activity should be provided. Often, monitoring and evaluation of communication activities does not take place as its value is underestimated. It will be important to explain how communication will be included in all supervision, monitoring and evaluation tools developed.
Evaluation	Evaluation objectives Situation with upcoming population-based surveys Timing Methodological approach Data management and analysis Survey report	This section should provide a brief overview of any planned campaign evaluation(s), but details will be found in the monitoring and evaluation plan that is annexed to the overall campaign plan of action. This section should briefly present the goals, objectives, indicators, outputs and outcomes of any planned evaluation, as well as how these align with the national malaria monitoring and evaluation plan and the recommendations of the RBM Monitoring and Evaluation Reference Group (MERG). The timing for the evaluation should be explained in relation to any other population-based surveys planned following the LLIN distribution. A brief paragraph to describe the methodological approach will be important, as will a paragraph describing the data management and analysis that will take place. The timing of the release of the final survey report should be estimated and an explanation provided as to how data collected and analysed will be used to improve the LLIN programme performance.

Plan of action (continued)

Section title	Elements to include	Comments
Sustainability	Existing or planned continuous distribution systems	This section should provide a very brief overview of how gains in LLIN coverage and utilization are to be sustained in the longer term. For example, will replacement LLINs be free of charge or offered to beneficiaries at a subsidized rate? Will the existing health infrastructure be used to supply LLINs on a continuous basis to newly pregnant women and newborn children at routine antenatal and immunization visits to health facilities? If there are plans to support the commercial sector to increase the supply of LLINs, then the viability of this option should be addressed. Any planned methods for continuous distribution of LLINs should be described, including the geographical area they will be covering and the targeted population(s).
Coordination	Central level structure Sub-committees Regional/district level structure Methods of communication	This section should briefly describe the levels of coordination that will be put in place to ensure a well-planned and implemented campaign. The roles and responsibilities of the national coordinating committee and the sub-committees, as well as the regional, district and lower level coordination structures, should be briefly discussed, with details provided in an annex at the end of the plan of action. The importance of communication should be highlighted and the means for ensuring open and transparent information sharing (regular meetings, e-mails, etc.) should be explained.
Budget and funding	Total estimated budget for campaign planning and implementation Gaps identified and possible sources for gap-filling System of dispensing funds on time and in correct amounts	The detailed budget should be provided in an annex to the campaign plan of action. The narrative for this section should be brief, focused on providing the total estimated budget for the campaign (final budget cannot be validated until following micro-planning), any gaps that exist and possible sources of funding for filling the gaps. Where gaps are very large, the plan should provide a summary of any resource mobilization plans for bigger international donors. The plan of action should briefly describe the system used to ensure that funds are dispensed on time and in the correct amounts to ensure no delays in implementation of activities.
Timeline	Campaign milestone dates	The detailed timeline should be annexed to the campaign plan of action. The narrative for this section should only highlight the milestone dates such as micro-planning and when the household registration, LLIN distribution and post-distribution activities will begin and end.
Annexes	Logistics plan of action Communication plan Monitoring and evaluation plan Macro-quantification of LLINs, personnel and other needs tables Coordination structure and terms of reference Timeline Estimated global budget	

See also Resources R3-8 to R3-12 for examples of action plans with their associated timelines.

Establishing a timeline of activities

Reliable information on delivery schedules is required in order to set campaign dates. LLIN campaign delivery dates will be based on timing for procurement, arrival of LLINs in the country and movement of LLINs through the supply chain to distribution points. In addition, a number of activities, notably the micro-planning and household registration and analysis of the data collected, need to take place prior to the LLIN distribution and take a certain amount of time for completion. The development of a timeline is vital to set a critical path, and to note potential bottlenecks. Adequate time must be allowed for all activities prior to the campaign. This will include any design and printing of vouchers, communication materials, registration forms, supervisory checklists, and so on. The time for collection, cleaning, analysis and compilation of data from the micro-planning and household registration should not be underestimated when developing the timeline.

Countries may be under pressure to begin distributing LLINs at a certain time for political reasons, seasonality or other causes, but it must be kept in mind that certain pre-campaign and implementation elements (such as LLIN delivery or movement of LLINs through the supply chain) cannot be rushed, and the careful development of realistic timelines with some built-in contingency in case of unexpected events provides a vital planning and implementation tool. See sample timelines in Appendices 3B and 3C.

Developing the global budget

The global budget should include all the elements and activities required for campaign success. It must be based on the implementation strategy and macro-quantification (see Appendix 3A and Resource R3-2).

3.8 Key planning recommendations

In general, integrated universal coverage campaigns have been more difficult to implement than stand-alone universal coverage campaigns, and mop-up campaigns are even more challenging. Previous campaigns of all kinds have, however, provided experience from which lessons can be learned.

Key planning recommendations include:

- Good partner coordination is vital. Roles and responsibilities must be clearly defined, and an effective communication structure between partners set up (see Chapter 2). With integrated campaigns in particular, harmonization of approaches and consistency in implementation can be difficult to achieve where there are multiple partners mobilizing human resources.
- Early planning is crucial, allowing the estimated budget to be calculated and any major gaps in funding or resources determined early enough to work to fill them. It is recommended that a small working group (a maximum of five people) of technical individuals is designated to develop the plan of action, timeline and estimated budget for review by the broader group.
- Micro-planning is a critical bottom-up activity, collecting information from the lowest levels to allow the operational and implementation needs to be determined. It offers an opportunity for communication and advocacy at the district and health facility level, helping to promote ownership. It must be undertaken early, at least four to six months before the date of the LLIN distribution. Sufficient time must be allocated (10—14 days) to complete data collection and collation at the regional or district level. The more accurate the information collected during the micro-planning, the better the chances for success of the campaign.
- Quantification is a major challenge. Population figures from census projections are often inaccurate and average household size smaller than predicted, leading to LLIN shortages. Census data should be cross checked with survey data and local data. The more accurate the population numbers are for the planning, the less likely that gaps will appear

during implementation. Where using average household size as a means for quantifying LLIN need, both urban and rural averages should be used.

- Training is essential at all levels of campaign implementation and is critical to success. It is important to ensure that the appropriate people are being trained and that those at the top level of cascade training understand training methodologies and have adequate capacity and tools to be trainers. The budget should reflect the number of sessions and days per session (a minimum of two days for household registration plus two days for distribution and hang-up) that are required to ensure adequate understanding by participants. Training should include a practical element, such as practice with data collection forms, and understanding should be checked by means of a post-test or other acceptable method. Supervision of training should be planned and budgeted for.
- Household registration is the key to the entire campaign. Micro-planning, mapping and careful budgeting prior to household registration should take place to ensure that the number of volunteers and days for the registration are sufficient to reach all areas and all households. Household registration should be practised as a training exercise. The definition of a household must be clear and unambiguous, and should be described in the overall plan of action and in training documentation.
- Supervision and monitoring are critical during the household registration, distribution and hang-up activities and should be planned and budgeted for from the outset of campaign planning.
- Data collection, collation and synthesis are time-consuming and must be planned for accordingly. Sufficient time should remain between the household registration and the LLIN distribution to allow for data analysis and pre-positioning of the nets. The logistics sub-committee should provide inputs on movement of the LLINs through the supply chain so that the timelines can be set accurately.
- Measures for accountability of LLINs must be put in place, made clear in the documentation, and form a topic for training. A commodity management assessment is vital and must be included in the budget at the outset. It is essential to plan and budget for sufficient logistics personnel at all levels (central, regional, district, community), and to train them to monitor the movement and storage of nets systematically throughout the supply chain.
- Individuals undertaking supervision and monitoring should be trained and should be familiar with the forms used and their purpose. Supervisory activities should be planned carefully to avoid duplication of efforts and to ensure that all areas are covered. Adequate funds should be allocated to ensure that hard-to-reach areas have sufficient oversight from the supervision teams.
- Communication activities should be planned early and should engage key partners, organizations and private sector companies that can contribute to mobilizing the community and ensuring participation and ownership. Adequate and appropriate training should ensure that messages are clear and consistent. For budgeting purposes, communication activities should be monitored to assess their reach and effectiveness.
- Supplementary hang-up activities may be necessary, and should be included early in the action plan and budget. The net culture of the country must be understood so that appropriate messages and actions can be planned to ensure utilization of nets.

Appendix 3A: Budget template*

Coordination

National	Transportation (including vehicle rental if necessary)	In general, costs for coordination meetings should be minimal as meetings in one's home base (national, regional, district, health facility level) are part of normal work service.
	Telephone top-up cards	
	Meetings (room/refreshment)	
	Accommodation/per diem	
	Stationery/photocopying	
	Technical support	
Regional	Transportation (including vehicle rental if necessary)	The importance of communication cannot be overestimated. It is important to plan and budget for travel and regular communication between the central, regional, district and health facility levels.
	Telephone top-up cards	
	Meetings (room/refreshment)	
	Accommodation/per diem	
	Stationery/photocopying	
District	Transportation (including vehicle rental if necessary)	It is important to ensure that the operational level has a final implementation plan. Budget for the field mission to support micro-planning, but also for the finalization of micro-plans and sending of the approved version back to the operational level.
	Telephone top-up cards	
	Meetings (room/refreshment)	
	Accommodation/per diem	
	Stationery/photocopying	

International procurement

	Advertising call for tenders	Once baseline funding has been secured, the development of a structured procurement plan is essential. This will contain information on the requirements for goods or contracts, the method of procurement and procedures for review of the plan. The method of procurement needs to be decided, based on donor guidelines and country policy, and a timeline for the whole procurement process, from initial research to receipt by beneficiary must be determined. Different funding agencies have their own timelines and it is essential to be guided by the donor's own processes and procedures.
	Quality assurance/quality control	
	Bid opening (bid evaluation committee)	
	Outsourcing to third party procurement agency	
	Official announcement of successful bids	
	LLINs (including string, nails, hooks, etc. depending on the hang-up strategy)	
	International shipping	
	Trainings (participation in PSM WG or other training)	
	Technical support	

Logistics

Port costs and customs clearance	Demurrage (charge levied for holding full containers in port)	Procurement and pipeline monitoring, which should be handled by the logistics sub-committee and/or the central logistics team (CLT), consist of maintaining an updated global picture of how many nets have been procured and by whom, how many nets have been shipped, received, cleared and transported to final destinations.
	Scanning (containers/transport vehicles)	
	Port storage	
	Waybills and documentation completion	
	Handling and transport (moving containers)	
	Container inspection	
	Insurance	
	Administrative fees for port authority	
	Clearing agent fees	
Coordination and handling	Warehousing rental per month and security	Regardless of where the first level of storage occurs (e.g. central, regional, district, etc.) the central logistics team will need to locate and secure appropriate warehouse(s) with adequate capacity to store the nets. Proper identification and management of warehousing is of primary importance.
	Logistics team per diem and travel (to central import location [port]/storage)	
	Transportation (including vehicle rental if necessary)	
	Offloading containers/loading trucks at warehouse	
	Offloading trucks at storage points	
	Telephone top-up cards	

* This budget template can be found in spreadsheet form on the CD as Resource R3-2a.

APPENDIX 3A: BUDGET TEMPLATE (continued)

Logistics

Training of logistics team and personnel for supply chain*	Per diem and travel costs	Logistics personnel are trained in the essential and systematic use of the tracking tools (waybills, stock sheets and tally sheets) in order to record and track all movement of the nets during every stage of the supply chain.
	Accommodation	
	Transportation (including vehicle rental if necessary)	
	Room rental/tea/lunch	
	Training package for participants	
	Supervision of training (per diem, travel, accommodation)	
Micro-planning	Stationery/photocopying	Logistics micro-planning is critical to finalizing need estimation, timelines and, importantly, the global campaign budget. It occurs at the district level, based on guidelines set at the national level and using tools and templates developed to collect the necessary information from the lowest points in the supply chain.
	Per diem and travel costs	
	Accommodation	
	Transportation (including vehicle rental if necessary)	
	Telephone top-up cards	
Transportation and security (to distribution point)	Advertising – call for tenders	A precise transport plan to the districts should identify transport routes/axes in order to optimize truck capacity and take best advantage of the road network, and define a dispatch plan with fixed dates. From this, truck-loading schedules, rotations and reloading can be organized.
	Contracting transport companies	
	Transportation for supervision (including vehicle rental if necessary)	
	Per diem and travel	
	Telephone top-up cards	
	Conveyors (training/per diem/accommodation/ telephone top-up cards)	
Storage and security	Chains/locks	Proper identification and management of warehousing is of primary importance. Some basic criteria to be used in warehouse selection are: (1) overall capacity, (2) location, (3) accessibility (unloading/loading docks/ramps – number of entry points/doors), (4) condition (dry and protected from weather elements), and (5) proper security (lockable doors and windows, exterior lighting, guards and access control).
	Stipend/salary for guards	
	External lights (if applicable)	
	Small generator (if applicable)	
	Telephone top-up cards	
	Repair to infrastructure	
	Warehouse insurance on goods (if applicable)	
Management and administration tools	Printing (stock books, warehouse journals, waybills)	Three essential tracking tools will be used throughout the operation: the waybill, the warehouse stock sheet and the distribution tally sheet.
	Office supplies/photocopying	
	Telephone top-up cards	
Planning, supervision and monitoring missions	Per diem and accommodation	The aim of supervision and monitoring is to ensure that activities are carried out according to the plans and against designated timelines, and to check that tools are being used correctly to ensure later tracking of LLINs.
	Transportation (including vehicle rental if necessary)	
	Stationery/photocopying	
	Telephone top-up cards	
Insurance	Insurance and liability for loss, theft or damage	For the Global Fund, there is a clause in the standard grant agreement that should be taken into account, planned and budgeted for.
	Transport and storage	
Commodity management assessment (CMA)	Evaluation of use of supply chain management tools	The purpose of CMA is to measure the level of accountability and transparency achieved in the management and distribution of LLINs.
Technical support		

* At all levels – central to lowest storage point

APPENDIX 3A: BUDGET TEMPLATE (continued)

Communication: advocacy, social mobilization and behaviour change communication

Micro-planning	Stationery/photocopying	Communication micro-planning should be carried out in conjunction with the technical and logistics micro-planning. The plan should include a distribution plan, specifying who the target recipients are and who will distribute the various materials.
	Per diem and travel costs	
	Accommodation	
	Transportation (including vehicle rental if necessary)	
Advocacy	Production and printing of international/national advocacy kit	At the lower levels, advocacy helps ensure that every health management team, whether at a health post, health centre, district or regional facility, is informed about the campaign, is ready to support activities, and has the tools needed from the national and regional levels to manage the process effectively.
	Campaign launch (national, regional, district)	
	Radio/television featuring key figures	
	Net handover or other events	
	Media coverage (print, radio, television)	
	Production of media kit	
	Briefing sessions with government departments and key stakeholders*	
	Press conferences	
Training**	Per diem and travel costs	Good training and training materials are vital to good social mobilization and for the campaign success overall. Make sure all volunteers have the correct information and can disseminate it by the time they finish the training. Volunteer job aids or checklists will help to ensure that clear and consistent messages are passed to community members.
	Accommodation	
	Transportation (including vehicle rental if necessary)	
	Room rental/tea/lunch	
	Training package for participants	
	Training materials, social mobilization guide and volunteer job aids	
	Supervision of training (per diem, travel, accommodation)	
Social mobilization and BCC	Volunteer per diem	The radio: national and community radio are both very effective communication channels. Radio messages should be translated into two or three of the most spoken languages in a country. Avoid translating messages into all languages, bearing in mind that the time and financial expenditure is large for limited results.
	Supervision of social mobilization and BCC (per diem, travel, accommodation)	
	Printing of rapid monitoring forms and supervision checklists	
	Media briefing	
	Briefing of influential figures (religious, traditional, etc.)	
	Production and pre-testing of radio and television spots	
	Mass media (radio, television, print)	
	Purchase of megaphones/batteries	
	Traditional communicators (e.g. town criers)	
	Print materials	
	Volunteer identification (e.g bibs) and job aid	
Hang-up	Volunteer per diem	Hang-up campaigns are a time-limited activity that use door-to-door visits and interpersonal communication by community volunteers to assist households with physically hanging up the nets they received during the campaign, and encouraging net use, care and repair. Hang-up activities can also involve community mobilization meetings with leaders and beneficiaries.
	Supervision of hang-up (per diem, travel, accommodation)	
	Printing of rapid monitoring forms and supervision checklists	
	Radio messages	
	Traditional communicators (e.g. town criers)	
	Community events	
	Data collection and summary forms (door-to-door hang-up)	
	Print materials	

* Briefing sessions with government departments and key stakeholders should be done at all levels (national, regional, district, etc.)

** Training should be done at all levels (national, district, health facility and community) and for all communication activities (pre, during and post-campaign).

APPENDIX 3A: BUDGET TEMPLATE (continued)

Communication: advocacy, social mobilization and behaviour change communication (continued)

Hang-up (continued)	Volunteer identification (e.g. bibs) and job aid	
	Materials for hanging or repair (string, nails, hammers, sewing kits, etc.)	
	Chalk/stickers/cards for marking households	
Management and administration	Telephone top-up cards	
Technical support		

Household registration and identification of beneficiaries

Micro-planning	Stationery/photocopying	During micro-planning, it can be helpful to use existing health facility catchment area maps to get information about hard-to-reach areas, scattered communities, etc. For improved planning, mapping of partners and existing organizations should be undertaken in order to take advantage of any available resources and to plan for potential challenges.
	Per diem and travel costs	
	Accommodation	
	Transportation (including vehicle rental if necessary)	
Management and administration	Printing of household registration forms/booklets	In the case of universal coverage distributions that are using a fixed site strategy, it is critical to establish a means of identifying beneficiaries at distribution points early in the planning process to allow for appropriate budgeting and timely procurement of any unique identification tools plus 10%. For the purposes of estimating requirements for personnel and the concomitant supports for data collection and training, a 10% buffer should be added to the estimated number of households to be reached.
	Printing of summary forms for all levels (health facility, district, region)	
	Procurement of wristbands/vouchers	
	Procurement of chalk or other means for marking households	
	Telephone top-up cards – supervision	
Training*	Per diem and travel costs	Set an upper limit on the number of participants in a single training session in order for the training to be interactive and to facilitate learning. Training sessions should be long enough to include practical experience with the data collection tools, including visits to households or simulated role-plays for household registration. For household registration, a minimum of two days is recommended for the training.
	Accommodation	
	Transportation (including vehicle rental if necessary)	
	Room rental/tea/lunch	
	Training package for participants	
	Training materials – household registration guide – and volunteer job aids	
	Supervision of training (per diem, travel, accommodation)	
Household registration	Volunteer per diem	To calculate the number of people needed to reach all households during household registration, the following estimates should be used: 25—30 households per person per day in urban areas and 20—25 households per person per day in rural areas. Supervisors should be estimated at 1 for every 10-15 volunteers.
	Supervision of hang-up (per diem, travel, accommodation)	
	Printing of rapid monitoring forms and supervision checklists	
	Volunteer identification (e.g. bibs) and job aid	
Data management	Telephone top-up cards (if SMS data management)	Where countries have mobile phone coverage over the majority of the area where the campaign will take place, it may be possible to design a data management system where data are transferred through the levels by text messages.
	Incentive for district or regional HMIS staff for data entry	
	In and end process monitoring	

* Training should be done at all levels (national, regional, district, health facility and community) and for all activities (pre, during and post-campaign).

APPENDIX 3A: BUDGET TEMPLATE (continued)

Distribution of LLINs

Micro-planning	Stationery/photocopying	The central level teams that will be supporting micro-planning should consist of MoH and partner organization staff. Preferably, each team will be multidisciplinary and consist of logisticians, programme staff and communication experts. At the district level, participants should include health facility staff, NGO/CBO representatives and other key stakeholders.
	Per diem and travel costs	
	Accommodation	
	Transportation (including vehicle rental if necessary)	
Management and administration	Printing of tally sheets for distribution points	During the distribution, site personnel will use a tally sheet to record the number of LLINs distributed. The calculation for tally sheets required should be based on the number of sites and the number of days of distribution (a new sheet should be used each day) plus a 10% margin of error.
	Printing of summary forms for all levels (health facility, district, region)	
	Procurement of boxes for collection of vouchers/ wristbands	
	Procurement of distribution point materials (scissors, knife, pens, etc.)	
	Telephone top-up cards – supervision	
Training*	Per diem and travel costs	During the training at each level, participants will be provided with various materials and should be given practical training in their use. At central, regional, district and health facility levels, all trainees should be provided with a training manual, data collection and summary sheets, supervision and monitoring checklists and volunteer job aids in order to ensure quality of training throughout the various cascade levels and during implementation of activities. For the training of volunteers at the community level, where literacy may be lower than at the higher levels, job aids relevant to each phase of activity should be provided, in addition to data collection and summary sheets.
	Accommodation	
	Transportation (including vehicle rental if necessary)	
	Room rental/tea/lunch	
	Training package for participants	
	Training materials – LLIN distribution guide – and volunteer job aids	
	Supervision of training (per diem, travel, accommodation)	
LLIN distribution	Site personnel per diem: • Site supervisor • Crowd control/organization of sites • Screening/registration/tallying • Distribution • IEC/BCC	Certain materials are required at distribution sites to facilitate the work of the distribution teams. These materials include scissors, a cutting device (many bales are now strapped with metal and require a sharp tool for cutting), rope (to form lines for more effective crowd control and to provide a barrier between the distribution site and the LLIN storage area) and writing materials.
	Supervision of LLIN distribution (per diem, travel, accommodation)	
	Printing of rapid monitoring forms and supervision checklists	
	Volunteer identification (e.g. t-shirts, bibs) and job aid	
Data management	Telephone top-up cards (if SMS data management)	The number of supervision and monitoring checklists, as well as the number of rapid surveys to be printed will depend on the number of personnel and the protocol for implementation of the rapid survey. Supervisors and monitors should receive a number of forms per day plus a buffer stock.
	Incentive for district or regional HMIS staff for data entry	
	In and end process monitoring	
Waste management	Transport of LLIN packaging to incinerator/burial site	Each site should have a box for collection of vouchers or wristbands and large bins or bags for the collection of waste at the distribution point. For budget purposes, it is also necessary to estimate the transportation requirements if net packages are being moved to a location with an incinerator or to a central point for burying. This should be estimated in conjunction with the logistics team as the process is "reverse" logistics.
	Large sacks for collecting all distribution point waste	

* Training should be done at all levels (national, regional, district, health facility and community) and for all activities (pre, during and post-campaign).

APPENDIX 3A: BUDGET TEMPLATE (continued)

Monitoring and evaluation

International consultants	Consultant fees	An M&E strategy focused on a campaign must be consistent with, and complementary to, the country's overall malaria M&E plan. However, each campaign needs a specific M&E plan to ensure data are collected to determine if it has met its objectives, to assess the strategies used and to provide lessons for future activities. A campaign-specific population-based survey can be quite expensive, so if there are already planned population-based surveys (such as MICS or DHS), integrating campaign-specific questions into the questionnaire may be a more cost-effective option.
	Travel, per diem, lodging, insurance	
	Transportation	
Contracting an international organization	Fees, overhead	
National consultants	Consultant fees	
	Travel, per diem, lodging, insurance	
Contracting a national organization	Fees, overhead	
Training, materials development and pre-testing	Room rental/tea/lunch	
	Per diem facilitators/participants	
	Accommodation facilitators/participants	
	Transportation for facilitators/participants	
	Field test vehicles (including driver, fuel)	
	Stationery/photocopying	
Survey implementation	Ethical approval (if costs to be incurred)	
	Per diem supervisors/survey teams	
	Accommodation supervisors/survey teams	
	Transportation for supervisors/survey teams	
	Vehicle rental	
	Local guides/volunteers (mapping, translation)	
	Central level supervision (per diem, accommodation, transportation)	
	Vehicle maintenance and repairs (oil, spare parts, etc.)	
	Mobile phones and top-up cards	
	Security and insurance	
Materials/equipment	Maps/statistical information	
	Telephone top-up cards	
	Stationery/photocopies/PDA/mobile phones	
	Statistical software	
	Computer and printer rental	
Analysis, report writing and dissemination	Data management and analysis	
	Post-campaign review meeting (venue, per diem, photocopying, stationery)	
	Printing of final report	
	Dissemination of final report	
	Press/media briefing on results	
Coordination	Coordination personnel	
	Administrative and technical support	
	Stationery/photocopying	

Appendix 3B: Activities chronogram – LLIN stand-alone distribution campaign

Part 1: One year to four months before distribution

** The number in column 1 refers to the Excel spreadsheet example on the Resources CD (Resource R3-6)

**	Activities	Comments	Responsible/ Sub-committee	Months pre-distribution	10 months pre-distribution	9 months pre-distribution	8 months before	7 months before	6 months before	5 months before	4 months before
7	Secure financing for purchase of LLINs and to cover all campaign activities	Establish committee of NCMP and LLIN scale up partners to ensure sufficient nets are procured	MoH								
8	Establish LLIN specifications for order	See Chapter 4: Procurement	MoH								
9	Determine whether LLIN delivery will be centralized or at region/district level before procurement and whether containers will be purchased	See Chapter 5: Logistics	MoH								
10	Issue validated tender for LLIN procurement, including strict evaluation criteria and deadlines	See Chapter 4: Procurement	MoH								
11	Select clearing agent and sign contracts (through tenders)	Ensure open and transparent process to avoid incurring delays within the campaign timeline	MoH or procurement agent								
12	Develop a calendar for LLIN arrival and monitor the pipeline of shipping and deliveries	LLIN arrival times will change and must be monitored by a focal person assigned to this role	LOG								
13	Establish National Coordination Committee (NCC) with TORs and members clearly defined	Presidential or Ministerial letter to MoH departments and partners	COORD								
14	Organize NCC meetings where all partners are informed of campaign progress of activities and where the work of sub-committees can be validated. Share minutes from all meetings with all partners.	Establish regular day, time and location for meetings. See Chapter 2: Coordination	COORD								
15	Establish all sub-committees with clear TORs (Comm, Log, M&E, Tech.) and determine members. Organize regular meetings.	Sub-committees must be established early to ensure that activities take place on time. Establish regular day, time and location for meetings.	COORD								
16	Decide on distribution strategy (universal coverage, LLINs/persons or households, urban vs. rural, etc.)	Based on macro population data by district according to urban and rural status	TECH/COORD								
17	Based on selected strategy, quantify personnel requirements at all levels for all phases and for all activities	Personnel are required for logistics, communication and for the implementation of all activities	TECH/COMM/LOG								
18	Based on selected strategy, quantify tool requirements (campaign tools before-during-after distribution, vouchers, logistic needs, supervision, M&E, training guides, payment vouchers, attendance sheets, etc.)	See Chapter 3: Planning	TECH/LOG/COMM								
19	Develop campaign plan of action (macro-plan) and timeline (chronogram)	Should often be done by a sub-group of NMCP staff and technical partners	COORD/TECH								
20	Develop campaign activities budget (macro budget)	Should often be done by a sub-group of NMCP staff and technical partners with support from financial experts	COORD/FINANCE								
21	Develop plans of action for specific sub-committees (M&E, Logistics, Communication, Finance, etc.), including timelines and budgets for activities	See Chapters 3, 5, 6 and 8	TECH/LOG/COMM								

Appendix 3B: Activities chronogram – LLIN stand-alone distribution campaign-Part 1 (continued)

**	Activities	Comments	Responsible/ Sub-committee	Months pre-distribution	10 months pre-distribution	9 months pre-distribution	8 months before	7 months before	6 months before	5 months before	4 months before
22	Develop and publish tenders for selection of transport companies from central level to regions, districts or health zones (depending on campaign strategy selected, point of delivery of purchased LLINs, and conditions on the ground).	See Chapter 5: Logistics	LOG								
23	Define financial strategy for funds transfers from central level to peripheral actors and partners, as well as reporting mechanisms and timelines	It is crucial that a system to ensure flow of funds for activities and reporting on fund expenditures is in place to avoid delays in activities	FINANCE/MoH								
24	Ensure that all required documents are available for LLIN import, clearing and tax exemption	This is crucial to avoid delays in LLIN customs clearance	MoH/FINANCE/LOG								
25	Develop logistics tools (positioning plan, transport plan, storage plan, distribution plan, logistics tools, etc.)	See Chapter 5: Logistics	LOG								
26	Develop and validate micro-planning canvases and tools, including briefing documents for health and district areas explaining process and required information	Micro-planning is crucial for campaign success	TECH/LOG/COMM								
27	Develop all tools necessary for all phases of campaign implementation (household registration data collection and summary forms, LLIN distribution data collection and summary forms, hang up data collection and summary forms, supervision and monitoring tools)	Limit data collected to what is needed to facilitate data collation and synthesis	TECH								
28	Determine how data will be collected, transmitted and managed. Identify criteria for selection of data collectors, as well as for data analysts at all levels	An effective data management system is necessary to avoid delays. The data collection and management should not be underestimated.	TECH								
29	Develop campaign communication key messages, slogans, logos, etc. Develop media briefing kits and press communiqués to raise awareness of distribution, reach out to traditional, religious, local, political and military authorities	See Chapter 6: Communication	COMM								
30	Release and transfer campaign funds from central level all the way to health facilities as per national and donor guidelines (LLIN transport, training, per diem, etc.)	Without funds, activities cannot begin	COORD/FINANCE								
31	Advocate for resources at all levels, if gaps are identified (national and international) in nets or funds	The communication sub-committee should be engaged to develop advocacy documents and tools	COORD/COMM								
32	Request and receive from regions and district health authorities updated list of all health posts with estimated population and distances from main town; introduce upcoming micro-planning for campaign	Early involvement of decentralized levels increases success of the campaign planning and implementation	COORD								
33	Submit developed documents (Plan of Action with supporting sub-committee plans, timeline and estimated budget) for official validation to government, donors and partners for approval and release of campaign funds	All documents need to be validated early to avoid any delays in implementation of activities	COORD/MoH								
34	Pre-test campaign messages	See Chapter 6: Communication	COMM								
35	Receive, review, award and sign contracts with transport companies and develop transport schedules	Delays in identification of operational level actors and signatures of contracts are common	MoH/COORD/ FINANCE								

Appendix 3B: Activities chronogram – LLIN stand-alone distribution campaign-Part 1 (continued)

**	Activities	Comments	Responsible/ Sub-committee	Months pre-distribution	10 months pre-distribution	9 months pre-distribution	8 months before	7 months before	6 months before	5 months before	4 months before
36	Send micro-planning documents to regions, districts and health zones ahead of mission	Early engagement of the regions and districts with micro-planning will ensure that sufficient information is collected prior to the central level mission for micro-planning	COORD								
37	Validate all campaign tools from sub-committees and NCC	Early validation allows for timely reproduction and transport of necessary materials	COORD								
38	Order though tenders all campaign tools (vouchers, training guides and manuals, implementation tools, logistics tools, M&E and supervision tools, communication tools, etc.) for all phases of household registration, LLIN distribution and hang-up activities	Delays in tendering will delay training and implementation of activities. Tools are necessary for training to ensure that campaign actors are familiar with them	LOG/COORD								
39	Hold central level micro-planning training for teams heading to collect and finalize micro-plans	It is necessary to train or brief the central level personnel involved in the micro-planning to make sure that they are familiar with the micro-planning tools	TECH/LOG								
40	Training of all logistics personnel at all levels, notably for central / regional / district delivery from supplier to warehouse. Ensure all materials printed and available prior to arrival of LLINs	Training is essential to ensure accountability in supply chain management	LOG								
41	Micro-planning mission at selected level (district or region, depending on country, but head of each health facility needs to be present)	The micro-planning mission should not end until all data have been collected and the templates are largely complete	TECH/LOG/COMM								
42	Calculate specific budget needs for each region, district and health zone based on micro-plans	Verify all figures and make appropriate amendments	TECH/LOG/COMM/ COORD								
43	Engage in advocacy and social mobilization activities - traditional, religious, local, political and military authorities and any other stakeholders or campaign actors	Ensure that the target audiences are clear on activities and dates and the specific role that they will play	COMM								
44	Briefing of media – journalists, radio, television, etc.	Central and regional level	COMM								
45	Social mobilization, mass media and IEC activities	At all levels depending on the scale of the campaign	COMM								
46	Synthesis of micro-plans and budgets, central level validation of revised data (and revision of overall strategy if necessary). Send back final plans to regions, districts and health areas	Ensure that the final approved plan and budget are returned to the region / district / health facility	TECH/LOG/COMM/ COORD								
47	Arrival of LLINs centrally or where delivery was requested at time of purchase	LLIN pipeline monitoring and communication to delivery point personnel is important	LOG/CCORD								
48	Receive and prepare (sort per region, district, health facility) all campaign activity tools (household registration, LLIN distribution, hang up, communication, logistics, supervision and monitoring, etc.)	Ensure adequate personnel and time	Region/District Health Team								
49	Central level training of trainers for all campaign activities (household registration, LLIN distribution, hang-up). Regions attend centrally.	Recommended 3-4 days, maximum of 45 people. Where possible an additional briefing prior to LLIN distribution should be organized	Central/regional supervisors								

Appendix 3B: Activities chronogram – LLIN stand-alone distribution campaign

Part 2: Three months before to three months after distribution

*** Where the timeline extends across the two charts, activities have been repeated. The number in column 1 refers to the Excel worksheet.

***	Activities	Comments	Responsible	3 months before	2 months before	1 month before	Distribution month	1 month after	2 months after	3 months after
14	Organize NCC meetings where all partners are informed of campaign progress of activities and where the work of sub-committees can be validated. Share minutes from all meetings.	Establish regular day, time and location for meetings. See Chapter 2: Coordination	COORD							
30	Release and transfer campaign funds from central level all the way to health facilities as per national and donor guidelines (LLIN transport, training, perdiem, etc.)	Without funds, activities cannot begin	COORD/ FINANCE							
31	Advocate for resources at all levels, if gaps are identified (national and international) in nets or funds	The communications sub-committee should be engaged to develop advocacy documents	COMM							
43	Engage in advocacy and social mobiliization activities - traditional, religious, local, political and military authorities and any other stakeholders or campaign actors	Ensure that the target audiences are clear on activities and dates and the specific role that they will play	COMM							
45	Social mobilization, mass media and IEC activities	At all levels depending on scale of campaign	COMM							
47	Arrival of LLINs centrally or where delivery was requested at time of purchase	LLIN pipeline monitoring and communication to delivery point personnel is important	LOG							
49	Central level training of trainers for all campaign activities (household registration, LLIN distribution, hang-up). Regions attend centrally.	Recommended 3-4 days, maximum of 45 people. Where possible an additional briefing prior to LLIN distribution should be organized.	Central/ Regional supervisors							
50	Revise transport plans with selected transport companies	Ensure open and transparent process to avoid incurring delays within the campaign timeline	MoH/ COORD/ FINANCE/ LOG							
51	Develop health area-specific transport plans (all the way to selected distribution sites) with micro-plan quantities and selected modes of transportation and budget	Transport plans need to include on and off loading, warehouse and personnel needs, etc.	LOG							
52	Monitor financial expenditure and justifications for payments	Sound financial management is necessary to avoid delays between phases of activity	COORD/FINANCE							
53	Regional level training of trainers and supervisors for household registration activities	Regional level for district, recommended 2-3 days, max of 35 people per session	Central/regional supervisors							
54	District level training for health facility staff and local authorities for household registration	Recommended 1-2 days, max of 30 people per session	District supervisors							
55	Develop supervision plans - define roles and circuits for all campaign activities at all levels	Ensure that areas that are difficult to access receive adequate supervision	Central/ regional/ district supervisors							
56	Health facility training of campaign personnel for household registration	Recommended 1-2 days, max of 30 people per session	Health facility staff							
57	Transport LLINs from primary storage (central or decentralized delivery point on arrival) to secondary storage (district or lower level) based on micro-planning data	Establish a calendar of deliveries and communicate it to those responsible for reception	LOG							
58	Social mobilization for household registration	The population must be informed of the purpose of the household registration and how the information collected will be used	COMM							

Appendix 3B: Activities chronogram – LLIN stand-alone distribution campaign-Part 2 (continued)

***	Activities	Comments	Responsible	3 months before				2 months before				1 month before				Distribution month				1 month after				2 months after				3 months after			
59	Conduct and supervise household registration and distribution of vouchers	Supervision is necessary to ensure quality in implementation.	HH registration personnel/supervisors at all levels																												
60	Undertake rapid monitoring surveys to assess coverage and quality of household registration	Areas of low coverage by campaign personnel should be revisited	Central/ regional/ district/ supervisors																												
61	Collate household registration at health facility level and send to district health management team	Data should be transmitted daily	Health facility staff																												
62	Synthesize household registration data at district, regional and central levels	Time for data management should not be underestimated	DHMT/ RHMT/ Central level																												
63	Adjust quantity of LLINs per health facility based on household registration data and update transport plan	Dates for delivery need to be communicated to all persons responsible for reception	LOG																												
64	Regional level training of trainers and supervisors for LLIN distribution and hang-up activities	Regional level for district, recommended 2-3 days, max of 35 people per session	Central/ regional supervisors																												
65	Transport LLINs from secondary storage to distribution sites (or to health facilities depending on strategy)	Nets should not move early to distribution sites if adequate storage is unavailable	LOG																												
66	District level training for health facility staff and local authorities - LLIN distribution and hang-up	Recommended 1-2 days, max of 30 people per session	District supervisors																												
67	Health facility training of campaign personnel - LLIN distribution and hang-up	Recommended 1-2 days, max of 30 people per session	Health facility staff																												
68	Social mobilization for LLIN distribution	Ensure that dates, times and places for the LLIN distribution are well known	COMM																												
69	Official campaign launch (all levels)	Central level, regions, etc	COMM/ COORD																												
70	Distribution of LLINs	Fixed site LLIN distribution for the purposes of this timeline	Distribution agents																												
71	Supervision of LLIN distribution	Use checklists to assess implementation quality and areas for improvement	Central/ regional/ district supervisors																												
72	Collate LLIN distribution data at health facility level and send to district health management team	Data should be transmitted daily	Health facility staff																												
73	Monitoring and rapid evaluation of LLIN distribution	Areas of low coverage may require adjustments to LLIN distribution sites	Central/ regional/ district supervisors																												
74	Synthesize LLIN distribution data at district, regional and central levels	Time for data management should not be underestimated	DHMT / RHMT / central level																												
75	Conduct hang-up activities	Depending on strategy, this may be a mass media campaign and/or door-to-door visits by campaign personnel to assist with hanging nets	Hang-up personnel																												
76	Supervision of hang-up activities	If hang-up is door-to-door, supervision is important to ensure quality in implementation	Central/ regional/ district supervisors																												
77	Collate hang-up data at health facility level and send to district health management team	Data should be transmitted daily	Health facility staff																												
78	Monitoring and rapid evaluation of hang-up activities	Areas of low coverage may need to be revisited	Central/ regional/ district supervisors																												

Appendix 3B: Activities chronogram – LLIN stand-alone distribution campaign-Part 2 (continued)

***	Activities	Comments	Responsible	3 months before	2 months before	1 month before	Distribution month	1 month after	2 months after	3 months after
79	Commodity management assessment	See Chapter 5: Logistics	LOG							
80	Synthesize hang-up data at district, regional and central levels	Time for data management should not be underestimated	DHMT / RHMT / central level							
81	Return undistributed nets to district level (or elsewhere according to NMCP guidelines)	Planning for left-over nets should be done early and a budget established for their movement up the supply chain	LOG							
82	Undertake process evaluation and develop final campaign report	See Chapters 8 and 9	COORD/ TECH/LOG/COMM							
83	Develop final logistics campaign report	See Chapter 5: Logistics	LOG							
84	Develop final communication campaign report	See Chapter 6: Communication	COMM							
85	Develop final financial report	Financial reporting will be based on donor requirements	COORD/ FINANCE							
86	Circulate final campaign reports to partner organizations and campaign contributors		COORD							
87	Final meetings to discuss lessons learned and results of campaign at all levels (inverted cascade)		COORD							
88	Conduct survey to measure ownership and use of LLINs	High transmission season	COORD							

Appendix 3C: Activities chronogram – LLIN integrated, targeted distribution campaign

Part 1: One year to two months before campaign

** The numbers in column 1 refer to the Excel spreadsheet on the Resources CD (Resource R3-7)

**	Activities	Comments	Responsible/ Sub-committee	Months before campaign	8 months before campaign	7 months before campaign	6 months before campaign	5 months before campaign	4 months before campaign	3 months before campaign	2 months before campaign
7	Secure financing for purchase of vaccine, LLINs and other interventions and to cover all campaign activities	Establish committee of EPI, NCMP and other partners to ensure sufficient quantities of all interventions are procured	MoH								
8	Establish LLIN specifications to order	See Chapter 4: Procurement	MoH								
9	Determine whether LLIN delivery will be centralized or at region/district level before procurement and whether containers will be purchased	See Chapter 5: Logistics	MoH								
10	Issue validated tender for LLIN procurement, including strict evaluation criteria and deadlines	See Chapter 4: Procurement	MoH								
11	Order all vaccine and vaccine-related equipment and other interventions as per integration strategy (e.g. vitamin A, albendazole, etc.)	Vaccine needs should be calculated according to WHO guidelines	MoH/ partners								
12	Select clearing agent and sign contracts (through tenders)	Ensure open and transparent process to avoid incurring delays within the campaign timeline	MoH or procurement agent								
13	Develop a calendar for arrival of vaccine, LLIN and other interventions and monitor the pipeline of shipping and deliveries	Arrival times will change and must be monitored by a focal person assigned to this role	LOG								
14	Establish an expanded inter-agency coordinating committee (ICC) with TORs and members clearly defined	Presidential or Ministerial letter to MoH departments and partners	COORD								
15	Organize ICC meetings where all partners are informed of campaign progress of activities and where the work of sub-committees can be validated. Share minutes from all meetings with all partners.	Establish regular day, time and location for meetings. See Chapter 2: Coordination	COORD								
16	Establish all sub-committees with clear TORs (Comm, Log, Tech.) and determine members. Organize regular meetings.	Sub-committees must be established early to ensure that activities take place on time. Establish regular day, time and location for meetings.	COORD								
17	Decide on campaign strategy (e.g. door-to-door polio vaccination and distribution of vouchers, fixed site measles vaccination and direct delivery of LLINs etc.) and target population	Based on macro population data by district according to urban and rural status	TECH/ COORD								
18	Based on selected strategy, quantify personnel requirements at all levels for all phases and for all activities	Personnel are required for logistics, communication and for the implementation of all activities	TECH/ LOG/ COMM								
19	Based on selected strategy, quantify tool requirements (tally sheets for all interventions, training materials, vouchers, data collection and summary forms, hang-up data collection and summary forms, supervision and monitoring tools)	See Chapter 3: Planning	TECH/ LOG/ COMM								
20	Develop campaign plan of action (macro-plan) and timeline (chronogram)	Should often be done by a sub-group of EPI and NMCP staff and technical partners	COORD								

Appendix 3C: Activities chronogram – LLIN integrated, targeted distribution campaign-Part 1

**	Activities	Comments	Responsible/ Sub-committee	Months before campaign	8 months before campaign	7 months before campaign	6 months before campaign	5 months before campaign	4 months before campaign	3 months before campaign	2 months before campaign
21	Develop campaign activities budget (macro budget)	Should often be done by a sub-group of EPI and NMCP staff and technical partners, with support from financial experts	COORD/ FINANCE								
22	Develop plans of action for specific sub-committees (Technical, Logistics, Communication, etc.), including timelines and budgets for activities	See Chapters 3, 5, 6	TECH/LOG/COMM								
23	Develop and publish tenders for selection of transport companies from central level to regions, districts or health zones (depending on campaign strategy selected, point of delivery of purchased LLINs, and conditions on the ground).	See Chapter 5: Logistics	LOG								
24	Develop and publish tenders for selection of transport companies for moving other interventions (vaccine requires cold chain and its transportation should be separate from the nets)	See Chapter 5: Logistics	LOG								
25	Define financial strategy for funds transfers from central level to peripheral actors and partners, as well as reporting mechanisms and timelines	It is crucial that a system to ensure flow of funds for activities and reporting on fund expenditures is in place to avoid delays in activities	FINANCE/MoH								
26	Ensure that all required documents are available for LLIN import, clearing and tax exemption	This is crucial to avoid delays in LLIN customs clearance	MoH/FINANCE/LOG								
27	Develop logistics tools (positioning plan, transport plan, storage plan, distribution plan, logistics tools, etc.)	See Chapter 5: Logistics	LOG								
28	Develop and validate micro-planning canvases and tools, including briefing documents for health and district areas explaining process and required information	Micro-planning is crucial for campaign success	TECH/LOG/COMM								
29	Develop all tools necessary for all phases of campaign implementation (tally sheets for all interventions, training materials, vouchers, data collection and summary forms, hang-up data collection and summary forms, supervision and monitoring tools)	Limit data collected to what is needed to facilitate data collation and synthesis	TECH								
30	Determine how data will be collected, transmitted and managed. Identify criteria for selection of data collectors, as well as for data analysts at all levels	An effective data management system is necessary to avoid delays. The data collection and management should not be underestimated.	TECH								
31	Develop campaign communication key messages, slogans, logos, etc. Develop media briefing kits and press communiqués to raise awareness of campaign, reach out to traditional, religious, local, political and military authorities	See Chapter 6: Communication	COMM								
32	Monitor financial expenditure and justifications for payment	Sound financial management is necessary to avoid delays between phases of activity	COORD/FINANCE								
33	Advocate for resources at all levels, if gaps are identified (national and international) in nets or funds	The communication sub-committee should be engaged to develop advocacy documents and tools	COORD/COMM								

Appendix 3C: Activities chronogram – LLIN integrated, targeted distribution campaign-**Part 1** (continued)

**	Activities	Comments	Responsible/ Sub-committee	Months before campaign	8 months before campaign	7 months before campaign	6 months before campaign	5 months before campaign	4 months before campaign	3 months before campaign	2 months before campaign
34	Request and receive from regions and district health authorities updated list of all health posts with estimated population and distances from main town; introduce upcoming micro-planning for campaign	Early involvement of decentralized levels increases success of the campaign planning and implementation	COORD								
35	Send micro-planning documents to regions, districts and health zones ahead of mission	Early engagement of the regions and districts with micro-planning will ensure that sufficient information is collected prior to the central level mission for micro-planning	COORD								
36	Submit developed documents (plan of action with supporting sub-committee plans, timeline and estimated budget) for official validation to government, donors and partners for approval and release of campaign funds	All documents need to be validated early to avoid any delays in implementation of activities	COORD/MoH								
37	Receive, review, award and sign contracts with transport companies and develop transport schedules	Delays in identification of operational level actors and signatures of contracts are common	MoH/COORD/ FINANCE								
38	Pre-test campaign messages	See Chapter 6: Communication	COMM								
39	Hold central level micro-planning training for teams heading to collect and finalize micro-plans	It is necessary to train or brief the central level personnel involved in the micro-planning to make sure that they are familiar with the micro-planning tools	TECH/LOG								
40	Micro-planning mission at selected level (district or region, depending on country, but head of each health facility needs to be present)	The micro-planning mission should not end until all data have been collected and the templates are largely complete	TECH/LOG/COMM								
41	Calculate specific budget needs for each region, district and health zone based on micro-plans	Verify all figures and make appropriate amendments	TECH/LOG/COMM/ COORD								
42	Validate all campaign tools from sub-committees	Early validation allows for timely reproduction and transport of necessary materials	COORD								
43	Release and transfer campaign funds from central level all the way to health facilities as per national and donor guidelines (LLIN transport, training, perdiem, etc.)	Without funds, activities cannot begin	COORD/FINANCE								
44	Synthesis of micro-plans and budgets, central level validation of revised data (and revision of overall strategy if necessary). Send back final plans to regions, districts and health areas	Ensure that the final approved plan and budget are returned to the region / district / health facility	TECH/LOG/COMM/ COORD								
45	Order through tenders all campaign tools (tally sheets, vouchers, training guides and manuals, implementation tools, logistics tools, M&E and supervision tools, communication tools, etc.) for all phases of activity	Delays in tendering will delay training and implementation of activities. Tools are necessary for training to ensure that campaign actors are familiar with them	LOG/COORD								
46	Adjust quantity of vaccine, LLINs and other interventions per health facility based on micro-planning data and update transport plan	Dates for delivery need to be communicated to all persons responsible for reception	LOG								
47	Revise transport plans with selected transport companies	Ensure open and transparent process to avoid incurring delays within the campaign timeline	MoH/COORD/ FINANCE/LOG								

Appendix 3C: Activities chronogram – LLIN integrated, targeted distribution campaign-Part 1 (continued)

***	Activities	Comments	Responsible/ Sub-committee	Months before campaign	8 months before campaign	7 months before campaign	6 months before campaign	5 months before campaign	4 months before campaign	3 months before campaign	2 months before campaign
48	Training of all logistics personnel at all levels, notably for central/regional/district delivery from supplier to warehouse. Ensure all materials printed and available prior to arrival of LLINs	Training is essential to ensure accountability in supply chain management	LOG								
49	Develop health area-specific transport plans (all the way to selected distribution sites) with micro-plan quantities and selected modes of transportation and budget	Transport plans need to include on and off loading, warehouse and personnel needs, etc.	LOG								
50	Engage in advocacy and social mobilization activities - traditional, religious, local, political and military authorities and any other stakeholders or campaign actors	Ensure that the target audiences are clear on activities and dates and the specific role that they will play	COMM								
51	Arrival of LLINs centrally or where delivery was requested at time of purchase	Establish a calendar of deliveries and communicate it to those responsible for reception	LOG								
52	Briefing of media – journalists, radio, television, etc.	Central and regional level	COMM								
53	Social mobilization, mass media and IEC activities	At all levels depending on the scale of the campaign	COMM								
54	Receive and prepare (sort per region, district, health facility) all campaign activity tools (training, LLIN distribution, hang-up, communication, logistics, supervision and monitoring, data collection and summary forms, etc.)	Ensure adequate personnel and time	Region/District Health Team								
55	Central level training of trainers for all campaign activities (social mobilization, vaccination, LLIN distribution, other interventions, hang-up, supervision and monitoring). Regions attend centrally.	Recommended 3-4 days, maximum of 45 people. Where possible an additional briefing prior to LLIN distribution should be organized	COORD/TECH								
56	Transport LLINs from primary storage (central or decentralized delivery point on arrival) to secondary storage (district or lower level) based on micro-planning data	LLIN pipeline monitoring and communication to delivery point personnel is important	LOG/COORD								

Appendix 3C: Activities chronogram – LLIN integrated, targeted distribution campaign

Part 2: One month before to four months after campaign

*** Where the timeline extends across the two charts, activities have been repeated. The number in column 1 refers to the Excel worksheet.

***	Activities	Comments	Responsible	1 month before	Integrated campaign	1 month after	2 months after	3 months after	4 months after
15	Organize ICC meetings where all partners are informed of campaign progress of activities and where the work of sub-committees can be validated. Share minutes from meetings with all partners.	Establish regular day, time and location for meetings. See Chapter 2: Coordination	COORD						
33	Advocate for resources at all levels, if gaps are identified (national and international) in nets or funds	The communications sub-committee should be engaged to develop advocacy documents and tools	COORD/COMM						
43	Release and transfer campaign funds from central level all the way to health facilities as per national and donor guidelines	Without funds, activities cannot begin	COORD/FINANCE						
50	Engage in advocacy and social mobilization activities - traditional, religious, local, political and military authorities and any other stakeholders or campaign actors	Ensure that the target audiences are clear on activities and dates and the specific role that they will play	COMM						
53	Social mobilization, mass media and IEC activities	At all levels, depending on the scale of the campaign	COMM						
56	Arrival of LLINs centrally or where delivery was requested at time of purchase	LLIN pipeline monitoring and communication to delivery point personnel is important	LOG/COORD						
57	Monitor financial expenditure and justifications for payments	Sound financial management is necessary to avoid delays between phases of activity	COORD/FINANCE						
58	Regional level training of trainers and supervisors for integrated campaign and hang-up activities	Regional level for district, recommended 2-3 days, max of 35 people per session	Central/regional supervisors						
59	District level training for health facility staff and local authorities for integrated campaign and hang-up activities	Recommended 1-2 days, max of 30 people per session	District supervisors						
60	Transport LLINs from secondary storage to distribution sites (or to health facilities depending on strategy)	Nets should not move early to distribution sites if adequate storage is unavailable	LOG						
61	Health facility training of campaign personnel for integrated campaign and hang-up	Recommended 1-2 days, max of 30 people per session	Health facility staff						
62	Social mobilization for integrated campaign	Ensure that the dates, times and places for the integrated campaign are well known	COMM						
63	Official campaign launch (all levels)	Central level, regions, etc	COMM/COORD						
64	Integrated campaign	Fixed site integrated campaign for the purposes of this timeline	Campaign personnel						
65	Supervision of integrated campaign	Use checklists to assess implementation quality and areas for improvement	Central/regional/ district supervisors						
66	Collate tally sheet data for all interventions at health facility level and send to district health management team	Data should be transmitted daily	Health facility staff						
67	Monitoring and rapid evaluation of integrated campaign	Areas of low coverage may require adjustments to campaign tactics	Central/regional/ district supervisors						

Appendix 3C: Activities chronogram – LLIN integrated, targeted distribution campaign-Part 2 (continued)

**	Activities	Comments	Responsible	1 month before	Integrated campaign	1 month after	2 months after	3 months after	4 months after
68	Synthesize intervention coverage data at district, regional and central levels	Time for data management should not be underestimated	DHMT / RHMT / central level						
69	Conduct hang-up activities	Depending on strategy, this may be a mass media campaign and/or door-to-door visits by campaign personnel to assist with hanging nets	Hang-up personnel						
70	Supervision of hang-up activities	If hang-up is door-to-door, supervision is important to ensure quality in implementation	Central/regional/ district supervisors						
71	Collate hang-up data at health facility level and send to district health management team	Data should be transmitted daily	Health facility staff						
72	Monitoring and rapid evaluation of hang-up activities	Areas of low coverage may need to be revisited	Central/regional/ district supervisors						
73	Commodity management assessment	See Chapter 5: Logistics	LOG						
74	Synthesize hang-up data at district, regional and central levels	Time for data management should not be underestimated	DHMT / RHMT / central level						
75	Undertake cluster surveys to assess coverage with vaccine, LLINs and other interventions	Use WHO guidelines for survey	TECH/COORD						
76	Return undistributed nets to district level (or elsewhere according to NMCP guidelines)	Planning for left-over nets should be done early and budget established for their movement up the supply chain	LOG						
77	Undertake process evaluation and develop final campaign report	See Chapters 8 and 9	TECH						
78	Develop final logistics campaign report	See Chapter 5: Logistics	LOG						
79	Develop final communication campaign report	See Chapter 6: Communication	COMM						
80	Develop final financial report	Financial reporting will be based on donor requirements	COORD/FINANCE						
81	Circulate final campaign reports to partner organizations and campaign contributors	The final campaign report should include logos from all participating organizations	COORD						
82	Final meetings to discuss lessons learned and results of campaign at all levels (inverted cascade)	Minutes and key points from the meetings should be transferred back to the central level for collation	DHMT/RHMT/ Central level						
83	Conduct survey to measure ownership and use of LLINs	Survey to be conducted during next high transmission season. Often, vaccination is not included given the time lag and possible recall bias. Where a campaign card is used, it can verify participation	COORD/TECH						

Endnotes

a. www.allianceformalariaprevention.com

b. Check for e-updates on www.rbm.who.int

c. Kilian A, Wijayanandana N, Ssekitoleeko J. Review of delivery strategies for insecticide treated mosquito nets – are we ready for the next phase of malaria control efforts? Available at: www.malariaconsortium.org/.../ Review%20of%20delivery%20strategies%20for%20ITNs.pdf

d. Current guidelines (2011) define "high" as over 30 per cent. Those countries with under 30 per cent coverage should not account for existing nets.

e. A copy may be downloaded from www.allianceformalariaprevention.com/resources-view.php?categoryID=7

f. "Universal coverage and utilization is defined as every person at risk sleeping under a quality ITN or in a space protected by IRS and every pregnant woman at risk receiving at least one dose of IPTp during each of the second and third trimesters (in settings where IPTp is appropriate)."

Recommended GMAP Objectives, Targets, Milestones and Priorities Beyond 2011. Roll Back Malaria Task Force.

g. "When two nets are allocated to households, the percentage of households receiving one net for every two household members ranges from a low of 11.3 per cent to a high of 35 per cent. When three nets are allocated, the percentage of households receiving one net for every two household members ranges from 15.7 per cent to 43.3 per cent. In nearly all countries, an allocation of two nets per household provides an insufficient number of nets to achieve universal coverage, while an allocation of three nets provides households with too many nets and is an inefficient use of resources." Kilian A, Boulay M, Koenker H, Lynch M, *How many mosquito nets are needed to achieve universal coverage? Recommendations for the quantification and allocation of long-lasting insecticidal treated nets for mass campaigns.* Malaria Journal 2010 9:330. Available at: www.malariaconsortium.org/userfiles/file/Malaria%20resources/Netscoverage.malariajournal.pdf

h. Ibid.

i. Kilian et al. Op cit.

j. See: www,who.int/malaria/publications/atoz/malaria_gf_proposal_dev_who_policy_brief/en/index.html

k. Ibid.

l. www.allianceformalariaprevention.com

m. See Endnote (e).

n. Source: WHO Global Malaria Plan (draft publication).

o. Possible sources of data include: Census (projected to total population depending on growth); Central Statistics Office; District Medical Offices; measles/polio data from EPI. It is possible to extrapolate to total population on the basis of percentage of children under five years of age; previous distributions/registrations; school registrations, United Nations: voting/birth registration.

p. Sources of information include:
Demographic Health Survey (DHS). See www.measuredjs.com/aboutsurveys/dhs/start.cfm
Global Fund proposals. See www.theglobalfund.org/en
Malaria Indicator Survey (MIS). See www.measuredhs.com/aboutsurveys/mis/start/cfm
Malaria Operational Plan (MOP) - PMI.
See www.fightingmalaria.gov/countries/mops
Millennium Development Goals country updates.
See www.undp.org/countries/shtml
Multiple Indicator Cluster Survey (MICS).
See www.childinfo.org/mics/html
National Health Strategy
National Malaria Strategic Plan
National census documents online
Perry Castaneda Library Map Collection.
See www.lib.utexas.edu/maps
National census documents online; Perry-Castenada Library Map Collection. See www.lib.utexas.edu/maps

q. See www.mara.org.za/maps.htm

r. See www.rollbackmalaria.org/mechanisms/merg.html

Tchad. © MENTOR Initiative

4: LLIN procurement and pipeline monitoring

A definition of procurement that can be used for LLIN procurement in this toolkit is: "the process of acquiring" …commodities, i.e. LLINs… "at the best possible cost, in the right quantities, of desired quality, in the right place and at the right time"[a]. In the case of LLINs, the minimum requirement is a WHOPES Phase II recommendation[b], currently held by a limited number of suppliers.

Procurement and supply management (PSM) activities are fundamental to good programme implementation and performance. While the procurement process and many of the procedures are similar for many commodities, with potential problems and their solutions well-documented, the procurement of LLINs for mass distribution programmes has particular challenges. Different countries have encountered different issues causing bottlenecks in the LLIN supply chain. This section will briefly discuss some of the common challenges experienced and lessons learned.

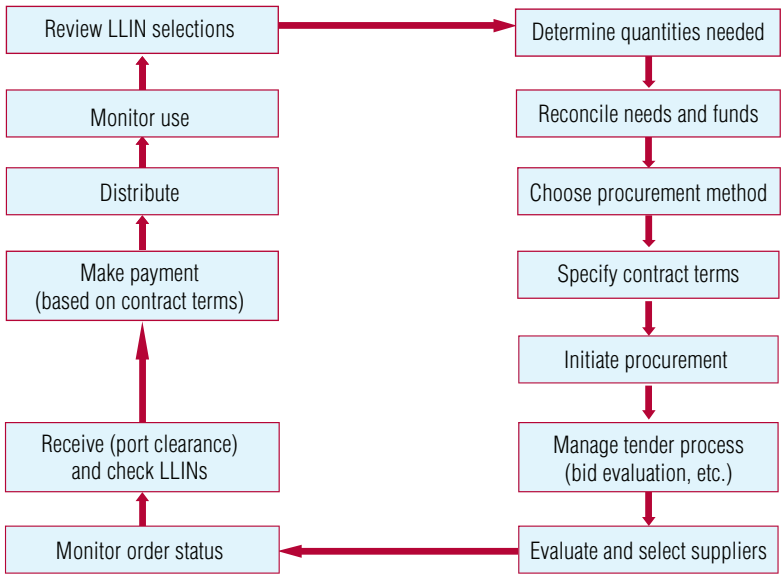
4.1 The procurement life cycle

The LLIN procurement life cycle goes through three phases:

1. Pre-procurement:
   - determination of availability of funding
   - identification of the product and specifications
   - decision on quantity required
   - identification of target date for receipt
   - undertaking market research to find suppliers who can satisfy the requirements
2. Procurement and contract management
   - identification of procurement method
   - preparation of tender/bidding documents with clear terms and conditions
   - development of evaluation criteria
   - issuance of the tender documentation
   - evaluation of offers and adjudication
   - contract award and signature of contracts
   - follow-up on implementation of the contractual terms and conditions
   - receipt of supplies
   - process of payment in line with contract
3. Assessment and evaluation
   - assessment of overall historical performance of the supplier and, based on that assessment, recommendations on whether supplier(s) is reliable and can be used for future purchases
   - evaluation of the procurement activity and assessment of any remaining requirements (gap)

Tchad. © MENTOR Initiative

The LLIN procurement process is shown in the following simplified illustration[c]:



See Resource R4-1 for an overview of the LLIN procurement and supply process.

The objectives of good LLIN procurement are to:

- procure the right nets in the right quantities at the lowest possible purchase price that meet the required specifications and evaluation criteria for the intended population
- select reliable suppliers of quality products (WHOPES-recommended)
- ensure fair market competition respecting public procurement
- ensure ethics in the procurement process
- ensure timely delivery and notification
- ensure the lowest possible total cost of the operation of assured quality

Procurement of LLINs generally happens long in advance of the establishment of coordination structures (described in Chapter 2) or the development of the plan of action (described in Chapter 3). In most cases, needs are estimated by the Ministry of Health (MoH) and funding organizations to ensure timely delivery based on a general annual plan of activities. Procurement, whether initiated by the MoH or a procurement agency, is the responsibility of the MoH, through various departments, such as procurement and finance.

Good practice in LLIN procurement ensures that:

- procurement is in accordance with donor's timelines, regulations and procedures
- procurement should be in bulk to ensure economies of scale
- the bidding process is competitive and transparent
- quantities should be ordered based on a reliable estimate of overall need
- funding is available at the right time through good financial management
- pre- or post-shipment quality assurance and quality control (QA/QC) mechanisms are in place

4.2 Estimating needs

There is a need for a clear country definition of universal coverage in terms of LLINs to be able to quantify needs for mass LLIN distribution. In general, the requirement for LLINs has been underestimated, partly because of an assumption about the size of households, and out-of-date demographic data. Different definitions occur in different countries: some use one net per two people, while some give a fixed number

Zanzibar. © Maggie Hallahan /Sumitomo Chemical

of nets per household regardless of how many people it contains. It is essential for estimating requirements to make the forecast taking into consideration a number of variables, for instance population, size of net, timing and availability of funding and timing of distribution. The greater the certainty for each variable, the more accurate the forecast will be, and the more efficient the procurement process.

While recognizing that there are cost implications, recent recommendations suggest a quantification factor of 1.8 people per net (see Chapter 3), taking into consideration households with odd numbers of people where the number of LLINs required is rounded up instead of down. This figure may also help to account for poor census data and other household registration and distribution issues (for example, a number of countries, during the household registration, have found that the average household size is lower than expected, thus increasing the need for LLINs where the strategy is a fixed number of nets per household). This figure is the current recommendation, but with more evidence, it is expected a more precise figure will emerge to allow for quantification that ensures sufficient nets for the campaign to achieve universal coverage targets.

"Mop-up" campaigns will require data on previous campaigns, and currently available demographic data to estimate the gaps in coverage and the number of nets needed to replace older nets in order to move from low or moderate coverage to universal coverage. For estimating purposes, based on WHOPES evaluations, nets are considered to have an effective life of three years.

4.3 Planning for procurement

Universal coverage campaigns are generally on a national or sub-national scale, usually requiring huge quantities of LLINs to be procured. The massive task must be carefully planned. Once baseline funding has been secured, the development of a structured procurement plan is essential. This will contain information on the requirements for goods or contracts, the method of procurement and procedures for review of the plan. The method of procurement

needs to be determined, based on donor guidelines and country policy, and a timeline for the whole procurement process, from initial research to receipt by beneficiary must be established. Different funding agencies have their own timelines. While the main processes will be similar, it is essential to be guided by the donor's own policies and procedures. The main difference is between pooled procurement, or joint purchasing, and individual or ad hoc procurement. For pooled procurement in particular, good coordination and meticulous planning are critical. As examples, timelines for major donors such as the Global Fund, the World Bank, UNICEF and USAID/PMI are given in the Appendices and on the Resources CD (R4-2 to R4-5), showing the differences in procedures and responsibilities, as well as terminology.

4.4 Donor organizations and funding

Major sources of funding include, among others, governments, the Global Fund, the World Bank, UNICEF and USAID/PMI. The various funding agencies each have their own rules and regulations regarding procurement, which must be taken into consideration when making funding requests. Procurement must also be in accordance with national and international laws.

A number of checklists and other documents, relevant to the major donors, are available to give guidance on their regulations and procedures. Among these are:

- *Guide to the Global Fund's Policies on Procurement and Supply Management[d] (Resource R4-6)
- Global Fund Guide to the Voluntary Pooled Procurement Process[e]
- *Global Fund Quick Facts on Procuring Long-lasting Insecticidal Nets[f] (Resource R4-7)
- *World Bank Malaria Booster Control Program. Procurement and Supply Management Toolkit[g] (Resource 4-8)
- Roll Back Malaria Toolbox: Procurement of LLINs. Technical data and manufacturers[h]

A to Z factory, Tanzania, © Maggie Hallahan/Sumitomo Chemical

- *Overview of UNICEF's Procurement of LLINs: Key Challenges and Sustaining Gains. October 2010[i] (Resource R4-9)
- UNICEF Long-Lasting Insecticidal Nets (LLINS) Suppliers Meeting[j]. There are a number of procurement-related presentations on this link.

The asterisked documents can also be found on the Resources CD.

Once needs have been quantified, coordination between donors, where there are multiple sources of funding for LLIN procurement, is crucial. It is important that all donors attempt to meet the specified timelines for delivery to the country. This may be as general as "before the rainy season" in the case of a non-integrated campaign, or may be quite specific where campaigns are integrated and the platform (for example EPI) has fixed campaign dates.

In cases where bottlenecks in procurement affect efficiency in implementation, countries may decide to outsource procurement. In parallel, countries should work towards addressing the existing bottlenecks. Countries with limited staff capacity or time, as well as countries seeking to expedite the procurement process should seek support from partners, stakeholders and third parties to ensure rapid delivery of commodities. Malaria programmes facing procurement bottlenecks may also seek collaboration with countries experienced in best practices in LLIN procurement.

4.5 Sources of LLINs

Different kinds of issues make the secure procurement of a sufficient quantity of quality-assured WHOPES-recommended LLINs a challenging task. Suppliers will not proceed with an order until contracts are signed and verified. In some countries this may take a considerable amount of time, which needs to be built into the timeline. Bottlenecks should be avoided by ensuring that time needed for mandatory processes such as bid evaluation, preparation of contracts, inspection, etc. is not underestimated.

Regulatory issues also need to be considered. We have already seen that the majority of countries and for the majority of donors, regulations mandate that nets are WHOPES-recommended. In some cases, however, countries may also require product registration which may limit competition. The requirement should be validated during the procurement planning process; lack of registration should not bar WHOPES-recommended suppliers from bidding. The numbers of both WHOPES-recommended products and suppliers have grown in recent years, and are published by WHOPES[k]. LLINs which are currently being evaluated are also listed[l] and updated regularly.

Suppliers must give assurance that they can meet contract requirements, including deadlines. Part of the task of a bid evaluation process is to ensure that the supplier has a history of meeting delivery schedules, the capacity to deliver on time and in the right quantity. Contracts should contain penalty clauses, which must be enforced in the case of breach of contract through late or inadequate delivery.

4.6 Procurement issues

Specific parts of the LLIN procurement process are key to the successful completion of the operation. The following are included because of their potential to cause problems:

1. **Putting out a tender:** This requires a clear specification of requirements, including deadline and award criteria. Transparency is vital in order to avoid any future problems. Tender documents should include a detailed and clear specification of the product, using variables that can be met by more than one supplier, in order to avoid procurement of a particular brand and to eliminate unfair competition. Suppliers must be aware of the evaluation criteria, how they will be notified of results, and so on. They should also be aware of procedures such as fines for non-compliance, lateness, etc. A standard bidding document (included on the CD as Resource R4-10) produced by the World Bank is one example of documentation that ensures the tendering process is clear and precise[m].

   For practical purposes when dealing with very large quantities of LLINs, as is often the case with universal coverage, it is recommended that the tender is split into a number of lots, by region or district for example. This attempts to mitigate any difficulties that any one supplier might have with production or shipment.

2. **Evaluation of bids**: This requires a strict deadline and transparent procedures for evaluation. In most cases, particularly in government-led procurement with donor funding, sealed bids only should be accepted. Public bid openings should also be put in place and publicly announced. The evaluation process should be based on established criteria and will determine not just the costs involved, but also the ability of the supplier to comply with all necessary regulatory aspects, adherence to the delivery schedule, maintenance of quality control and past performance. It should be noted that the lowest bidder may not be the most appropriate. Depending on the donor's regulations, responsibility for evaluation may be taken by the purchaser, in the form of a procurement committee, or by the procurement agent.

3. **Regulatory issues, quality assurance and quality control:** Pre-delivery inspections may be carried out by both supplier and purchaser. Suppliers may arrange for batch inspection, but purchasers may independently do pre-delivery inspections for each shipment. This should be clearly identified in the bidding documents and also in the contracts. Pre-delivery inspections should be based on pre-defined criteria for minor and major defects. Generally, if there has been adequate pre-delivery quality inspection, post-shipment inspection, except for loss and damage, would not be required.

4. **Human resource capacity:** There is a need for a clear definition of roles and responsibilities of procurement staff and their involvement in the planning process. In general, there is a limited number of staff with adequate experience and training to carry out LLIN procurement and supply functions at different levels. Procurement staff should be part of the wider procurement and supply management team, and should include staff with technical and logistics expertise for the functions of receipt, clearance, storage and transport, as well as project staff to monitor the use of the product. There is also a requirement to build and sustain country capacity for the future via training, monitoring and evaluation.

5. **Shipping, transport and storage** issues are discussed in Chapter 5.

4.7 Monitoring and evaluation

As more universal coverage campaigns are undertaken, lessons have been learned about LLIN procurement, but there is a requirement to set performance indicators so that proper monitoring and evaluation (M&E) can be put in place. These are required for the procurement process itself, and also for the end use of LLINs to ensure that the procurement and supply management process functions well. Lessons from both will be used to improve future implementation of malaria prevention programmes, inform future training needs, modify procedures and build country capacity wherever possible. More detail on commodity management assessment can be found in Chapter 5.

4.8 Pipeline monitoring

With the shift to universal coverage, the number of nets involved in mass distribution campaigns has increased dramatically. Supply chain management, from procurement to distribution, has become more complex and is now facing additional logistics challenges.

While in early campaigns the comparatively small number of nets generally allowed for one-off procurement and delivery to the recipient country, the situation in most current campaigns often requires staged procurement and delivery of hundreds of containers phased over several months. Complicating the issue further, suppliers are now often required to deliver these containers to various locations in-country (at regional or district level), rather than to a single central destination.

One of the main responsibilities of the recipient country will be to monitor the situation regarding procurement, shipping and deliveries, including inland transport from point of entry to final destination. LLIN shipment and delivery are referred to as the LLIN "pipeline".

Procurement and pipeline monitoring, which should be handled by the logistics sub-committee and/or the central logistics team (CLT), together maintain an up-to-date global picture of how many nets have been procured and by whom, and how many nets have been shipped, received, cleared and transported to final destinations. This information is vital not only for the global planning of a one-off campaign, but also for the coordination and timing of the various phases of rolling campaigns if that is the country strategy.

Nigeria. © Maggie Hallahan /Sumitomo Chemical

Monitoring the procurement and pipeline situation requires the CLT to maintain regular contacts with the procurement agency (for Voluntary Pooled Procurement (VPP) or if using a different third party procurement agent) or procurement officers at NMCP and/or partners' offices as well as with suppliers and their representatives in-country (where applicable).

Timely dissemination of information concerning the LLIN pipeline is also essential. The CLT will need to maintain contact with regional/district logisticians and keep them informed of movement of the nets (quantities and estimated arrival times) from point of entry through the in-country supply chain.

A template has been developed for Nigeria's state-by-state universal coverage campaigns (see Resources R4-11) in order to facilitate the collection of data and its dissemination among all those involved. The template includes a procurement table by partner and by supplier, a pipeline summary table by state and partner, and a detailed pipeline table for each individual state. Other countries may wish to adapt this tool to their specific country situation.

Appendix 4A: World Bank procurement timeline*

Activity	Responsibility/Notes		Weeks																							
			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
Review forecast	By purchaser																										
Review and agree LLIN specifications (WHOPES Phase II only as a minimum)	By purchaser as part of the review of Bidding Document (BD). World Bank gives no objection to BD.	X	X	X																						
Decide on Quality Assurance (QA) protocol	By purchaser	X	X	X																						
Determine quantities	By purchaser	X	X	X																						
Reconcile quantities against budget	By purchaser	X	X	X																						
Select procurement method	Usually during Project Appraisal of a Procurement Plan. In general, International Competitive Bidding (ICB) is used, and exceptionally, limited ICB.	X	X	X																						
Initiate procurement	By purchaser				X	X																				
Specify and publish the award criteria and supplier selection	By purchaser, in the invitation for bids				X	X																				
Issue tender/request for quotations (RFQ)	By purchaser, in the invitation for bids				X	X																				
Tender/RFQ closes	Normally 8 weeks after invitation for bids is published												X	X												
Public tender opening if required by donor or national regulations	Once tender/RFQ closes												X	X												
Complete evaluation	May take 3—5 weeks, more in certain countries																X	X	X	X						
Make recommendation for award	As above, may take 3—5 weeks																X	X	X	X						
Recommendation accepted	Depends on clearances required																		X	X						
Donor approval (e.g. WB no objection)	Issuance of No Objection by WB. Usually takes less than 2 weeks																				X	X				
Contract award	Follows WB No Objection promptly, although this may take longer in some countries																					X	X			
Contract progress monitoring	Imposed in BD, usually from 2 to 4 months																						X	X	X	X	X
Production lead time	Imposed in BD, usually prior to shipment																						X	X	X	X	X
Ready for inspection (Quality Assurance)	Purchase is made on CIF/CIP basis: pre-shipment inspection is prescribed																						X	X	X	X	X
Released for shipment	Supplier's responsibility as purchase is made on CIF/CIP basis																						X	X	X	X	X
Booked for shipment	Purchaser's responsibility																						X	X	X	X	X
Transit time	Depends on country logistics, purchaser's responsibility																						X	X	X	X	X
Arrival at final destination	Purchaser's responsibility																						X	X	X	X	X
Clear customs, receive, count and check for loss/damage	Purchaser's responsibility under CIF/CIP																						X	X	X	X	X
Payment to supplier	Usually by Letter of Credit, for the most part (80%) at the time of shipment																						X	X	X	X	X

*See Resource R4-2 on the CD for Excel version of the timeline.

Appendix 4B: Global Fund Voluntary Pooled Procurement timeline**

Activity	Responsibility/Notes		Weeks																								
			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	26
Identification of needs	PR	X																									
Finalization of specifications	PR	X																									
Reconcile quantities and budget	PR	X																									
PR submits request to PSS team for screening and onward forwarding to PSA	PR/PSS		X	X																							
PSA clarifies request, invites bids from eligible suppliers and submits price quotations to PR	PSA		X	X	X	X	X	X																			
PR reviews price quotations and accepts (declines)	PR						X	X	X																		
PSS team prepare direct disbursement request and facilitate payment to PSA	PSS							X	X	X	X	X															
PSA confirms order with supplier	PSA									X	X	X															
Production	Typically 6—8 weeks									X	X	X	X	X	X	X	X	X	X								
Pre-shipment inspection (sampling and testing)	PSA coordinates														X	X	X	X	X	X	X	X						
Freight/transit time	4—6 weeks depending on destination																	X	X	X	X	X	X	X	X	X	X	
Customs clearance	PR/PSA depending on incoterm (1—2 weeks)																					X	X	X	X	X	X	X
Receipt, reporting of receipt and any discrepancies or damage	PR																						X	X	X	X	X	X
Payment of suppliers	PSA																							X	X	X	X	X

PR = Principal Recipient
PSA = Procurement Services Agent
PSS = Procurement Support Services
VPP = Voluntary Pooled Procurement
**See Resource R4-3 on the CD for Excel version of the timeline.

VPP process

The eight major steps in the VPP Process are as follows, and as indicated in the flowchart:

1. PR (Principal Recipient) sends Request for Quotation (RFQ) with product specifications, quantities and desired delivery dates to PSS (Procurement Support Services) team.

2. PSS team screens RFQ and sends to PSA (Procurement Services Agent).

3. PSA on behalf of the PR invites bids from suppliers and submits price quotations to PR based on the bids.

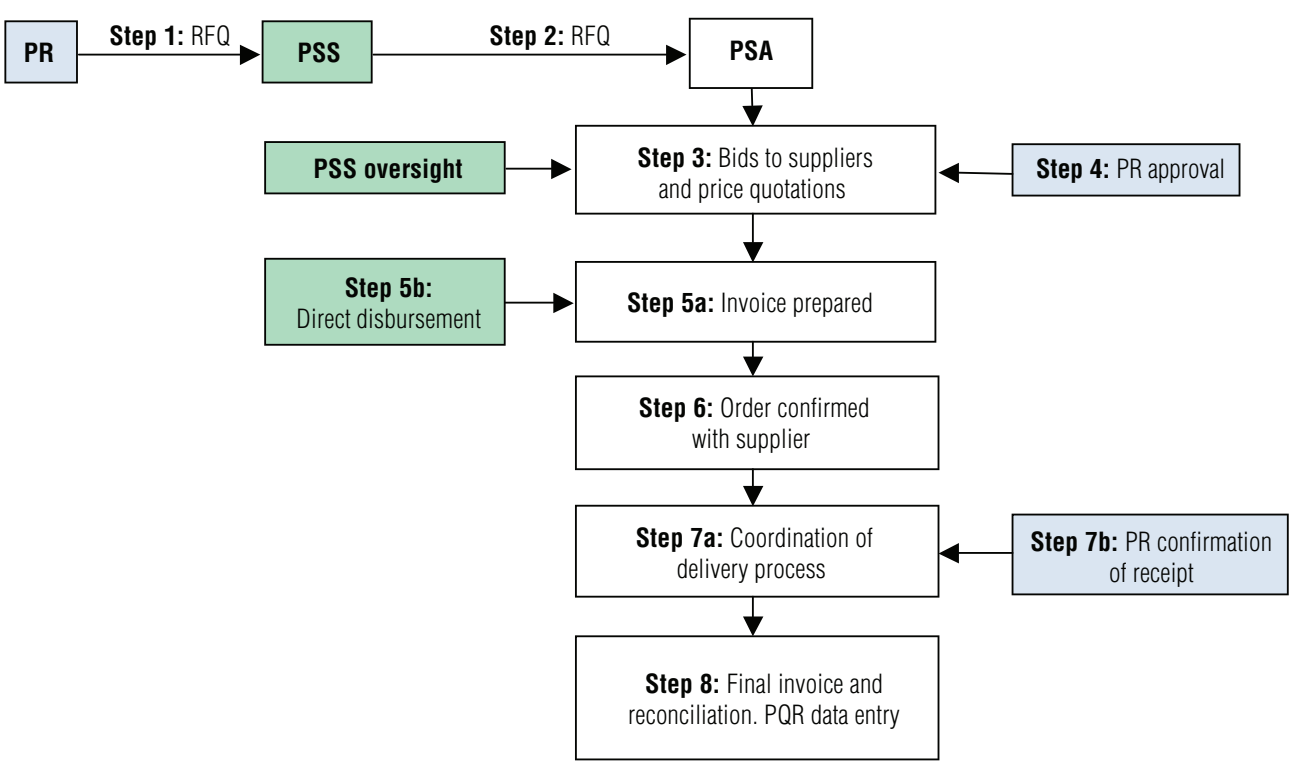
4. PR accepts or declines the price quotations and returns a signed copy to the PSA with a copy to the PSS team.

5. a) PSA prepares a proforma invoice.
   b) PSS team prepares a direct disbursement request and facilitates payment to PSA.

6. On receipt of payment, PSA confirms the order with supplier.

7. a) PSA provides periodic updates to the PR on expected delivery and coordinates the delivery process for the PR.
   b) PR confirms receipt of goods to PSA.

8. PSA reconciles the account and submits a final invoice to PR. PSA enters data into the Price and Quality Reporting system (PQR).



Appendix 4C: JSI Deliver project, supporting USAID/PMI-funded programmes: timeline***

Activity	Weeks																								
	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
JSI receive signed Commodity Procurement Information Request (CPIR)	X																								
Issue RFQ	X																								
RFQ closes		X																							
Complete evaluation			X																						
Accept evaluation					X																				
Office of Acquisition and Assistance (OAA) documents submitted							X																		
OAA approval received								X																	
Order placed								X																	
Production									X	X	X	X	X	X	X	X									
Ready for inspection																	X								
Booked for shipment																			X						
Shipment dispatched																				X	X	X	X	X	
Arrival at final destination																									X

***See Resource R4-4 on the CD for Excel version of the timeline.

Appendix 4D: UNICEF timeline: a pooled procurement model****

Donor: Development agencies and donors[1]

Part 1: Annual procurement process (long-term contract)

Activity	Notes	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Procurement strategy	June – Procurement strategy in place						X									
Forecast process initiated by	Mid-August – Annual Forecasting tool is shared with all countries								X							
Forecast received	Mid-Sept									X						
Clarification on forecasts	Mid-Oct – all countries finalize their annual forecast										X					
Pooled annual forecast	October – annual forecast overview										X					
Review and agree LLIN specifications (WHOPES Phase II recommended minimum for award of contract)	Regular review on new available WHOPES-recommended specifications	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Decide on QA protocol	Existing procedures															
Determine quantities	As per forecast and regular updates	X	X	X	X	X	X	X	X	X	X	X	X			
Reconcile quantities against budget	n/a. This is part of forecast update exercise, which is ongoing activity throughout the year															
Select procurement method	Procurement method selected and shared with industry – end October										X					
Sourcing – only WHOPES-recommended products	Based on WHOPES updated recommendations (regular review on new products under evaluation)															
Decide/select appropriate contract terms	Standard in place															
Specify and publish the award criteria and supplier selection	Before launching of the tender – end October										X					
Issue tender/RFQ	Tender documents issued to eligible suppliers – mid-November											X				
Tender/RFQ closes	Last date for submission of completed tender documents – mid-December												X			
Public tender opening, if required by donor or national regulations													X			
Complete evaluation	December and January (the following year)												X`	X		
Make recommendations for award	February														X	
Recommendation accepted	February														X	
Donor approval	As and at time required															
Contract award	Annual contract issued 1 March															X
Contract progress monitoring	Regularly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

[1]Unicef undertakes procurement for the other three main donors.

****See Resource R4-5 on the CD for Excel version of the timeline

Part 2: Execution of individual purchase orders

Activity	Notes	Weeks																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Placement of individual purchase orders	2—5 days after receipt if not deviation of requirements from forecast	X																					
Production lead time	Weeks 2—3 for small quantity, 2—6 for medium-size orders and 2—8 for large orders and non-commonly produced LLINs		X	X	X	X	X	X	X														
Ready for inspection (QA)	For available LLINs, 3—8 days after placing the order, as per schedule adjusted to production lead times. Duration of inspection is 2—3 days depending on the quantity of nets procured.										X												
Released for shipment	7 days after inspection date											X											
Booked for shipment	Within 10 days from inspection												X	X									
Transit time	May vary 20—70 days depending on country location (longer lead times for landlocked countries) and also on quantity														X	X	X	X	X	X	X	X	X
Arrival and clear customs at final destination	Different timelines for customs clearance – country specific														X	X	X	X	X	X	X	X	X
Clear customs, receive, count and check for loss/damage	Different for different countries – immediate check on arrival														X	X	X	X	X	X	X	X	X
Insurance claim procedure in the event of any loss or damage	Short shipment reported at receipt – starts immediately on arrival														X	X	X	X	X	X	X	X	X
Payment to supplier	Within 30 days from delivery date														X	X	X	X	X	X	X	X	X

Endnotes

a. From Procurement and Supply Management of LLINs Workshop, Global Fund PMU/Roll Back Malaria PSMWG, October 2009. See Resources R4-1.

b. WHO Pesticide Evaluation Scheme interim recommendation. See www.who.int/whopes/Long_lasting_insecticidal_nets_Jan_2011.pdf and www.who.int/whopes/pdt_under_WHOPES_eval_March_2011.pdf

c. From Procurement and Supply Management of LLINs Workshop, Global Fund PMU/Roll Back Malaria PSMWG, October 2009. See Resources R4-1.

d. See: www.theglobalfund.org/en/procurement

e. See: www.theglobalfund.org/en/procurement/vpp

f. See: www.theglobalfund.org/en/procurement

g. See: siteresources.worldbank.org/INTPROCUREMENT/Resources/Malaria-Toolkit.pdf

h. See: rbm.who.int/psm/procurementLLINs.html

i. See: www.unicef.org/supply/files/Procurement_of_LLINs_-_Key_Challenges_and_Sustaining_Gains_-_28_October_2010.pdf

j. See: www.unicef.org/supply/index_56727.html

k. See: www.who.int/whopes/Long_lasting_insecticidal_nets_Jan_2011.pdf

l. See: www.who.int/whopes/pdt_under_WHOPES_eval_March_2011.pdf

m. See: web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/PROCUREMENT/0,,contentMDK:20062738~menuPK:84284~pagePK:84269~piPK:60001558~theSitePK:84266,00.html

Bamako, Mali. © Doug Mole, IFRC

5: Logistics

An effective logistics programme ensures the availability of the right good or service in the right quantity in the right condition delivered to the right place at the right time for the right cost.

"In humanitarian organizations the terms 'supply chain' and 'logistics' are both used to describe the process of getting aid, in the form of goods, to the beneficiaries. The term logistics is also used in some organizations to describe the function and department that is responsible for managing the process."[a]

This chapter of the toolkit focuses on the vital area of logistics planning and implementation. It provides details of experience in planning, coordinating and implementing the logistics aspects of large-scale mass LLIN distributions, with information, resources and tools for the variety of logistics roles required at all levels and stages of a mass campaign. It also serves as a valuable reference for operational planners in order to appreciate the scale of the logistics efforts. It should be kept in mind that the principles outlined in this chapter for mass distribution of LLINs, as well as the tools for supply chain management, can also be applied to routine delivery of LLINs.

The first step in a logical process leading to a successful distribution campaign is a thoroughly researched country plan of action. It should be emphasized that this plan must include the logistics aspects. The logistics role is critical to any LLIN scale-up campaign.

Assuming that the campaign action plan is in place, this chapter is laid out in a sequence useful for the actual planning and implementation of logistics activities in support of a mass LLIN distribution campaign. The sequence follows a logical process, each step building on the earlier ones:

- macro-logistics (top-down planning) (5.1)
- international procurement of LLINs (see Chapter 4)
- logistics plan of action (activities to be undertaken) (5.2)
- micro-logistics (bottom-up planning) (5.3)
- international and in-country procurement (acquiring LLINs, transport, storage, personnel, markers, etc.) (5.4) See also Chapters 3 and 4
- budget (detailed estimates and costings) (5.5)
- supervision and monitoring (checking that the plan is working) (5.6)
- tracking and accountability (recording the movement of nets throughout the supply chain, and assessing the level of transparency and accountability achieved in the management and distribution of LLINs) (5.7)

Sierra Leone. Doug Mole, IFRC

The tools provided in the Appendices and on the Resources CD are simple examples that are meant to be adapted to each country context. This toolkit is a living document and the information will continue to evolve as the experience of universal coverage campaigns grows and new ideas are implemented.

Common to all campaigns, however, are the important tools of coordination, communication and training for successful implementation of the logistics operation.

The logistics role is critical. Bearing in mind the fact that no two campaigns are the same, the experiences of different countries undertaking such campaigns have demonstrated that it is highly effective to have in-country planning teams think through the elements that are most important for them in their own country context. This type of approach will allow for each country's unique situation to be incorporated within the logistics planning environment.

Having and maintaining a collaborative, interactive environment that respects the specific roles and responsibilities of each partner throughout a campaign, particularly the leadership of the MoH, is critical. The scale of logistics for LLIN distribution campaigns can be daunting. When a campaign is well-planned and well-coordinated, however, it can contribute substantially to efforts to reduce malaria morbidity and mortality in a country. By furthering and enhancing the efficiency and effectiveness of campaign logistics, the MoH (or NMCP) and partner organizations will be better able to achieve results on the ground and provide a quality service to beneficiaries.

5.1 Macro-logistics: the macro-planning process

Macro-logistics gives the big picture view of what will be needed in logistical terms to achieve the objectives of the mass distribution campaign. See Resource item R5-1 on the Resources CD for a sample macro-logistics plan from Liberia. Normally the logistics sub-committee (see Appendix 2C at the end of Chapter 2 for terms of reference) is responsible for logistics planning and support for the campaign. Members of this committee will form the central logistics team (CLT).

Macro level logistics activities might include:

- coordinate logistics sub-committee, ensuring representation from the MoH (or NMCP) and all stakeholders and confirm organizations forming the CLT
- use official macro-quantification numbers from MoH to commence logistics planning
- develop general logistics plan for preliminary country guideline document
- develop logistics timeline chart for all activities (see Appendix 5A. An Excel version of the timeline is included on the Resources CD as item R5-2, together with a more detailed timeline, R5-3)
- arrange for a written letter to grant exemption from specific taxes (such as value added tax) via official channels
- arrange for customs duty exemptions and clearances of shipment (if not part of procurement agreement)
- confirm and arrange quality assurance/quality control procedures, if required by country and where not part of the procurement tender and contract
- develop macro positioning plan at central level
- develop final detailed logistics plan of action (LPoA) for campaign
- develop warehousing physical security measures and, using the call for tender process, contract suitable secure central warehousing and insurance
- using the call for tender process, contract transport companies and develop macro level transport plan to district levels
- develop logistics training and implementation guide for cascade logistics training to districts
- develop plan for field missions to facilitate training and for supervision and monitoring

The starting point of macro level logistics is the macro-quantification (MQ) numbers, normally provided by MoH and/or NMCP. Estimations vary based on the size of the population, the target group and the strategy chosen. The MQ will provide quantities of LLINs required and

their technical specifications, taking account of the targeted population numbers broken down into district or equivalent. The success of the campaign depends on obtaining the most recent and complete statistics possible from the outset of the planning period. Figures should be to the lowest level available through census data or projections. See Chapter 3 for more information on macro-quantification.

Once quantities of LLINs required have been determined, planning of the whole logistics strategy can begin. The procurement of LLINs is such a major task that it has its own separate chapter in this toolkit (Chapter 4), but it is part of the logistics operation and does require major input from the logistics professionals to ensure that all the activities that comprise the supply chain, including procurement, storage and transport, broken down into numbers of LLINs to be distributed to the different level delivery sites, will fit with the campaign distribution schedule in the overall country plan.

LLIN delivery methodologies

The purpose of logistics in LLIN distribution is essentially about getting the LLINs down the supply chain, from the supplier (top of the chain) to the end user (bottom of the chain). There is no one formula that can be applied successfully to all campaigns. The choice of an in-country logistics strategy depends on many factors such as geography, infrastructure, storage capacity, site accessibility and security and the type and quality of transport available. LLINs are generally shipped in either 20-foot (6.06 metre) or 40-foot (12.19 metre) containers containing approximately 20,000 or 40,000 nets, depending on the specifications of LLIN bales.

With modal (container) shipping, the key unit is the container and the key decision is where that container should be shipped. The chosen strategy needs to reflect a combination of factors and considerations that are specific to each country. Taking these factors and considerations into account will lead to a logistics strategy that is centralized or decentralized.

A centralized strategy is characterized by two distinct phases:

1. bringing LLINs into the country and storing them in a central location
2. distributing within the country from that central location

A decentralized strategy is characterized by two distinct activities:

1. bringing LLINs into the country and delivering them to lowest accessible storage point (generally two or more storage locations)
2. transporting to district/village sites/ distribution points within the country from these different storage locations to pre-positioning sites (PPS) as determined by the programme planning strategy

Delivery strategies

Centralized	Decentralized
Description	
One main warehouse location	Two or more warehouses in different locations
Strengths	
Security, central LLIN controls	Security, LLIN control, smaller storage area needed, shorter supply chain transport distances to distribution sites
Limitations	
Long transport distances, large storage area needed	More warehouse staff needed

In general, a centralized strategy may mean more control and greater security for the nets, but does require good coordination and organization, as well as adequate space for warehousing the LLINs.

At the other extreme, a decentralized strategy involves shipping containers of LLINs to the lowest point in the supply chain before the container needs to be opened for local distribution. Once the opportunities and constraints are understood, and a decentralized strategy selected, quantities and target locations for shipments of containers need to

COUNTRY CASE STUDY

In Ghana, for the May 2010 door-to-door mass distribution and hang-up campaign to cover the Northern Region, the 600,000 nets were centralized at the Central Medical Store for a number of reasons:

1. The Central Medical Store in the capital, Accra, is secure and well-managed.
2. Time was needed after the arrival of the nets to undertake a very thorough micro-planning and micro-quantification operation before nets were transported to the districts and sub-districts.
3. Transport to the intermediate and community level storage points used trucks belonging to the Central Medical Stores. Managers needed to see quantities and plan an efficient system to move all the nets to the 20 district medical stores in one month.

Northern Region is Ghana's largest region. It lies approximately 800 kilometres from the Central Medical Store. With three trucks, it took a little more than one month to get nets to all districts. Transport from district to sub-district stores and to PPS was done mainly with smaller pick-up trucks. Some vehicles had to spend a day waiting for a boat, the only means by which nets could be transported to some sub-districts and communities. In some situations, donkeys and motorbikes had to be used to transport nets. It took approximately a week to get all the nets to the 96 sub-districts and over 550 PPS for the campaign to begin in May.

Ghana. © Nothing But Nets

Delivery of nets to districts was based on estimated population figures because registration figures were not yet available. They were, however, available for delivery from districts downwards. This meant some disparities, with deficits in some districts and surplus in others. To address this, a rapid response team was set up to respond to all calls for nets, and to ensure that all nets were delivered to households and hung within the week.

Storage arrangements were varied. At the pre-positioning sites, nets were stored in places ranging from houses of chiefs, Community-Based Health Planning and Services (CHPS) compounds, churches and schools, houses of assemblymen and even in the homes of some trusted volunteers. The inbuilt tracking and community participation system of the general strategy and the logistics plan, and the training provided, however, made it easy to track each net throughout the campaign. The number of nets hung in every sub-district throughout the region was recorded daily through a reporting system that was set up to track progress and to ensure that the logistics team was always on top of any issues.

Before the exercise, four one-day training sessions were held at different venues to cover districts and sub-districts in the region. Participants were district and sub-district level storekeepers. Following an overview of the campaign, training covered transportation, storage, tracking and daily reporting, as well as selection of PPS and return (follow-up) logistics. Training sessions inspired the storekeepers and helped them understand the vital role they would play in the success of the campaign.

On return logistics, members of the logistics team returned to the region three weeks after the campaign to validate the numbers of nets reported as hung by counting empty packs. They also collected hammers that had been provided to volunteers to help hang the nets.

be determined. Exact quantities in a container can be specified when ordering. Using these estimates, it is then possible to match shipping quantities with needs at target locations[1] and to programme a mix of containers and delivery paths. The economics nevertheless favour maximizing the volume of the container, so the strategy should take this into account when planning decentralized locations for delivery. Any gap in LLIN quantities would have to be identified and corrected, then LLINs moved where needed, creating a possible cost issue.

Different countries offer opportunities and challenges for decentralized LLIN distribution. Ports, rivers, mountains, lakes, road and rail networks, the location of population centres, and mobile phone and intermodal infrastructure can all be significant factors in determining the most appropriate points for unloading each container. See the Resources R5-4 and R5-5 for examples of master pre-positioning plans for universal coverage distribution campaigns in Uganda and Ghana.

One benefit of decentralized logistics is the fact that LLINs in a container are secure and insured at least until the container is opened. Once the container is opened alternative arrangements need to be in place to ensure that the LLINs remain secure until they arrive in the beneficiaries' hands. In some circumstances containers can be purchased to serve as storage in the absence of adequate storage capacity. They may also be used in the future for continuous routine distribution.

A decentralized strategy does, however, require conducting a thorough needs assessment and accurate micro-planning for the district at the provincial or regional levels before supplies are ordered.

[1] In reality, bales come in quantities of 25, 40, 50 or 100 nets, so it may not always be possible to get an exact match at the target location. See, however, the section on Splitting bales later in this chapter.

A decentralized strategy worked well in a number of countries, but the method must be carefully considered given geographical and other country-specific constraints. Issues to consider in the decision of whether to use a decentralized approach include:

- Road infrastructure must allow semi-trailer trucks to reach down to the district level (this was not possible in Equatorial Guinea or Madagascar).
- If nets are not to be unloaded at the target location, it might be necessary to buy either the containers (end-usage containers, at a cost) or negotiate a longer-than-normal retention period and pay a deposit for each container taken out of the port or customs bonded area.
- Using roll-on roll-off trucks can make the containers easier to off-load. This was done in Mali during the 2007 campaign, but in general it should be noted that availability of this type of equipment could be limited.
- Control and monitoring of stock appears more problematic when container drop-off points are serving more than one district, requiring stock to be moved to a number of further sites. Training for this aspect must be emphasized.

Warehousing and storage

The supplier(s) and principal recipient (PR)[2] are normally responsible for the macro level of the supply chain from border of entry to central or lower level warehousing location, as specified in the tender for procurement of the LLINs. Macro level warehousing activities at central level and transportation of all LLINs down to district levels are normally the responsibilities of the PR with country NMCP oversight (if they are not the same). If the delivery strategy is direct to districts from supplier, the PR is still considered responsible for macro level activities down to district areas. It is useful to keep in mind that there may be multiple PRs and/or

[2] Terminology used by the Global Fund. Other funders will use different terms, but the principle will be the same.

COUNTRY CASE STUDY

Burkina Faso. © Katie Eves, IFRC

The distribution of more than 8 million LLINs was the task facing Burkina Faso during its universal coverage campaign in 2010. It was decided that a decentralized system of delivery to district level would be the most efficient method, together with a rolling distribution region by region according to LLIN arrival schedules. Staff and volunteers at every level were trained well in advance.

Quantification was based on the 2010 population divided by two for the purposes of the Global Fund grant proposal. However, a pilot distribution in 2009, after the submission of the proposal, revealed a 32 per cent difference between quantification at one LLIN for every two people and the registered need during household registration. Following the pilot distribution, quantification for the countrywide LLIN distribution was revised based on the pilot experience in the health district of Diébougou and initial gaps based on macro-quantification were filled with LLINs from other donors and partners.

Household registration and handing out of vouchers was then organized over the whole territory at the same period. This registration revealed a gap of over one million LLINs even after adjustments made during the macro-quantification. To counteract this, the organizing committee made the decision to remove one LLIN from every voucher that had more than two, which then meant that all households surveyed could be included to receive nets.

To explain to the population what was happening and why one LLIN was being deducted from vouchers designating more than two LLINs, an intensive communication exercise was put in place using the mass media, press conferences and interpersonal communication.

Distribution happened region by region according to the arrival of the LLINs. LLINs supplied through the Global Fund Round 8 grant had been procured in 13 lots to coincide with the 13 health regions. The strategy adopted was direct delivery to each health district, bypassing the regional level, with containers purchased to be used for storage. LLINs coming from other sources were stored at central level and then dispatched to the districts according to their needs. Each donor took responsibility for the costs of transport to their chosen health district. Once at the district level, LLINs from all sources were put together and delivered to health centres, or were taken to village distribution points (DPs) two days before distribution. Transport costs were calculated and given to the districts and the health centres according to the number of LLINs to be transported. Each one needed to organize its own adequate transport. Waybills were used at each stage of delivery. At the level of the DPs, stock sheets to track movement in and out of the storage were put in place. At each level, the security of the LLINs was the responsibility of the organizing committee at that level.

secondary recipients (SRs) with possible different areas of responsibility in terms of logistics activities. It is important in such cases that roles and responsibilities are clearly defined and a coordination structure is established to ensure regular and open communication.

Regardless of where the first level of storage occurs (e.g. central, regional, district, etc.), the central logistics team will need to locate and secure appropriate warehouse(s) with adequate capacity to store the nets. Proper identification and management of warehousing is of primary importance.

Some basic criteria to be used in warehouse selection are:

- overall capacity
- location
- accessibility (number of doors, unloading/loading docks/ramps)
- condition (dry and protected from weather elements)
- proper security (lockable doors and windows, exterior lighting, guards and access control)

Security

Planning for the security of the LLINs is one of the requirements of accountability. LLINs must remain in the supply chain and reach the beneficiaries. It is important to take measures against leakage during storage. These measures should include:

- Implementing a sound LLIN tracking system: a well-designed and properly implemented tracking system should act as a deterrent to LLIN leakage since it will rapidly identify where leakage has happened and who is responsible. The tracking tools will have the names and signatures of people involved at each step of the supply chain where responsibility for the LLINs is passed from one location to another.
- Secure warehouses, stores and storage points: obviously, all storage facilities must have locking doors (or chains and padlocks) and consideration should be given to the potential need to have the facilities guarded day and night. If so guards will need to be hired to provide security. At village level, the local community leadership structure will usually provide security.

Warehouses must be clean, dry and secure and should be maintained on a regular basis. Standard warehouse procedures must be used at the warehouse with a warehouse inventory management system. A well-experienced and well-trained warehouse manager should be in control of the warehouse and should use stock sheets and waybills to ensure maintenance of up-to-date information in the inventory system.

Stock sheets, waybills, tally sheets and goods received notes (see Appendix 5A and Resource items R5-8 to R5-15) are tools used in tracking and accounting for all items entering and/or leaving a warehouse or storage facility. Transport loads are documented in detail using waybills to ensure safe, secure delivery to assigned destinations. Once the LLINs are received by the designated consignee, a waybill is completed and returned to the warehouse shipper indicating condition, quantities and shortages (if any) to complete the delivery process within the supply chain.

Transport plan

Normally the macro level transport plan covers transport from central warehousing to campaign intermediary (districts) level. The first part of the process is to select the transport provider, often a private company. It can be helpful to call together representatives of a number of existing transport providers to describe and discuss the scope of the work. When companies do tender for the business, they are then more likely to meet the capacity needs of the contract. Since there are major financial implications involved with large-scale logistics operations, this is an important element in achieving viable bids. Proper Request for Proposals (RFP) should be developed and implemented by the Procurement Unit and/or PR.

Tendering for transport

In a transparent procedure, calls for tenders should be sent out with deadlines for submission

Sierra Leone. © Doug Mole, IFRC

of bids clearly stated, according to country or donor guidelines. A clear statement of the resources that are required to ensure timely and efficient transport to the end of the supply chain must be included. See Resource item R5-6 for a sample call for tender.

Once received and the deadline date reached, all bids must be opened by the logistics sub-committee (usually members who represent different partner organizations) in a closed session. Total transparency is very important. Bids should be evaluated, usually by comparing them against a list of criteria, including security risk. See Resource item R5-7 for a sample comparative bid analysis. The offer that best meets all the criteria (not necessarily the cheapest bid) should be accepted through a group decision. All companies that offered submissions should be informed in writing of the decision of the reviewing group.

Once a company or companies have been selected, it is good practice to involve them in the development of the transport plan, where this is not part of the tendering process. They bring the knowledge and experience of routes, driving times, road conditions and preferred truck sizes depending on areas of delivery. The transport timeline chart must coincide and support the timeline chart of the overall campaign, achieving timely receipt at distribution points with planned number of nets delivered.

The planning for transport of supplies can be improved by examining distances covered during a normal supply circuit, such as the provision of routine service supplies from medical stores to district or community level health facilities. This information can be used as a base for estimating costs and timelines for delivery of all supplies to (1) interim storage areas and (2) actual campaign sites.

A precise transport plan to the districts should identify transport routes/axes in order to optimize truck capacity and take best advantage of the road network, and define a dispatch plan with fixed dates. From this, truck-loading schedules, rotations and re-loading can be organized. See Resource item 5-16 for a sample preliminary transport plan.

If the monitoring of the logistics operation is weak, leakage can occur during transport, warehousing and pre-positioning of the nets (getting the nets to the distribution sites in advance of the campaign). Lack of security can also lead to leakage, especially during storage.

To prevent this kind of leakage, a number of precautions can be applied, including:

- improved security during transport, through the use of conveyors who travel with the trucks to the drop-off points
- improved security during storage through the use of guards. Security needs vary, and it may be important to consider whether the nets will be stored in urban or rural locations. In Rwanda, local defence forces were hired to safeguard stock at each storage point
- decreased amount of time LLINs are kept in district-level storage spaces. Security guards monitoring the storage sites still need regular supervision at facilities where nets are being warehoused, loaded and sent to lower points in the supply chain

- improved storage facilities with proper locks, secure doors and windows and external lighting to assist in upgrading security levels
- use of proper packaging and marking of nets. LLIN packaging should contain warnings in large print, such as "NOT FOR RESALE". In addition, LLINs can be given to beneficiaries with the packaging already torn open to decrease resale value, or removed, provided appropriate waste management procedures are in place
- market surveys conducted during and after the campaign to assess the availability of any leaked campaign nets

5.2 Logistics plan of action including timeline

Normally after the country strategy has been developed and the country preliminary campaign plan of action has been completed, the logistics team will begin to draft a detailed logistics plan of action (LPoA). The LPoA is developed in line with the direction, policies and timelines provided by the country's campaign plan of action. It is important to follow the overall campaign plan of action, especially when numerous partners/stakeholders are involved in the planning, as it provides a clear indication of the agreed direction and strategy.

The objective of the detailed LPoA is to ensure efficient and timely delivery of LLINs to the end users. It focuses on strategies and methodology already determined and gives a detailed breakdown of activities and their timelines. It answers the questions:

- why?
- how?
- what?
- when?
- where?
- by whom?

Points covered in the LPoA

1. Introduction	An outline of the time and coverage of the campaign and its programmatic scope, taken from the campaign plan of action.
2. Source data for the campaign	Official data (from macro-quantification, for example) on quantities required and their breakdown by source of funding and geographic area. Product specification and supplier(s). This information can be found in the campaign plan of action and the procurement documentation and bids received and accepted.
3. Strategy	Description of supply chain and delivery method selected (centralized versus decentralized).
4. Organization and management	Identification of the different partners in the logistics sub-committee and their roles and responsibilities (see the terms of reference for a logistics sub-committee in Appendix 2C at the end of Chapter 2).
5. Methodology	Related closely to the macro- and micro-logistics plans and should provide detailed information on activities (transport, storage, clearance, security, resources, tools).
6. Operational logistics structure	All levels, central, regional and district.
7. Training needs and plans	The training schedule and training method (training of trainers (ToT) and cascade training, for example)
8. Budget	This should cover procurement and operational costs against all activities of the supply chain. More details on budgets are included later in this chapter (5.5).
9. Calendar of events	This should include all critical dates, i.e. date of tender, date of purchase, estimated shipment date and estimated arrival at the point of entry for all commodities. This calendar should be regularly updated and used by the logistics sub-committee for review of progress. Later edits of the calendar of events should include actual arrival dates in-country as well as estimated and actual arrival dates at lower levels of the supply chain (regional/state, district, distribution point, etc.).
10. LLIN tracking, logistics monitoring and reporting	This section should focus on description of activities and what is needed for their implementation (transport, personnel). Indicators developed for monitoring should be included and reference tools and matrices should be annexed to the plan of action. Specific guidance on logistics monitoring, evaluation and reporting tools are found later in this chapter (5.6).
11. Timeline of activities	This is different from the calendar in that it demonstrates a critical path to achieve key activities, both process-related activities and those directly related to the supply chain.

A sample timeline can be found in Appendix 5B. It includes all the process-related activities presented (in green), as well as shipment and in-country logistics timelines (in yellow). For developing the timelines, two methods should be used:

- Retrograde method: for development of the timelines for planning of the events related to shipment and in-country logistics. With this method the timelines are developed backwards, from the last event, i.e. campaign date, followed by estimated timeline for transport to districts, and then from district to community level, all the way to estimated shipment date from the port of discharge (supplier).
- Progressive method: for developing timeline for process-related activities. In this case the timeline development starts from the first event, for example development of macro- and micro-logistics plans.

5.3 Micro-logistics: the micro-planning process

The principles used in micro-logistics, or micro-planning of the logistics element, are similar to those used in macro-logistics to plan storage and transport, personnel and training, develop budgets, and to ensure safety aspects, follow-up and tracking of LLINs.

Sierra Leone. © Doug Mole, IFRC

Logistics micro-planning is critical to finalizing need estimations, timelines, and, importantly, the global campaign budget. It occurs at the district level, based on guidelines set at the national level and using tools and templates developed to collect the necessary information from the lowest points in the supply chain. It is a "bottom-up" process, implying involvement from community level upwards. Micro-planning involves gathering detailed information from the district/community levels of the campaign, regarding the need for supplies, personnel, supports, data recording and reporting forms.

A logistics micro-plan should be completed at least six months prior to the launch of the campaign, with regional and district management teams working together to identify key activities and focal points, develop timelines and finalize a budget to ensure timely disbursement of funds for implementation of campaign activities. See Resource items R5-17 and R5-18 for samples of a micro-planning questionnaire.

First steps

For the first steps in micro-planning, the logistics sub-committee develops or adapts tools, templates and guidelines for the regions and/or districts, using tools from past campaigns. The tools will include training resources for the staff and volunteers who will be involved in any aspect of the logistics plan.

Each district is best placed to plan at its own level since health management teams know their communities and their territory (state of roads, remote or isolated zones, seasonal access, axis of road networks, capacity of storage and so on).

Guidelines and templates are usually sent to the regional or district level in advance of field visits to allow health authorities to begin collecting necessary information from each district. This information includes the target population numbers by locality, broken down so that accurate numbers of nets reach the correct villages and distribution points (DP).

One of the key elements of micro-planning is determining the number of PPS and/or distribution points required to reach the target population. Local conditions and resources are very different at the micro-level with operations at a reduced scale and size. Access is often more challenging, with difficult terrain. Transport is generally slower because it is carried out with smaller vehicles or by other means (motorbike, bicycle, boat, cart, carrier, for example).

Field missions for logistics planning

There are requirements for the central/regional logistics team to plan and conduct field missions, to source out and gather important information and discuss with local health teams, community leaders and traditional leaders their concerns, availability of facilities and any funding issues.

The purposes of field missions vary. They might include:

- filling in a logistics mapping questionnaire for a general assessment of facilities, in order to identify distribution points and facilities and to assess transport, personnel and storage provision and requirements (see Resources R5-17 and R5-18)
- micro-planning, including development of timelines and micro-budget for activities taking place at local level
- supervision of on-the-job training activities and monitoring of implementation
- collection of documents for reporting/ commodity management assessment (CMA)

Documents to support these missions might include:

- template of micro-positioning of LLINs
- storage and transport personnel training guidelines and LLIN tracking tools
- template of logistics budget to include costs of storage, transport, handling, training, personnel and supervision

There would normally be a mission prior to the commencement of LLINs moving down the supply chain. Another might be prior to the start of the LLIN distribution campaign in order to confirm security of LLINs, check warehouse conditions, and ensure that all tracking tools are being used and are well understood in advance of any distribution activities. These missions can be coordinated with other campaign programme or on-the-job training missions to reduce costs and limit excessive vehicle use and manpower.

Logistics personnel are trained in the essential and systematic use of the tracking tools (waybills, stock sheets and tally sheets), in order to record and track all movements of the nets during every stage of the supply chain.

The supervision of training is a vital aspect of field missions. The importance of good training for logistics personnel cannot be emphasized enough, and must be included in the development of the micro-plan. Training is usually done through the training of trainers (ToT) with effective cascading of training required to all staff and volunteers involved. Supervision of quality of training sessions is key to ensure information remains consistent at all levels of training.

Planning for pre-positioning and distribution sites

A good starting point for planning the required number and locations of LLIN distribution sites would be the micro-plans from past measles campaigns. This is because in general, measles campaigns take place at public sites that are familiar to the beneficiary population. Sites may be fixed, advanced or mobile. Fixed sites are health facilities or MoH structures accessed by community members for routine health services. Advanced sites are those set up in schools or other permanent structures for people living between five and ten kilometres from a health facility. Mobile sites are generally used for populations more than ten kilometres from a health facility. In previous integrated

campaigns, it proved easier to integrate LLIN distribution into a campaign using such sites.

While the list of locations used previously in measles campaigns can help in determining how to reach the target population, LLIN distribution sites require security and sufficient space to stock LLINs, and therefore advanced and temporary sites used by EPI may not be suitable. Polio and vitamin A campaigns are often door-to-door, making it harder to integrate LLIN distribution, because the bulk and weight of nets do not allow them to be easily transported by door-to-door teams.

With a door-to-door delivery method of LLINs by volunteers, pre-positioning areas for LLINs must be close to the implementation area and identified in advance to ensure non-costly successful completion of distribution. See Chapters 3, Planning, and 7, Implementation, for further detail on pre-positioning and distribution sites.

Splitting bales

At the micro level (usually from district to distribution point), implementers will be facing the issue of whether they should split bales in order to pre-position the exact number of nets at the distribution points.

Whereas in the past, nets were often packaged in bales of 100 units, nowadays they can be ordered in bales of 50, 40 or 25 nets. For the logistics operation, bales of 100 units have many disadvantages: they are too large and too heavy for easy handling (loading and offloading) as well as for transport at micro level, which often uses small volume modes such as oxcart, bicycle, canoe or hand carriers.

Most of the time, the number of nets required at the DPs do not amount to full bales, regardless of the number of units in the bale, and in order to pre-position the exact number at DPs, there would be a need to split (open) bales. Bales of 100 present a greater disadvantage as more of them would need to be opened, and might even need to be opened earlier in the supply chain, before arriving at DPs.

What are the consequences of rounding figures in order to avoid splitting bales? In other words, what are the discrepancies that would occur at DP level? Would it amount to significant shortages or surpluses being pre-positioned?

COUNTRY CASE STUDY

An analysis was made on a sample district in Madagascar during the 2010 campaign where a total of 96,125 nets were to be distributed in 56 DPs. The number of nets for each DP was rounded (up or down, whether more than half a bale or less than half a bale) for the four case scenarios (100, 50, 40 and 25 nets). The results showed an average difference (in shortage or surplus) of 1.8 per cent at DP level for bales of 100 nets. As expected, the percentage went down with smaller bales, at 0.9 per cent for bales of 50 nets, 0.7 per cent for bales of 40 nets and 0.4 per cent for bales of 25 nets.

Given all the factors that come into the calculation of needs and determination of how many nets are required at the DPs (from macro-quantification to household registration and distribution strategy, which all bring in a certain margin of error), it would be safe to say that the percentage of error (0.4 per cent to 1.8 per cent) introduced by rounding figures to full bales does not appear to be too significant. The decision whether to round or split bales must be weighed against the risk of leakage when bales are opened before reaching the DP. All efforts should be made to avoid the splitting of the largest, i.e. 100 unit, bales.

If the national campaign policy is to split bales so as to be more exact at DP levels or higher up in the supply chain, there are standard logistics procedures to follow for accountability and security. If bales are split into individual net bags they should be:

Mali. © Hannah Koenker/JHUCCP

- secured in smaller bags (no loose nets)
- accounted for accurately on all stock cards at all warehousing levels
- accounted for accurately on all waybills during transport
- accounted for accurately at all DPs during inventory verification prior to distribution to beneficiaries

Whatever the programme decision on splitting of bales, it is important that the national campaign plan of action reflects the approach.

5.4 International and in-country procurement

While LLINs and indelible markers are often procured internationally (see Chapters 3 and 4), other commodities and services required for the distribution campaign may be procured in the country itself. These commodities and services might include transport, storage and printing requirements.

If indelible markers are to be used (generally for integrated campaigns), they require storage space that is dry and not in direct sunlight. Excessively hot storage spaces will dry out the markers more quickly. Markers should not be stored in homes or where people are living or sleeping, as large quantities of markers emit powerful fumes.

The transport of markers may be linked to the transport of LLINs. Using the calculations for quantification (see Chapter 3), an estimate should be made of the number of markers required for a given site depending on the number of nets being shipped. Markers can be packaged into boxes or bags and labelled by drop-off point. They should be loaded on the trucks with the nets and included in the waybills accompanying the shipments to the drop off points. The consignee and quantity should be clearly marked on each well-sealed package, and appropriate supply chain management documents and procedures should be used to minimize leakage and ensure safe transportation and storage.

Most printing of supply chain management tools will be done in country at central level. In some cases, existing MoH tracking tools are used if there are sufficient available and if they meet the required standards for logistics tracking. Waybills need to be printed with forms in quadruplicate, one copy at the original storage point, one at the drop-off point, one for the transporter and one for the CLT. Books of waybills should be sufficient to cover the number of axes of transport and trucks that will be moving at any given time. For each storage location, stock sheets should be prepared in duplicate and printed in sufficient quantity to monitor all movement of nets in and out of the warehouse. If a separate sheet is to be used for each day of warehouse activity, this should be factored into the printing quantities.

5.5 The logistics budget

The logistics budget is the financial framework for planning and implementing the logistics activities. It is an integral part of the logistics plan of action and can also serve as an advocacy tool for fundraising.

The structure of the logistics budget is linked to the LPoA and may contain the following:

Income	
1. Income	All income should be included in the budget: • internal contributions • in-kind (free advertising, loan of premises, for example) • donor funding
Expenditure	
1. International procurement of LLINs and any other commodity (e.g. markers)	• Include all activities involved in calls for tender and selection of supplier(s).
2. In-country procurement of printing services, stationery, etc.	• Include all activities and items involved in the programme such as printing of registration forms, distribution cards, training materials, volunteer training packages and all logistics tracking tools (waybills, stock sheets, etc.)
3. Transport of LLINs and other commodities from producer to country or port of entry	• Take into consideration factors influencing transport, such as delivery to appropriate location if country is land-locked, and then delivery on to central or decentralized warehouse(s). Include factors such as type and size of nets, costs of freight and insurance.
4. Port charges and customs clearing	• Include demurrage[3], off-loading containers or renting containers. Before placing orders, it is imperative to secure from the relevant ministry letters of exoneration of duties and taxes as well as port duties. Even when exemptions are already in place, an official letter will help avoid delays with tax and port authorities once LLINs are delivered. • Include transport from port to central warehouse if centralized system selected.
5. Warehousing and handling	• Selection of warehousing including loading and off-loading if nets are not transported directly from port or point of entry to district in containers. Include security, dispatch to districts, selection and contracting of transporters.
6. Micro-planning	• Include field missions to plan and assess transport route and transport providers, storage and security. • Include plan and production of all documentation needed from arrival of LLINs until after distribution for tracking and reporting.
7. Logistics training	• Include training of logistics staff including warehousing staff and conveyers at central level as well as regional, district and distribution point level to ensure familiarity with use of data management tools.
8. Transport from central level to regions and/or districts	• Include transport and conveyance from central level (or from port) to regions and/or districts including security, loading, off-loading and storage at district (or regional) level.
9. Transport from districts to distribution points	• Include transport from districts down to distribution points, whether by vehicle, boat, etc. This should take into consideration repositioning of nets in case of ruptures of stock from one point to another.
10. Supervision before, during and after distribution.	• Include supervision and follow-up by central level to regions and/or districts, district level to health centres and/or distribution points. • Include collection of dispatch forms for reporting purposes.
11. Administration and management	• Include office supplies, communication, local transport including fuel costs and salary support where relevant. • Include bank charges and any other charges such as expenditure from foreign exchange fluctuations and audit.
12. Monitoring and evaluation post-distribution, Commodity Management Assessment (CMA)	• Include field missions for data collection and compiling for post-distribution evaluation and lessons learned. Include CMA process.
13. LLIN coordination	• Include development of tracking tools, indicators, data collection, and information-sharing meetings before, during and after distribution.

See Appendix 5C and Resource items R5-19 and R5-20 for sample budgets.

[3] Demurrage is the daily cost charged for not emptying a container at the port within a determined period (usually five days).

Once micro-planning has been completed, the harmonization of micro-logistics budget activities at districts and peripheral levels with the central level global budget is essential. Once the micro-planning is completed, and the budgets for planning and implementation at the peripheral levels are finished, these need to be validated by the central level. This will often lead to some reductions in what is required because of overestimates on fuel needs, etc. The central level then validates and sends back to the district the final validated version. Once the district budgets are finalized, the global estimated budget should be reviewed and finalized based on actual costs for planning and implementation at district and peripheral levels. Communication during the micro-planning process is essential, notably if funding requested by the district level is reduced at central level.

It is important for the districts to receive, in advance of implementation of activities, the final micro-plan and budget as validated by the central level.

All budgets should be completed in the local currency but, for purposes of advocacy and fundraising, should be linked to one or more currencies such as the Euro or US dollar, using a credible currency conversion organization, such as Oanda[b].

The global budget should be broken down to a monthly budget linked to the plan of action and timeline so that funding is available in time for activity implementation. It is important for logistics activities to have funding available for immediate payment of warehouse contracts and transport services. Advance planning to access these funds is critical to smooth logistics operations.

The financial reporting format is developed by using the budget and adding a column for expenditure control, line by line, month by month. This can also be done by quarter, but always going line by line.

Before activities start, agreement should be reached and guidelines developed on the process to follow if there is overspending. It is recommended that, for any expenditure over 10 per cent of the budget line, the CLT should be informed and approval and guidance sought from the National Coordinating Committee. The total of the budget group (e.g. storage), as well as the bottom line, should remain the same. The guidelines should also describe the procedures if additional funds are required, and what to do if there are unspent funds.

The final narrative report is not complete without a supporting financial report showing budget, expenditure and variances. An explanation of financial challenges, solutions found and lessons learned helps guide the budget planning and implementation for future campaigns. See Chapter 9 for more information on campaign reporting.

5.6 Logistics supervision and monitoring

The logistics operation requires careful attention to supervision and monitoring of activities from the planning to implementation and post-distribution stages. Unlike other campaign activities, logistics activities are not supervised or monitored by external persons, but from within (self-supervised and monitored).The aim of the supervision and monitoring is to ensure that activities are carried out according to plans and against designated timelines, and to check that tools are being used correctly to ensure later tracking of LLINs.

During the logistics planning stage the key activities that should be supervised and monitored by the CLT at all levels are as follows:

- selection and securing of transport companies
- selection and securing of storage facilities
- development of transport plans
- selection and training of logistics personnel

Madagascar. © Alain Daudrumez, IFRC

- development of micro positioning plans
- development of micro budgets

During implementation, monitoring and supervision should be carried out at all levels to ensure that:

- transport of all commodities (LLINs, markers, etc.) is carried out according to plans
- tracking tools (waybills, stock sheets and tally sheets) are used correctly by all those involved in logistics activities
- exact quantities of commodities are positioned correctly at all levels according to macro- and micro-quantification figures and timelines

All logistics personnel must be aware of the vital importance of their systematic use of tracking tools, inventory checks and so on, and must be trained to use them appropriately in order that the campaign as a whole goes to plan and donors can confirm accountability.

Post-campaign (follow-up) supervision and monitoring are important and include the following:

- collection and aggregation of tracking documents (tools) at all levels
- proper filing of procurement documents for commodity management assessment (see 5.7 below)
- preparation of logistics report and lessons learned

See Appendix 5D and Resource item R5-21 for sample monitoring forms.

The use of tracking tools is a crucial monitoring function as they allow for monitoring of the movement of commodities through the entire supply chain until they get to the beneficiaries. Given the above scenario, supervision and monitoring of logistics activities relies on everyone involved in the activities. This is one reason why effective training is so critical.

5.7 Tracking and accountability

Millions of nets represent millions of dollars and can save millions of lives. It is for these reasons that all those involved in distribution campaigns, and specifically those managing the LLIN supply chain, must ensure that logistics operations (transport and storage) as well as distributions are carried out in the most controlled, accountable and transparent manner.

To accomplish this, the CLT and regional/district teams should:

1. Put in place proper LLIN tracking tools to record every movement of the nets at each step of the supply chain, and ensure that responsibility is transferred accordingly, with names and signatures on the tracking documents, of all those involved.

   Three essential tracking tools will be used throughout the operation: the waybill, the warehouse stock sheet and the distribution tally sheet. The waybill will accompany the nets as they travel from point A to point B. The stock sheet will be used at every storage facility in the supply chain, and will track nets coming into and issued out of central warehouses, intermediary and peripheral stores. The tally sheet will record nets received by the distribution team (from the DP store) and handed over to beneficiaries. If these tracking

tools are used properly and throughout the operations, at the completion of the campaigns there should be a clear and uninterrupted "audit trail" (paper trail) of the nets, in the form of waybills, stock sheets and tally sheets.

Samples of LLIN tracking tools and details of how they are used are included in Appendix 5A and in Resource items R5-8 to R5-15 on the CD.

2. Ensure proper filing of all logistics documents, including documents related to the procurement of goods and services and tracking tools. At the end of a campaign all documents will be aggregated and kept at a designated location that has been agreed upon during the planning phase.

3. Plan for measures that will guarantee the security of the nets throughout the supply chain.

4. Receive and provide adequate training: the tracking tools will serve their purpose as long as proper training is provided to those who will be using them. Therefore, logistics planning and implementation of activities will include comprehensive training of all personnel involved at all levels: central, intermediary (district) and peripheral (DP).

Commodity management assessment (CMA)

In the context of LLIN distribution campaigns, the purpose of CMA is to measure the level of accountability and transparency achieved in the management and distribution of LLINs. In other words, a CMA should verify that:

- adequate tools and procedures were used for proper tracking of LLINs and control of the operation, including precise record keeping and control of key activities (receiving, warehousing, transporting and distributing the nets)
- LLINs have reached the targeted beneficiaries

In general, a CMA is based on collaboration between MoH, NMCP and partners to review a limited sample of the internal supply chain routes in order to assess and verify degree of success, areas for improvement and/or weak tracking methods, etc. The CMA framework could include:

- consensus on the scope for assessment, e.g. an overview of what the CMA will focus on and the type of sampling to be used
- selection of routes to be verified with CMA sampling from start point to finish point at DP site
- details of how the assessment process should be carried out: need for both quantitative data (how many nets, via a percentage of sampling, have been moved from point A to point B with proper tracking) and qualitative data (feedback from the field logisticians on the usefulness and effectiveness of tracking tools, processes, etc.)
- list of documents to be tracked (waybills, warehouse stock sheets, tally sheets, etc.)
- other areas related to the logistics supply chain for review, e.g. training, communication, planning
- designated individuals to conduct CMA
- proposed budget, resources, timelines

Just as financial reports must be based on proper accounting with supporting documents (invoices, receipts, etc.), logistics and distribution reports must be based on proper LLIN accounting with supporting tracking documents (waybills, stock sheets and tally sheets). Performed on a reasonable sampling of supply chain documents, the CMA will verify the existence of clear and complete audit trails for the nets, recording each and every step in the transport, storage and distribution of the nets. The CMA will also verify the proper use of the tracking documents (whether they have been filled in properly, including all required signatures) as well as the proper filing of all supply chain documents. Additionally, it will review logistics and distribution reports to determine if corresponding tracking documents support figures.

Finally, the CMA will assess whether detailed and consolidated logistics and distribution reports were produced in sufficient quantity and quality to provide full accountability and transparency

Sierra Leone. © United Methodist Church

for the LLINs distributed. Should the CMA find that distribution reports are complete (i.e. cover all DPs) and reliable (supported by corresponding waybills, stock sheets and tally sheets) it could then conclude that these reports effectively and truly reflect the results claimed to have been achieved in the campaign.

5.8 Key logistics recommendations

Campaigns that have been implemented so far provide a great deal of experience from which lessons can be learned. In the case of the logistics operation, key lessons have led to the following recommendations:

- The CLT requires members who are practical and experienced logisticians, and who will be physically involved in the campaign from the beginning to the end of the logistics operation.
- Budgets should be completed to ensure that funds can be released in a timely manner. Operational funds must be released to the CLT, regions and districts to allow micro-planning activities to be conducted early in the campaign planning process.
- A detailed timeline must be developed so that the CLT has sufficient lead time to request fund transfers at appropriate points to support logistics activities.

The CMA is a vital tool for countries to assess the efficiency of the logistics operation and the LLIN tracking tools, and to learn lessons for future campaigns. It is a post-campaign activity that should be planned and carried out as any other campaign follow-up survey. To ensure that a CMA will effectively take place, adequate resources (personnel and funding) must be allocated from the early planning stage of a campaign.

- Adequate and appropriate training is essential for the logistics operation. It is necessary for macro-planning (arrival of LLINs, transport to warehousing, storage and security), micro-planning (transport, storage and security), use of tracking tools, warehouse management, CMA, budgeting and finance management.
- The identification of appropriate personnel involved in logistics and supply chain management at all levels is critical, and their training must be planned carefully. CLT members and central warehouse managers need to be trained before the arrival of the LLINs in the country, district logisticians and district store managers need to be trained before the arrival of nets at district level. For cascade training, those who will do the training at the lower levels must be given the capacity and knowledge of training methodology in order to give adequate training. Cascade training can be effective if there are trained supervisors to manage and monitor training.
- In the case of warehouse tracking tools, practical, hands-on training is generally an effective way of ensuring understanding of the purpose of the tools and their importance. Training and supervision of training must be given adequate financing in the budget.
- The use of conveyors, who travel with trucks to the DPs is recommended to ensure the security of the LLINs during transport. Conveyors will require training and funding.
- Lack of flexibility in delivery locations has led to sub-optimal coverage during distribution. LLINs should be procured in bales of 25, 40 or 50 and split at the lowest possible point in the supply chain.
- Where warehousing space is problematic, containers should be purchased, with a plan in place to ensure that containers can be unloaded safely at their destination.
- Centralized or decentralized delivery and storage should be decided early in the planning process, bearing in mind that decentralized will require more than one logistics base and more than one management team. Logistics personnel (CLT) should be involved in discussions prior to procurement of the LLINs.
- Commodity management assessment as a post-campaign activity is essential to assess the efficiency of the logistics operation and the tracking tools used, as well as accountability for the LLINs. CMA must be planned from the outset and included in the budget.

Appendix 5A: Examples of LLIN tracking tools

Waybill/ Delivery Note

No. (pre-numbered)

Date _____

Sender _____
Location _____

Consignee _____
Location _____

Transportation mode: _____ No. _____

no.	Item	Quantity	Unit	Packaging	# of packages
1.	LLINs	20,000	pce	Bale x 25 nets	400
2.					
3.					
4.					
5.					
6.					
7.					

Comments/observations (condition of goods on reception: missing/damaged etc.)

Loading confirmed (conveyor or driver)
Name _____
Signature _____
Date _____

Receipt (designated consignee)
Name _____
Signature _____
Date _____

Signature of sender _____ Date _____

White: consignee Blue: transporter Green: return to sender Yellow: sender

1. WAYBILL/Delivery note

The Waybill (WB/Delivery Note) is one of the three essential LLIN tracking tools to be used during distribution campaigns. Its purpose is to control and record the movement of LLINs from point A to point B.

- The waybill is issued by the sender. It indicates the nature and quantity of commodities being shipped.
- One waybill must be issued for each destination (drop-off point). Therefore, one truck will carry as many waybills as drop-off points it will cover.
- When a shipment is received, the consignee must verify that the quantity received corresponds to the quantity indicated on the waybill.
- Any discrepancies (bales missing or in excess) or damaged goods must be documented, i.e. the consignee must indicate in the "comments/observations" box how many bales are missing or in excess, or how many bales are damaged (with brief description).
- It is important to respect the colour coding for the four copies of the waybill.
- It is absolutely essential that the waybill should be carefully and properly filled out exactly as indicated below. All the required information (including signatures) must be filled in the right place, and nothing must be left out.

How to fill out the waybill

Date

E.g. Date that loading finished and truck is ready to depart.

Sender

a. When shipping nets from districts to villages distribution points (DPs) the "sender" is the district stores person. Therefore the district stores person must write his name on this line. On the line below (location) the district stores person will write the name of the district stores location (if there is more than one warehouse at district level, it is useful to also indentify which warehouse the nets are being sent from). Note also that the sender will sign at the bottom of the waybill on the line "Signature of sender".

b. When moving nets from villages/village storage areas to DPs, the "sender" is the stores person. Therefore the stores person must write his name on this line. On the line below (location) the village storage person will write the name of the village. Note also that the sender will sign at the bottom of the waybill on the line "Signature of sender".

Consignee

a. When shipping nets from districts to village storage, the "consignee" is the storage person (identified by his name) of the village where the nets are being sent. The name of the village must be written on the line below (location).

b. When moving nets from the village stores to DP site, the "consignee" is the team leader or site supervisor (identified by his name) of the DP site where the nets are being sent. The name of the community or village where the DP is located must be written on the line below (location).

Transport mode and No.

Indicate the transport mode (generally "truck") and write down the vehicle license plate number.

Item

LLINs, markers, communication supports, etc.

Quantity

Only the number of units (number of LLINs or other materials) must be written in this cell, and nothing else. See next paragraph "Unit").

Unit

In the case of LLINs, the unit is the "piece" (in short "pce"). IMPORTANT: the unit is never the bale (see next paragraph "packaging"). If the

waybill/delivery note is being used for markers or communication supports, these should be filled in the same way as LLINs, i.e. unit, then packaging, then number of packages.

Packaging

From the logistics point of view, the information regarding the packaging of the goods is important. Write here "bale x 25 nets" to indicate that the LLINs come in bales of 25 (pieces).

Number of packages

Total number of bales, marker packages, communication support packages, etc.

Comments/observations

This box serves to record any missing or damaged goods upon receiving the shipment (remember that in such a case, the driver must sign in the box to indicate his agreement).

Loading confirmed

This box must be filled out after the loading of the truck (before the departure of the truck). It must contain the signature of the conveyor (or the driver if there is no conveyor) and the date of departure of the truck. The signature will indicate that the conveyor (or the driver) is in agreement that the quantity indicated on the waybill corresponds to the quantity that has been loaded on the truck.

Receipt

Once the LLINs have been received (the bales off-loaded and counted, and any discrepancies recorded in the proper box) the consignee will write his name, put his signature and write the date of receiving the shipment.

Signature of sender

As indicated earlier, the sender must sign and indicate the date at the bottom of the waybill before dispatching the truck.

2. Warehouse stock sheet/card

Districts/Chiefdom/Village DP Sites _____ **Responsible person**_____

Ref. No.	Date	Origin	Destination	Waybill Number	Truck reg. or type of transport	Number of bales on waybill	No. of bales received	No. of bales sent	Stock (bales x 25, 40, 50 etc.)*	Stock (LLINs)	Remarks/ signature

*A separate stock sheet must be used for each size of bale (e.g. 25, 40, 50, 100).

How to use and fill out the stock sheet

The stock sheet is one of the three essential LLIN tracking tools to be used during the distribution campaigns. It must be used in every location where LLINs are stored (all warehouses, all district stores and all village/ DP stores).

The stock sheet is a combination of a standard "warehouse journal" (also called "warehouse ledger") and of a "warehouse stock card".

Therefore, the stock sheet serves two purposes:

1. As a warehouse journal: to record chronologically the quantities of nets received into the warehouse, and the quantities issued out of the warehouse.
2. As a warehouse stock card: to keep track of the stock balance in the warehouse.

Therefore:

a. At all levels, the stock sheet will record the quantities of nets received from the supplier and dispatched (sent) to all locations. It will also keep track of balance stock in the warehouse.
b. At the district level, the stock sheet will record the quantities of nets received from the main warehouse and dispatched (sent) to the village/DPs. It will also keep track of balance stock in the district store.
c. At the distribution point (DP), the stock sheet will record quantities of nets received from the village stores and issued out to the distribution team. It will also keep track of balance stock in the village store.

How to fill out the stock sheet: Note: If possible, use a different colour for "IN" and "OUT" entries.

* **Each line in the stock sheet represents either an entry of nets in the warehouse (nets being received) or an exit of nets from the warehouse (nets being shipped out).**

* **Each line in the stock sheet must be filled out chronologically: the stock sheet is a "journal"; it must therefore record each event (entry or exit) as and when they happen.**

Ref. No.
This is the sequential number of each movement (in or out) of the nets, starting with 1, 2, 3…

Date
Date that nets are either received or sent out.

Origin
When receiving nets, the place from which the nets were shipped to your store must be entered in the "ORIGIN" column (example: "Etung Warehouse", or "Ward warehouse" or "village store" depending where the stock sheet is being used). Note: if issuing out (sending out) nets, this cell must be left blank (or indicate "n/a").

Destination
When issuing out nets, the place to which the nets are to be shipped must be entered in the "DESTINATION" column (example: "district X" or "village Y"). Note that if receiving nets, this cell must be left blank (or indicate "n/a").

Waybill number
When receiving nets, indicate the number of the waybill that came with the shipment.

When sending (issuing out) nets, indicate the number of the waybill that was filled out and issued to accompany the shipment.

NOTE: During the campaign, LLINs will need to be stored at the village/distribution points. Therefore, each distribution point will have a "store" even if the quantity of nets will be relatively small. The DP store will use a stock sheet to record nets that have been received from the districts/villages and nets that will be given to the distribution team during the distribution period. When the nets are handed over by the storekeeper to the distribution team leader, this will be recorded on the stock sheet as a normal "exit" (issuing out) of nets: the DESTINATION will be "Distribution Team". However, since the nets will not be moving from one point to another (everything is taking place at the DP) it will not be required to issue a WAYBILL. In this case, instead of "waybill number" and "truck plate number" the storekeeper will write the name of the distribution team leader. IMPORTANT: the distribution team leader will sign in the "remarks" column. Note: the distribution team leader will indicate on his Tally Sheet the number of nets received from the store.

If at the end of a distribution day all LLINs have not been distributed, the leftover nets with the distribution team will need to be returned to the stores. This time the ORIGIN will be "Distribution Team" and the storekeeper will sign in the "remarks"column.

Number of bales on the waybill
This applies when receiving as well as when sending out nets. It corresponds to the number of bales as indicated on the waybill.

Number of bales received
This cell must be filled only when receiving nets (when sending out nets this cell must be left blank or indicate "n/a"). The number of bales received must normally correspond to the number indicated on the waybill, unless there are bales missing.

Number of bales sent
This cell must be filled only when sending out nets (when receiving nets this cell must be left blank or indicate "n/a"). The number of bales sent must correspond to the number indicated on the waybill.

Stock (bales)
Record the number of bales and number of nets in each bale, e.g. 100 bales x 25 LLINs.

Stock (LLINs)
Record the total number of LLINs.

Remarks/signature
Note any irregularities and sign (distribution team leader or storekeeper, depending whether nets are issued in or out).

3. Tally sheet

TALLY SHEET

(Use a separate tally sheet each day of distribution)

District: _____ Health facility: _____ Distribution point: _____

Team supervisor's name: _____ Date: _____

	Cross out one circle for each LLIN distributed					Total
1	00000	00000	00000	00000	00000	
2	00000	00000	00000	00000	00000	
3	00000	00000	00000	00000	00000	
4	00000	00000	00000	00000	00000	
5	00000	00000	00000	00000	00000	
6	00000	00000	00000	00000	00000	
7	00000	00000	00000	00000	00000	
8	00000	00000	00000	00000	00000	
9	00000	00000	00000	00000	00000	
10	00000	00000	00000	00000	00000	
11	00000	00000	00000	00000	00000	
12	00000	00000	00000	00000	00000	
13	00000	00000	00000	00000	00000	
14	00000	00000	00000	00000	00000	
15	00000	00000	00000	00000	00000	
16	00000	00000	00000	00000	00000	
17	00000	00000	00000	00000	00000	
18	00000	00000	00000	00000	00000	
19	00000	00000	00000	00000	00000	
20	00000	00000	00000	00000	00000	
21	00000	00000	00000	00000	00000	
22	00000	00000	00000	00000	00000	
23	00000	00000	00000	00000	00000	
24	00000	00000	00000	00000	00000	
25	00000	00000	00000	00000	00000	
26	00000	00000	00000	00000	00000	
27	00000	00000	00000	00000	00000	
28	00000	00000	00000	00000	00000	
					Total	

LLINs received at start of day: _____ (received from DP store)

Additional LLINs received today_____ (received from DP store)

LLINs distributed today: _____

Balance of LLINs at the end of the day: _____ (returned to DP store)

Name of DP supervisor: _____ Signature: _____ Date: _____

Notes on the tally sheet

The tally sheet is both a logistics tool and a distribution tool:

- As a logistics tool, it creates the link between logistics and distribution: The tally sheet is used by the distribution team during the distribution period. The distribution team leader must record on the tally sheet the number of nets received from the village storage areas (and returned to the village stores at end of day, if applicable).
- As a distribution tool, it keeps track of the number of nets given out to the beneficiaries.

At the end of the campaign, the tally-sheets must be used by both the logisticians and the distribution supervisors for accountability and to compile reports.

Appendix 5B: Sample logistics timeline

Process activities	Weeks																												
	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	26	27	28	29
Development of macro and micro-plans																													
Training plan finalized																													
Budget plan finalized																													
Funds transferred (all levels)																													
Development and printing of log questionnaire with pre-registration forms																													
Pre-registration																													
Printing and distribution planning of IEC materials for advocacy and social mobilization																													
Tracking tools and training package finalized																													
Implementation of training activities																													
Follow-up on in-country distribution (transportation and warehousing)																													
Pre-campaign monitoring																													
Recording, monitoring and supervision during campaign																													
Post-campaign logistics reports																													
Logistics coordination and management																													
Shipment and in-country logistics																													
Shipping time from port of discharge (supplier) to point of entry in the recipient country																													
Arrival at point(s) of entry in the country																													
Customs clearance and receipt																													
Distribution from central to regional/state level																													
Distribution from regional to district level																													
Distribution from district to sub-district level																													
Distribution from sub-district to community level																													
Distribution to campaign sites																													
Campaign week																													
Overall time line 29 weeks																													

Appendix 5C: Logistics budget summary

1A	**Income**	Cost in local currency	Cost in major currency, e.g. US$ or Euro
1B	**Budget income versus expenditure**	0	$0
	Expenditure		
1	Procurement	0	0
2	Port costs and customs clearing	0	0
3	Warehousing and handling	0	0
4	Coordination and micro-planning missions	0	0
5	Log team training for warehouse/dispatching	0	0
6	Transport port to districts and convoyage	0	0
7	Transport from districts to DPs	0	0
8	Supervision before, during and after distribution	0	0
9	Management and administration	0	0
10	Monitoring and evaluation	0	0
11	LLIN tracking	0	0
	Subtotal logistic budget	**0**	**$0**
12	Admin. fee or overhead support max 5%	0	0
	Bank charges 2%	0	0
Grand total logistic budget		**0**	**$0**

Logistics budget sample

#	Description	Notes	Unit	Qty	Unit. Price	Cost in local currency	US$	Control	Comments
1A	**Income**								
	Contribution in kind					0	0		
	Funding from local donors					0	0		
	Funding from international donors					0	0		
	Earmarked funding					0	0		
					Subtotal 1A	0	0		
1B	**Budget income versus expenditure**								
	Total budgeted income					0	0		
	Total budgeted expenditure					0	0		
	Variance				Subtotal 1B	0	0		
	Expenditure								
1	**Procurement**								
1.1	Procurement of LLINs	Type of net, size				0	0		
1.1	Markers	1 marker per 125 persons				0	0		
1.1	Other supplies					0	0		
1.2	Transport of supplies to country	FoB or CIF all costs need to be included				0	0		
					Subtotal 1	0	0		
2	**Port costs and customs clearing**								
	Delivery order (container deposit)	Refunded less demurrage charges deposit				0	0		
	Forecasted demurrage costs (estimated)	60% of deposit				0	0		
	Scanning containers	Fixed price				0	0		
	Scanning transport vehicles	Fixed price				0	0		
	Port storage	Space our containers take up in port area				0	0		
	Handling	Lifting containers, etc.				0	0		
	Container Inspection	Fixed price				0	0		
	Insurance	Port insurance per container				0	0		
	Administrative and other documentation charges	Documentation of shipment				0	0		
	Container transportation	Movement out of port				0	0		
	Clearing & forwarding charges 15%	15% of total cost				0	0		
					Subtotal 2	0	0		
3	**Warehousing and handling**								
	Warehousing at point of entry	Rental				0	0		
	Warehouse security	Security guards and equipment if needed				0	0		
	Logs team (during dispatch operation)	xx persons and xx days				0	0		
	Fuel (for local runs)	20 litres per 100km				0	0		
	Off-loading containers / loading trucks	10 persons off- loading 1 container per day				0	0		
	Loading and off- loading trucks					0	0		
	Communications	Phone cards xx persons xx days				0	0		
					Subtotal 3	0	0		
4	**Coordination and micro-planning missions**								
4.1	Logistic person accommodation	Consultant accommodation during mission - could be one or more trips				0	0		
	Logistic person per diem	Consultant per diem during field mission				0	0		
	MoH log accommodation					0	0		
	MoH log per diem					0	0		
	Driver accommodation	Could be one or more teams - one or more vehicles				0	0		
	Driver per diem					0	0		
	Fuel (1 x vehicle)	20 litres per 100km				0	0		

Logistics budget sample (continued)

#	Description	Notes	Unit	Qty	Unit. Price	Cost in local currency	US$	Control	Comments
4.1 cont.	Vehicle maintenance	For small repair during mission -flat tyre etc. flat fee				0	0		
	Communications	xx persons x (y units) xx missions				0	0		
					Subtotal 4.1	0	0		
4.2	Production logistic documentation	Development material, photocopies samples				0	0		
	Warehouse control lists	Printing				0	0		
	Waybill books and/or dispatch lists	Printing				0	0		
	Visibility for conveyers and or other staff	ID cards or other identification means				0	0		
					Subtotal 4.2	0	0		
					Subtotal 4	0	0		
5	**Log team training for warehouse/dispatching**								
Region 1	Accommodation	Trainers and driver				0	0		
	Transport					0	0		
	Food					0	0		
	Hall rental x 2 days	Flat rate				0	0		
	Per diem to and from training 2 days facilitator and driver	Per diem for local facilitators if needed				0	0		
	Miscellaneous stationery	To facilitate workshop activities				0	0		
					Subtotal 5.1	0	0		
Region 2	Accommodation								
	Transport					0	0		
	Food					0	0		
	Hall rental x 2 days	Flat rate				0	0		
	Per diem to and from training 2 days facilitator + driver					0	0		
	Stationery	To facilitate workshop activities			Subtotal 5.2	0	0		
Region 3	Fuel transport of facilitators	20 litres per100km				0	0		
	Stationery					0	0		
	Hall rental x 2 days	Flat rate				0	0		
					Subtotal 5.3	0	0		
					Subtotal 5	0	0		
6	**Transport port to districts and convoyage**								
6.1	Conveyors training transport support	Transport subsidy for training days				0	0		
	Conveyer lunch during training	Lunch or per diem				0	0		
	Training facilities	Flat Fee				0	0		
	Conveyers per diem and travel costs	1 conveyor per truck - each trip is 2 - 3 days or more				0	0		
	Conveyer Communications	1 phone card for each conveyer				0	0		
	Off-loading trucks in the districts	Is often included in the transport port-districts				0	0		
					Subtotal 6.1	0	0		
6.2	Transport port to district								
	Route 1	Usually a tender is called for this transport but in micro-planning give				0	0		
	Route 2	outlined number of routes and number of bales to the region/district				0	0		
	Route 3					0	0		
	Route 4	In the tender include all transport costs, toll, drivers				0	0		
	Route 5	costs, insurance and if possible off -loading in the district				0	0		
	Route 6					0	0		
					Subtotal 6.2	0	0		
					Subtotal 6	0	0		
7	**Transport from districts to DPs**								

#	Description	Notes	Unit	Qty	Unit. Price	Cost in local currency	US$	Control	Comments
7.1	Budget allocation for transport districts- distribution point	Can be allocation per bale or flat fee including all costs involved				0	0		
					Subtotal 7.1	0	0		
7.2	Contribution to regions/districts for supervision	Can be actual or flat fee per district for per diem, fuel and accommodation				0	0		
					Subtotal 7.2	0	0		
					Subtotal 7	0	0		
8	**Supervision before, during and after distribution**								
8.1	**Before distribution**								
	Logistic team accommodation	One or more persons from central level				0	0		
	Logistic team per diem					0	0		
	Transport fuel 20l per 100km	Fuel for one or more vehicle depending on number of teams				0	0		
	Communication	Phone cards for logistics team				0	0		
					Subtotal 8.1	0	0		
8.2	**During distribution**								
	Logistics team accommodation	One or more persons from central level				0	0		
	Logistic steam per diem					0	0		
	Transport fuel 20l per 100km	Fuel for one or more vehicle depending on number of teams				0	0		
	Communication	Phone cards for logistics team				0	0		
					Subtotal 8.2	0	0		
8.3	**After distribution**								
	Logistics team accommodation	One or more persons from central level				0	0		
	Logistics team per diem					0	0		
	Transport fuel 20l per 100km	Fuel for one or more vehicle depending on number of teams				0	0		
	Communication	Phone cards for logistics team				0	0		
					Subtotal 8.3	0	0		
					Subtotal 8	0	0		
9	**Management and administration**								
	Photocopy	Flat fee per month				0	0		
	Communications	Phone cards for head of logistics and assistant				0	0		
	Districts administrative support	Salary support or other office support				0	0		
	Transport	Local transport or fuel at 20l per 100km				0	0		
	Vehicle maintenance	Flat fee for support of vehicle maintenance				0	0		
					Subtotal 9	0	0		
10	**Monitoring and evaluation**								
	Logistics team accommodation	One or more team for data collection and or field meetings				0	0		
	Logistics team per diem	Per day				0	0		
	Transport costs	Fuel costs 20 litres per 100 km				0	0		
	Data collection and compiling	Flat fee				0	0		
					Subtotal 10	0	0		
11	**LLIN tracking**								
	Development of tracking tools	Printing or copying				0	0		
	Distribution of tracking tools	Distribution and collection of information				0	0		
	Post meeting regions and or districts	Flat fee for actual costs incurred				0	0		
	Post meeting central level	Flat fee for actual costs incurred				0	0		
					Subtotal 11	0	0		
TOTAL logistics BUDGET expenditure									
Budget (1 - 11)					**Subtotal 1-11**	-	0		
Administration or programme support in % max 5%					**5%**	-	0		
Bank charges 2%					**2%**	-	0		
GRAND TOTAL						**-**	**$0.00**		

Notes for the logistics budget sample

The budget is calculated in local currency and then converted into relevant foreign currency using a reputable exchange site (e.g. Oanda), using rate of exchange on the first of the month when the budget is approved. Any currency fluctuations can then be justified.

1. Budget is developed for national level and district level. Regional level can be added as necessary.
2. Consideration needs to be taken when working in a landlocked country. Sample budget will need adapting.
3. It is imperative to have official letter of exoneration from appropriate authorities for duty and taxes on nets as well as for port charges.
4. All costs involved need to be calculated regardless how they are to be covered, i.e. by funds raised or in kind contributions by MoH. This should be reflected in the income budget.
5. Costs for transport will vary depending on type of net and size (bale weight and volume will vary).
6. Policies for per diem and/or incentives for payments to volunteers, health workers or others, must be adhered to and not increased.
7. For transport calculations, 20 litres of fuel for 100 kilometres is used. For motorcycles, it is 1 litre per 18 kilometres.
8. For maintenance, the guideline is US$125 per vehicle for constant use.
9. For transport from district to distribution point, often a flat rate per bale is used to cover transport, loading, security and warehousing.
10. There is a link between monitoring and LLIN tracking. It is important to develop tools and indicators for both before activities start.
11. Logistic coordination teams need to be at all levels, national, regional and district, and flow of information should be recorded and constant.
12. Before household registration population census, macro-planning for distributions points and distribution strategy should be used to plan for transport route (axes) and teams should be established to supervise one or more axes.
13. Using many logos on logistics documentation should be avoided as this is very costly. It is recommended to use only the MoH or NMCP logo.
14. Transport between distribution points (redistribution of stock due to ruptures) is often a challenge if the population does not come to the expected point. This redistribution can be time-consuming and costly, and could cause chaos among beneficiaries.
15. This budget focuses only on LLINs. Supplies will vary if running an integrated campaign.
16. Some transport companies will not accept conveyors on trucks. In that case, final payment should be made only after the waybill with approved signatures from the recipient is received. The conveyor would normally return this document.
17. When training takes place, the documentation, distribution strategy and transport routes should all be approved and agreed upon including data collection and tracking tools.
18. Lines can be inserted or deleted as needed but for all meetings and supervision, it is important that all lines are visible and that a flat fee is not used.
19. There should be NO line for contingency or unforeseen costs. This is never acceptable in good financial planning and only reveals that planning has not been done properly. Budgets can be reviewed quarterly, especially if sufficient funding has not been raised, and the lines adjusted accordingly, Changes because of exchange rate fluctuations will be revealed if format is followed and the rate of exchange used is clear.
20. Expenditure control and reporting should be done against each line and/or group with explanation of any variances. Funds not used for a group cannot be used elsewhere unless budget has been reviewed and changes approved by the donor organization.

Appendix 5D: Sample monitoring forms[c]

LLIN UNIVERSAL COVERAGE CAMPAIGN
Checklist for daily monitoring and supervision
DURING LLIN CAMPAIGNS

These **checklists** are for monitoring the quality of services provided during the distribution of the nets at the various stages of the process. Every LGA supervisor and monitor must use these checklists during each visit. As much as possible, complete this checklist without interrupting the services at the post.

I-9a… Monitoring during training process
I-9b… Monitoring at storage site/warehouse
I-9c… Monitoring at distribution posts

Please observe activities at the post and tick [✓] the appropriate box or record your comments:

MONITORING DURING TRAINING PROCESS

STATE_____ LGA _____
WARD_____ Date____/____/____ Time of visit: _____
Name of monitor: _____ _____
Designation_____

#	Observations/questions	Yes	No
1	Is the training venue conducive?		
2	Are there adequate training materials and aids?		
3	Were lists of participants compiled?		
4	Were role-plays conducted?		
5	Was there adequate feedback from participants during trainings?		
6	Was copy of recommended lists of personnel compiled as an outcome of the training?		
7	Was final list of recruited personnel the outcome of the training?		
	What problems were observed during the training? a. b. c.		
	What corrective actions/solutions were proposed?		
	List 3 key observations/lessons learned: (Continue on the back of this page if necessary) 1. 2. 3.		

MONITORING AT STORAGE SITE/WAREHOUSE

STATE_____ LGA _____

WARD_____ Date____/____/____ Time of visit:_____

Name of monitor: _____ _____

Title_____ _____

#	Observations/questions	Yes	No
1	Adequate storage space for LLINs		
2	Adequate controls during loading and off-loading		
3	Availability of stock card		
4	Appropriate use of stock card		
5	Adequate security measures at storage site		
6	General storage condition satisfactory		
	What problems were observed in the store/warehouse visited? a. b. c.		
	What corrective actions/solutions are proposed?		
	List 3 key observations/lessons learned: (Continue on the back of this page if necessary) 1. 2. 3.		

MONITORING AT DISTRIBUTION POSTS

STATE _____ LGA _____

WARD _____ Date____/____/____ Time of visit: _____

Name of monitor: _____ _____

Title _____ _____

#	Observations/questions	Year
1	Is distribution site properly set up?	
2	Are nets available at the distribution post?	
3	How many nets were delivered to the post at the start of the day?	
4	Is there a plan for re-stocking when supplies are running low?	
5	Is the supervisor present and in control of the post?	
6	Is the post orderly?	
7	Is the recorder checking that the net cards are from the correct ward and DP?	
8	Is the recorder correctly recording the nets given out on the tally sheet?	
9	Is the net distributor giving the correct number of nets?	
10	Is a line being drawn across each voucher?	
11	Are the vouchers being put into the voucher box?	
12	Are limited numbers of beneficiaries brought into the distribution space at a time?	
13	Was health educators' demonstration site appropriately set up?	
14	Are health education activities being carried out at demonstration site?	
15	What means of transport will be used to bring more nets to this post?	
16	What problems were observed at this post? a. b. c.	
17	What corrective actions/solutions were proposed?	
18	List 3 key observations/lessons learned: (Continue on the back of this page if necessary) 1. 2. 3.	

Endnotes

a Fritz Institute Logistics Training, 2006.

b www.oanda.com.

c Source: Nigeria Federal Ministry of Health, National Malaria Control Programme.

Senegal. © Maggie Hallahan /Sumitomo Chemical

6: Communication

Communication is a vital activity before, during, and after a campaign, to mobilize communities to participate and to ensure that the nets distributed are hung up and used consistently and correctly. Communication comprises a variety of activities, with key roles for national and international partners. As we have seen, good coordination is critical at each stage of the campaign, and effective communication among partners under NMCP leadership is vital to ensure that messages are clear, cohesive and supportive of MoH efforts.

A timeline of communication activities (in English and French) is included on the CD as Resource R6-1.

The first step in conducting effective communication activities is to set up a communications sub-committee within the campaign partnership at national level. The committee should be led by representatives of the NMCP and MoH who focus on communication, and members should include in-country implementing partners who regularly conduct communication activities, and other partners with experience in mobilizing communities and behaviour change communication (BCC). If there is not already a functioning IEC/BCC committee that helps to coordinate national malaria communication activities, the MoH will need to mobilize partners to participate. Most partner organizations already have a communication and/or social mobilization focal point. Partner organizations may also be able to assist by hosting the committee meetings if space is not available at the NMCP/MoH.

A sample terms of reference for a communications sub-committee is included on the CD as Resource R6-2.

There are three main categories of communication, all of which are relevant to implementing an effective campaign:

1. **Advocacy** for LLIN campaigns includes activities to foster political will and support for the campaign, to increase financial and other resources on a sustainable basis, and to hold authorities accountable to make sure pledges are fulfilled and results are achieved[a]. Advocacy is carried out at both the country level, to engage political leaders, national media and funding agencies in the campaign, and at an international level to promote in-country activities and raise further support (often financial) for the planned activities.
2. **Social mobilization** in the context of campaigns means mobilizing communities to take full advantage of campaign and post-campaign interventions. Social mobilization activities focus on informing target groups of the dates and locations of the campaign, including registration and distribution, and what to expect from household visits. It is the information and motivation needed to ensure high levels of community participation in the campaign activities.

Tchad. © MENTOR Initiative

3. **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.

6.1 Planning for communication

Communication comes in a variety of forms, from broadcasting messages to encourage turnout, delivering LLIN-use messages, facilitating VIP and media visits, and ensuring international press coverage. To ensure coherent and consistent communication coverage, it is essential that a rational and costed plan is in place before any campaign begins and that health personnel and others involved are trained to provide effective and consistent messaging.

Communication plan

Each country should have a national malaria communication plan in place, developed to support the country's National Malaria Strategy. The campaign-specific communication plan should build on this plan, using the same or complementary key messages. Without a comprehensive plan for campaign communication, trainings will be confusing, messages may get muddied and implementation may suffer. The first step in implementing campaign communications is to draft a communication plan, around which in-country implementation partners can provide support and international partners can advocate.

The communication plan generally has the following key sections:

1. Context and background
2. Objectives:
   a. Overall campaign objectives (these are set in the campaign plan of action)
   b. Communication objectives for the campaign
3. Target audiences (primary, secondary, tertiary)
4. Key messages (these address the communication objectives)
5. Communication channels (often arranged by target audience)
6. Tools and materials needed (includes print and radio and/or TV materials)
7. Timeline of activities
8. Budget (item, quantity, unit cost, responsibility for producing and paying for the item)

There is no specific set of activities that will ensure success or failure of the communication plan. It is vital, however, to consider rational use of resources and to focus funds on the activities that will have the greatest impact. Generally, radio messages plus house-to-house visits are the most effective at communicating messages widely and with impact. Television can be expensive and may not reach all areas, but when it does, it can be an excellent way to model the behaviours the campaign is promoting. Some print materials are necessary, such as coupons and supervision forms. Other print materials need to be considered carefully. Flyers often do not have the desired impact, due to low literacy rates or poor dissemination, while posters are really only good for identifying sites, and not useful for changing behaviour. Consider carefully your communication objectives and prioritize your materials and activities according to your goals.

See the CD Resources R6-3 and R6-4 for an example of a communication plan in French and English.

Macro-planning

We have seen in Chapter 3 that macro-planning is the "big picture" view of what will be needed for the communication activities to support the campaign, including planning, training, and a rough budget based on the number of districts or regions that will be participating in the campaign and the size of the target audiences. All social mobilization materials must be developed early in the planning process to allow time for pre-testing and printing (see social mobilization timeline in Resource R6-1 and example (in English and French) of a macro-plan from

Senegal in Resource R6-5 on the CD) and sent to the districts in a timely manner. A common weakness of campaigns is the late arrival of social mobilization and communication materials at the district, community or distribution site levels.

Micro-planning

Chapter 3 demonstrated that micro-planning is the process of planning and budgeting out detailed, specific needs at the district and community level. Communication micro-planning should be carried out in conjunction with the technical and logistics micro-planning. This is the time where the numbers of distribution points, volunteers, supervisors, t-shirts, radio spots, megaphones, markers and so on are determined for each district, and resources identified to cover the estimated budget. Requirements for training should also be included. The plan should include a distribution plan, specifying who the target recipients are and who will distribute the various materials. Early planning for transportation of materials to district level requires working alongside the logistics sub-committee.

See Resource R6-6 on the CD for an example of a communication micro-plan from Senegal (in English and French).

6.2 Advocacy

Advocacy at the international level

At the international level, advocacy is an important tool for raising awareness and funding for campaign activities. International organizations and partnerships work to ensure publicity for the campaign by generating press coverage, arranging appearances and interviews with influential individuals, and mobilizing groups and communities to advocate for and support campaigns. International partners work through a variety of channels, including press releases, media events and other publicity. Messages are tailored to reach specific groups to generate awareness.

Tchad. © MENTOR Initiative

Some points for consideration include:

- International advocacy plans should be discussed and agreed upon with the MoH early on for MOH buy-in, input and ultimately ownership. The advocacy plan should be included in the overall campaign communication plan.
- For integrated campaigns, it is more effective to focus initial approaches with the international media around efforts to improve overall child survival, rather than on individual interventions, such as malaria. The issue of child survival also helps satisfy donors' needs for focusing on the most vulnerable populations.
- Attaching campaign efforts to attainment of broader global development goals, such as the Millennium Development Goals or the RBM targets, will help develop interest in the activity.
- It is possible to engage private sector multinational companies in the campaign, particularly if there is a high-level event through which they can advertise themselves. While it can be quite difficult to raise funds from private companies, in-kind contributions (mobile telephone or radio and television airtime, for example) are easier for them to make as a general rule. Their goal will be to ensure their company's visibility during the campaign through branding on campaign materials or at a launch event.

While it is understood that certain partners need press coverage for their specific organization or campaign contribution, this should be done as part of an overall strategy to promote the agreed objectives and messages of the MoH and implementing partners for the campaign. Keep international partners and donors abreast of the planned activities by sharing copies of the communication plan. Partners can then better generate broader interest and commitment at the international level.

Often, international organizations will bring highly visible or well-known personalities (from government, sport, entertainment, faith-based organizations and other groups) to see how a campaign is implemented. The visits are used to convince these personalities of the importance and the impact of the campaign, and to gather photographs, stories and video for use in advocacy in the celebrity's home country for continued support for campaigns.

COUNTRY CASE STUDY

In Nigeria, as an example of how international advocacy helped to support campaign activities, NMCP succeeded in persuading some of its international partners to pay the consultancy fees of all the technical assistants and also fund the per diems and inter-state transportation costs of members of teams set up specially to support campaign planning and implementation in the states and Local Government Areas.

The campaign is the key activity and visitor delegations should not take away from the ongoing work of implementing the campaign. The MoH and in-country partners need to maintain focus on the activities at hand and should therefore set limits on how much can be asked of them in other areas. International partners need to be sensitive to the amount of work and planning required for implementation of campaigns of this magnitude. Visitors are important, but they also require work. As far as possible, visits should be included in the overall plan, or if none are originally expected, then they should be included within contingency plans. Certainly, a strategy and protocol for visits should be part of the original planning discussions with partners.

See Appendix 6A for a checklist for international and distinguished visitors.

Advocacy at the national level

It is important for countries to promote campaign activities and ensure that there is understanding and support for the campaign at the highest national levels.

Advocacy at the national level is often part of the work of a communication sub-committee, which reports regularly to the national coordinating committee. National advocacy objectives are to:

- ensure support for the campaign from the key "gatekeepers" in national and local government
- engage national and local media to assist with the promotion of the campaign and provide good-quality media coverage of the activities
- generally keep key decision-makers and opinion leaders informed and supportive of the campaign

Advocacy activities must be included from the outset in the communication budget to avoid a last minute search for funding for key events.

National level advocacy activities may include radio or television advertisements featuring key figures in the country (such as politicians, musicians or other cultural figures), official ceremonies to hand over the campaign supplies from partners to the government, and newspaper articles discussing the benefits of the campaign and progress with planning and implementation. Press conferences and the national launch, which can be organized once key visitors have arrived in the country, are important activities for publicity and high-level endorsement of the campaign.

Mass LLIN distribution campaigns are a unique opportunity to focus national attention on malaria and engage new private sector and other partners.

It is important for partners to coordinate outreach to the press, ensure cohesive and consistent messaging, and promote the MoH and partnerships above their own organizations.

Advocacy focused on political leadership should be considered. It is essential to plan early to engage the president, chiefs or political leadership of the country to attend the campaign launch. Early planning is also required to feature high-level officials, faith-based leaders, well-known music, entertainment or sports personalities or other key spokespeople at the launch and in radio and television spots.

At national level, some points for consideration in terms of advocacy include:

- Coordination with partners
  - Advocacy should focus on ensuring understanding of the purpose of the campaign (rather than just time and place) and what the campaign's impact will be on the health of children and the overall population in the country.
- Press and media relations
  - Put the MoH at the front and centre of all outreach to the press. Work closely with their communication division and protocol offices to ensure visibility and MoH-led decisions around all communication activities. Ensure MoH

COUNTRY CASE STUDY

In 2009, Senegal's National Malaria Control Programme invited music icon and media owner Youssou N'Dour to participate in planning for the national distribution of 2.2 million nets to children under the age of five years. Working with the local health partnership, Youssou rallied artists, entertainers and local businesses to produce a nationally broadcast launch concert, a malaria anthem, radio spots in four local languages and other campaign elements that were disseminated to community health workers and regional radio to promote the campaign. According to a national survey, 64 per cent of the population (7.8 million people) recalled one or more elements of the campaign after the distribution and half the country now associates Youssou with the malaria fight. Better still, the collaboration has continued beyond the bed net campaign, helping Senegal's malaria programme to engage religious leaders, local businesses and national youth in a sustainable manner.

staff are present during press conferences where possible.

- Ensure that spokespeople are in contact with one another and are passing similar messages. Preparing a document with talking points or frequently asked questions (FAQ) that contains agreed messages and statements is helpful to make sure that messages are consistent and effective for the audience and stakeholders.
- Regional journalist workshops can be very effective. Journalists can help promote use of nets in their articles and reports, as well as indicate effective ways to get further information about malaria (and other diseases, if the campaign is integrated).
- A launch event can be a good way to mark the beginning of the distribution and show the commitment from national and international leaders to the success of the campaign.
- Shortly before distribution and any launch event, there is an opportunity to spotlight the campaign when the LLINs first arrive for storage. A ceremonial handover of LLINs from partners to the government, involving key representatives, can be organized to draw attention to the upcoming distribution.

Kenya. © Maggie Hallahan /Sumitomo Chemical

- Plan for the possibility of negative rumours being published or spread, and have a shared strategy ready for roll-out to counter such rumours. Identify individuals who will perform as spokespeople in charge of positive and negative communication and solicit for partners' commitment to sponsor any necessary unplanned activity. See the section on crisis communication for more detail on how to deal with negative issues.

See Appendix 6B for some further information on relationship with the press and other media.

Local advocacy

Local advocacy ensures "buy-in" from local leaders at regional and district levels. The regional level, with its linking role between the district and national levels, has an important role to play to engage both levels to work together for the common objectives that have been set. In many cases, the district and region have important coordinating roles to play and can provide resources in terms of vehicles and storage. However, advocacy at the regional level needs to focus on campaign priorities, while taking into consideration the districts' and regions' other equally pressing priorities. When all priorities are not included, time and resources may be lost or wasted.

COUNTRY CASE STUDY

For example, in Mozambique in 2005, a great deal of energy was expended at the national level, trying to involve key departments and individuals for campaign planning. However, the national level was occupied with a nationwide vaccination campaign, and the LLIN distribution was sub-national. The planning team later recognized that the district and provincial health authorities of the two targeted provinces were already engaged in the campaign planning process.

The Mozambique experience demonstrated that engaging leaders at the district level, where the campaign was to be implemented, was much more important to the success of the campaign than attempting to organize coordination meetings at national level.

COUNTRY CASE STUDY

In Mali, the communication sub-committee identified various target groups to be involved in informing and motivating the population, including the media, religious leaders, community leaders, traditional communicators, non-government organizations (NGOs) and parents (see Resources R6-3 and R6-4 on the CD). Training and messaging focused on each of these groups specifically and what they could do to improve participation in the campaign at the community level.

This type of training and messaging allows the target audience to identify the actions that can be taken to improve understanding of the intervention and promote attendance at vaccination and distribution sites.

The MoH is normally in charge of informing district managers of both the campaign and role of health centres. At the lower levels, advocacy helps ensure that every health management team, whether at a health post, health centre, district or regional facility, is informed about the campaign, is ready to support activities, and has the tools needed from the national and regional levels to manage the process effectively.

6.3 Training for social mobilization

Training is a key component of the communication plan. Volunteers and others such as media people, community and religious leaders, health agents and community health workers involved in campaign communication need to be familiar with key messages and to have the skills to carry out their duties effectively. They must disseminate the approved messages and communicate effectively with beneficiaries. The communication plan requires a clear statement detailing which segments of society are to be mobilized and how, in order to refine the training for agents of communication and social mobilization accordingly. In most cases, community health workers and community volunteers will be those trained to mobilize communities or to encourage the campaign's intended target beneficiaries to obtain their nets. However, representatives from the media, community and religious leaders and health agents can all participate in training in order to widen the outreach.

Good training and training materials are vital to good social mobilization and for the campaign success overall. Make sure all volunteers have the correct information and can disseminate it by the time they finish the training. Volunteer aids or checklists will help to ensure that clear and consistent messages are passed to community members.

In general, training for all individuals involved in social mobilization should be carefully planned. A training plan should include detailed information on:

- development of an understanding of campaign objectives
- provision of skills to provide basic information to beneficiaries on prevention of malaria, use of LLINs, and so on
- timeline of campaign activities, including pre-registration communication, registration, distribution and post-campaign visits, where necessary
- knowledge and directions to the closest campaign site, what is available at that site, and start and end times for the distribution each day

- identification of community-level barriers to LLINs and their use and how to discuss any misconceptions or myths with the population
- understanding of the process of behaviour change; that it is more than just delivering information
- expected roles and responsibilities in the campaign and development of action plans, including identification of the communities in which they will be conducting visits and arrangements for supervision
- identification of areas that are hard to reach, strategies to gain access, and ways in which activities will be monitored and supervised
- list of frequently asked questions (FAQs) and replies

Communities may face different barriers to attending the campaign, ranging from geographical (limited access to health facilities), to information (lack of knowledge regarding the location of mobile posts), to misinformation (rumours and stories convincing people that interventions are inappropriate or must be paid for). The role of community volunteers and community leaders is to overcome these barriers, and is critical to the success of the campaign. Community leaders and volunteers, as well as community-based organizations, should be encouraged to assist in conducting social mobilization. In areas where there are ongoing community health programmes, messages about the campaign can be integrated with those already being disseminated. For instance, in Zambia and other countries, volunteers of Red Cross Red Crescent National Societies and members of various faith-based groups who were already conducting community activities were selected as volunteers for the LLIN distributions, and given additional training specific to the LLIN distribution to mobilize the community.

The communication sub-committee, with support from the technical sub-committee, should develop training tools, including guides, volunteer and supervisor supports and checklists,

Social mobilization for campaigns can be carried out via a variety of channels. The objectives of social mobilization efforts should be clearly identified in advance and agreed upon by all partners/ stakeholders (including community representatives).

to make sure that all social mobilization activities have taken place and reached the most vulnerable populations. Job aids containing the key messages about the campaign will help volunteers to provide consistent and clear information to beneficiaries.

See CD Resources, R6-7, R6-8 R6-9 and R6-10 for examples of training guides, volunteer supports and checklists.

Social mobilization and BCC

For net distribution campaigns, social mobilization means mobilizing communities to participate fully in all campaign and post-campaign activities. Behaviour change communication conveys key messages that support the desired behaviours of collecting and hanging up the net and sleeping under it every night. Social mobilization and BCC are similar and overlapping. For our purposes, however, in this toolkit, we will think of social mobilization as "IEC" (Information, education and communication) to inform communities about campaign logistics and BCC for promoting and solidifying good net use practices.

Social mobilization is a critical activity for ensuring that communities and caregivers are made aware of the campaign (dates, venues, targets and how to proceed), as well as understanding the health benefits and their responsibility to travel to campaign sites to receive interventions.

The goal of communication is to mobilize relevant sectors of society from the national level to the community level to participate actively

in campaign preparation and implementation. Communication serves to inform and motivate families to take full advantage of interventions during and after the campaign.

Communication channels may need to vary from community to community, but the underlying messages should all be consistent and direct.

BCC aims to foster positive behaviour change (such as consistent and correct use of LLINs) through increasing knowledge, encouraging dialogue and promoting services. BCC is especially important in the case of LLINs because, once nets are distributed, impact will be low unless caregivers exercise proper behaviours concerning net usage for the most vulnerable groups. This includes hanging and sleeping under LLINs every night, caring for and repairing nets. BCC also helps to achieve the goal of 80 per cent use of nets by the target groups, which dramatically reduces malaria cases. If nets are used community-wide, transmission can be decreased and the community as a whole protected better[b].

It is important to ensure that community leaders are actively involved right from the planning stages through to the implementation of the campaign. Community ownership and engagement are vital to ensure nets are hung, slept under and maintained following the distribution. Working with community leaders to make sure that they understand the campaign interventions and the resulting health impacts will help the wider community learn about, and engage in, the activities. Figure 1 gives a brief outline of social mobilization (IEC- and BCC) activities at various stages of the campaign.

Figure 1: IEC and BCC activities

Stage of campaign	IEC/social mobilization	BCC
Pre-campaign	Information to target population via mass media, community and religious leaders, community volunteers, health workers on: • household visits, what they entail and why they are needed • dates and venues of the mass distribution • goals of the campaign • target population for the campaign • any other interventions included	
During campaign: registration	Interpersonal information to households on: • dates and venues for each particular household • interventions included • what to bring to the distribution site	• general malaria messages • net use and care and repair messages • other child health messages
During campaign: distribution	• reminders • motivation to participate	• net hanging demonstrations and interpersonal communication (IPC) at site • net care and repair messages
Post-campaign		• mass media and IPC on net use and hanging • door-to-door hang-up visits • net use and care and repair messages • motivation to hang and use nets • respond to general malaria questions • promote awareness of treatment-seeking in case of fever

General guidelines for effective messaging

- **Use existing research:** In many countries, research has been conducted on factors influencing net use and access of the population to various communication channels like radio and television. This research can be used to design the key messages and communication strategy. Small surveys, large surveys and focus group discussions can all inform the communication strategy and help to ensure that messages are effective.
- **Keep messages simple:** Messages should be clear, simple and easy to understand, action-oriented, feasible and relevant, and sensitive to cultural, political and religious beliefs and practices.
- **Use local language(s):** Use the language(s) that will be understood by the majority of people in a particular area, taking into account radio (where beneficiaries only need to understand the language as it is spoken) and print materials, which require literacy in a language. Strive to use the minimum number of languages needed, otherwise printing and translation costs can balloon.
- **Create a consistent "brand strategy" for the campaign:** Materials should have consistent colour scheme, logo and slogans. The same typefaces should be used on printed materials, and the same voices in radio and television spots.
- **Use multiple channels:** Research shows that disseminating messages through multiple channels is more effective and reaches more people.
- **Adapt key messages to local context:** Key messages should be developed with involvement from the community, so that they are adapted to the local context. Where and when possible, use trusted local celebrities and spokespeople to participate in dissemination of messages for campaigns (on posters, radio, television). Respected leaders can be very effective in reaching large populations. Often countries have a very good idea of what has worked or not worked in the past and communication plans can be developed based on lessons learned both in-country and internationally. However, communication must be context specific: what works in one country, one part of a country, or one community may not work (or may need to be adapted in order to work) in another. Understanding specific barriers to uptake and utilization of nets will allow messages to be tailored to maximize participation in the campaign and post-campaign hang up activities.

Niger. © John Haskew, IFRC

The radio: national and community radio are both very effective communication channels. Radio messages should be translated into two or three of the most spoken languages in a country. Avoid translating messages into all languages, bearing in mind that the time and financial expenditure is large for limited results.

- **Pre-test all materials:** It is very important to pre-test all messages and supports before reproduction and dissemination. Pre-testing ensures that messages and images used are culturally appropriate and understandable, that they will reach the target populations and will have an effect in terms of increased awareness and willingness to participate.

See Appendix 6C for pre-testing guidelines and how to conduct focus group discussions.

6.4 Pre-campaign communication

Pre-campaign communication serves to sensitize the target community prior to the campaign and to start engaging the stakeholders by highlighting their respective roles. Messages are designed to inform the population about the beneficiaries of the campaign, why this group is being targeted, where and when the campaign will take place, how household registration will take place and which services will be provided.

In the pre-campaign period, it is important to ensure that targeted messages about the importance of the campaign reach the most at-risk populations. For integrated campaigns, messages should be disseminated to encourage at-risk families to bring their children and receive all campaign interventions. For universal coverage distributions that are not integrated with other interventions, community sensitization is important early on, during the phase of beneficiary identification. Volunteers will succeed in gaining access more readily and will collect more accurate information where communities have been sensitized about the activity and are forewarned that households will be receiving a visit to collect data for the MoH, after which they will be able to obtain LLINs.

Hard-to-reach populations should be identified and addressed specifically. Groups that are not geographically remote but are hard to reach in other ways (orphans or vulnerable children, the elderly, nomadic or transient populations, for example) should be taken into account when the communication plan is developed.

Pre-campaign messaging should begin, through mass communication channels, at least four to six weeks before the start of the campaign activity. Interpersonal communication should begin one or two weeks before the campaign, targeting highly vulnerable and at-risk populations.

Messages should include:

- information about which services are being provided, the diseases that will be prevented, the dates and places of the campaign, any associated costs or rewards and the importance of the voucher or coupon (if used). Where campaign interventions are free, this should be emphasized in the messages to ensure the population is informed and to minimize the risk of site personnel charging money for nets
- the benefits of participating and what people have to do to participate
- who is included in the target population and why. Stressing the importance of protecting children under five years of age may help the population understand that resources are limited and the campaign can only cover those most at risk
- who is permitted to pick up the net at the distribution site and how many nets they should expect to receive

Channels of communication might include:

- markets, religious gatherings, sporting events and other community activities which offer situations where large groups of people can be sensitized with key messages at the same time
- local radio, where timing of radio messages should coincide with popular programmes to increase the reach of messages
- local or community radio and interpersonal communication such as town criers, particularly for populations where the literacy rate is low

- print materials, but use pictures, diagrams and symbols to ensure understanding by those who have difficulty with reading

COUNTRY CASE STUDY

In Nigeria, traditional town criers had demonstrated ability to communicate simple information to community members. This is the kind of resource that can be used effectively.

It is important to decide on those activities that are more effective for passing messages. These might include household visits, community animation sessions and peer education sessions. Large-scale events may be of interest to donors in terms of visibility, but may not be so successful in terms of reaching target audiences.

6.5 Communication during the campaign period

During the campaign period, it is important to continue to reach communities with social mobilization messages. If the campaign is divided into registration phase and distribution phase, then specific communication is required for each.

Many campaigns use door-to-door visits in order to register beneficiaries for the campaign, by giving out a voucher, coupon or other means of identification, such as a wristband, that can be redeemed for nets during the distribution phase. These door-to-door visits provide a unique opportunity to emphasize campaign messages and explain what is expected of the beneficiaries.

The volunteers registering the households should have a job aid containing the key messages they need to impart to the household. Training of volunteers should include practice with the job aid, to ensure volunteers understand and can communicate the key messages, including:

- date and location of their distribution site
- who should come to the distribution site, either to pick up the nets and/or receive services (if the campaign is integrated)
- what they need to bring with them (the voucher, coupon or wristband, or children under five if the campaign is integrated)
- the importance of using the net every night, and of mending it if it gets torn

Posters, banners, net demonstrations and other visual supports that identify the campaign site and provide information on interventions should be in place prior to the distribution and remain in place during the distribution period.

During the distribution campaign, interpersonal communication should continue, specifically focused on households who face barriers, such as cultural, religious or geographical obstacles, to participation in the campaign. These households should be identified during registration and then followed up during the distribution period to ensure that they have participated. It is effective to go directly to houses where barriers exist to discuss the importance of campaign interventions with householders.

Information for householders leaving the campaign site should include points on airing the nets in the shade for 24 hours after removal from packaging, hanging LLINs correctly over the sleeping area, who should sleep under the net and the need to sleep under it all year round, regardless of mosquito density. Additional messages can focus on the importance of routine health services, including vaccination and supplementation schedules for children, early treatment-seeking in the case of fever and antenatal care for pregnant women.

The site should have a net hanging to demonstrate how it should be correctly hung. Any demonstration should be appropriate to the local context. For example, if families commonly sleep on mats, the demonstration should include a net hanging over a mat. Where families sleep outside, the demonstration should indicate to

people how the net can be hung using commonly available materials.

Much depends on the setup of the distribution site. If the site is disorganized or understaffed, it will be extremely difficult to communicate any messages to beneficiaries. A well-planned, orderly, well-staffed distribution site will enable volunteers and health workers to deliver key campaign messages to the beneficiaries more effectively as they receive their nets. See Chapter 7, Implementation, for more on how to set up distribution sites.

Crisis communication

Despite best efforts, issues can arise during a campaign that may threaten its success. Rumours that the nets are dangerous, or that net distribution is a political tool, may start. For example, in the Democratic Republic of Congo, Population Services International (PSI) encountered serious politically motivated rumours alleging toxicity and death from LLINs. Other issues like net theft, sale of vouchers or nets, and other forms of mild corruption that impact the reach and success of the campaign may need to be addressed. One potential issue is that of genuine discomfort to beneficiaries.

Key tips for communication in a crisis are to:

- Conduct urgent briefings of key community leaders and people of influence, such as traditional chiefs, religious leaders, local government leaders, local parliamentarians, leaders of women's groups, traditional communicators, the police, the army and others. In principle, briefings should have happened at the start of the campaign to allow community leaders to oversee the implementation of the campaign and be alert for problems that arise. If engagement of community leaders was insufficient to prevent or address negative rumours, working with them to address problems will be vital. Inform them of the rumours and educate them on the truth. Solicit their questions and ensure they know who to call if there are new rumours or problems that cannot be addressed at the community level.
- As quickly as possible, develop and broadcast radio and/or television spots that address the key rumours. Use humour to make them memorable. If the issues are politically sensitive, ensure a high-level government person vets the spot. If there is a campaign ambassador or publicly recognized figure who is willing to assist with addressing rumours among the population, this can also help to ensure messages are widely heard and believed by the local population.
- If the crisis is primarily political, with different groups claiming the credit, it will be necessary

COUNTRY CASE STUDY

During the hang-up campaign in Ghana, a woman with four children living, sleeping and cooking in one room found that after the net was hung up, it filled the room. She decided to take it off during the day and hang it back later but volunteers insisted that she had to keep the net hanging all the time. The presence of a monitoring team was timely to avert a difficult situation. There was also a requirement to give additional volunteer training in order to deal with rumours arising from situations like this.

In Liberia, a situation arose where beneficiaries, and even some volunteers, thought the nets came from a political party. Volunteers had to receive additional training to deliver messages during household visits that the campaign had nothing to do with any political party.

In Ghana, after a hang-up campaign, two volunteers were beaten up by some members of one community. The aggrieved community members thought they were denied nets because they belonged to other political parties. An investigation found that the people were absent from the community at registration time, and so were not included in the distribution.

to assess any impact on the desired outcome and whether or not you should do anything.

- If resources allow, create a toll-free hotline and staff it with people who have a "cue sheet" of frequently asked questions (FAQs) and standard responses. With the wide use of mobile phones, this is a good way to get a sense of what is going on. Publish the toll-free numbers at the distribution sites, on television and radio. The hotline staff should receive training and should systematically record which town or neighbourhood the calls are coming from, the issue, the response given (responses can be from a standard list) and, if the caller agrees, a telephone number for follow-up. Review the log daily to get a sense of the concerns and where they are taking place and take specific interpersonal action as needed. PSI initially established their hotline to encourage reports of theft or mismanagement of the distribution process, but it proved to be particularly valuable during the toxicity crisis.
- If toxicity of nets, and potential non-use, is an issue, establish a crisis group. This should include authorities from the NMCP and other Ministry of Health departments, together with representatives from net suppliers, at the very least. A senior representative from the MOH should also be present or at least briefed daily. Key institutional members of RBM, notably WHO and UNICEF, as well as campaign partners, should also be involved. Staff of the Expanded Programme on Immunization (EPI) who have managed vaccination campaigns in the past are most likely to have handled rumours arising within the cultural context, so if possible, take advantage of their experience.

6.6 Post-campaign communication

Post-campaign communication is crucial to encourage and sustain net use, and must be built into the planning process and given adequate resources. Campaigns involving LLINs require a significant BCC component to ensure that

Post-campaign visits provide an opportunity to follow up any members of the target population who missed the campaign, and deliver information on the importance of routine health services. Promotion of routine services is crucial to sustaining gains achieved during a campaign.

people do hang and use the nets that they have received, and that these nets are used by the target groups. Interpersonal communication is often the most effective method to promote change in behaviour. Messages can be reinforced by mass media, community events and visits by community volunteers and/or health clinic staff.

Ongoing post-campaign communication

For three to four months following the distribution, especially if distribution falls at the beginning of a rainy season, it is advisable to conduct an ongoing media campaign to promote continuous use of the nets. Periodic radio and TV spots will reinforce messages. Where resources are available, consider producing a series of spots that will build on each other or tell a story to engage audiences, while delivering the key messages from the communication plan.

Ongoing communication at the community level is also important. Health workers should be encouraged to remind patients about net use when they come for consultation, and to conduct health talks that include net use messages. Where there are civil society organizations with existing community health activities, messages about net use and care and repair can be integrated with those activities, following additional training.

"Hang-up"

Hang-up campaigns are a time-limited activity comprising door-to-door visits and interpersonal communication by community volunteers to assist households with physically hanging up the

Kenya. © Maggie Hallahan /Sumitomo Chemical

nets they received during the campaign and encouraging net use, care and repair. Many countries implement hang up campaigns within the first five to seven days following distribution, but hang-up can also take place during targeted periods (such as the start of the rainy season) to increase utilization rates. Hang-up activities can also involve community mobilization meetings with leaders and beneficiaries. These activities, based on interpersonal communication, also offer a good opportunity to inform pregnant women and families with children less than 12 months of age about routine immunization, early treatment-seeking in case of fever, antenatal care, vitamin A supplementation, availability of nets, intermittent preventive treatment (IPT) during pregnancy and other health services.

Keys to good hang-up:

- Appropriate planning for hang-up is crucial. The number of volunteers must be sufficient to reach the targeted households and the supervisor to volunteer ratio must be calculated to ensure that all volunteers can be visited over the course of the activity. Community mapping during the pre-campaign period can assist with calculations of needs.
- Time household visits for when people will be at home. This will vary in urban and rural areas, and according to the season of the year. Maximize the impact of the visits by making them when the whole family is likely to be home and available for a discussion.
- Strong training is essential. Allocate enough time and resources to the training to ensure that volunteers are fully knowledgeable about the key messages they are to deliver, the monitoring forms they are to fill out, and the difficult situations they may encounter. Ensure that practical exercises and role plays are included in the training agenda. If possible, visit households with volunteers and observe them actually talking to households and filling in the form. Corrective action can be undertaken during the training to ensure success in rolling out the actual activity.
- Some households need extra help to get the net hanging, while others will benefit more from the interpersonal communication with the hang-up volunteer. So that volunteers can

COUNTRY CASE STUDY

In Togo[c] and Sierra Leone[d], post-campaign coverage and utilization surveys showed a significant difference between net-hanging rates in houses that had received a visit from a community volunteer versus houses that had not received a visit. Anecdotal evidence from Equatorial Guinea indicates that householders generally did not install nets without the assistance of community volunteers. Preliminary results of a hang-up campaign carried out in Grand Bassa County in Liberia showed that there may well be a highly significant increase in net use, and in Ghana, anecdotal evidence showed that the one-on-one communication at the household level between volunteers and community members has helped to increase knowledge significantly.

assist households with physical hanging of the net, include resources such as hammers, nails and string or rope. Estimates for the amount of rope and number of nails needed should be made at the planning stage and included in the budget, and should take into consideration whether distribution has been door-to-door or via a distribution site. Estimates will also need to make some assumptions about the proportion of beneficiaries who will need individual help to hang nets.

- Independent monitoring of activities is recommended to ensure quality of household visits and that all households are covered.

A comprehensive training manual for hang-up is included as Resource R6-11 on the CD.

Net care and repair

As part of post-campaign communication, it is important to emphasize that nets will require a certain level of care and will need repairing if they get torn. While studies[e] show that the insecticide remains effective for at least three years, the physical condition of the net is a key factor in how long a net can be useful. Daily use, washing, smoke or embers from cooking fires and rats all cause holes and tears. It is important to remind households to:

- wash the net as little as possible (no more than five times a year)
- use only mild soap for washing
- hang the net to dry in the shade
- avoid rough handling of the net, to keep it from tearing
- repair small holes as soon as they appear with needle and thread
- tie the net up during the day

Nets provide better protection for longer with good care and repair.

6.7 Producing materials

Developing a creative brief

A creative brief is an outline of written or published material's purpose, main content points and key features. Its main purpose is to serve as a set of instructions for the creative agency or artist who will produce the material. A creative brief is both a process and a product. The process is a step-by-step approach to deciding what the message will be. The product is a short document (two to four pages) that captures these decisions. The creative brief serves as a:

- **blueprint:** like an architectural drawing, the creative brief illustrates the building to be constructed; it outlines your communication objectives, the type of material needed, the tone and necessary visual or audio elements, and builds on the information and research that you collect during the planning process

- **buy-in:** the creative brief is a good way to get decision-makers to focus on the key elements of the message to be developed; it can be used as a starting point for discussion to get agreement on the approach, the timing of all the production steps, and the budget

See Appendix 6D for further information on the creative brief.

A creative brief must be able to be modified, depending on results of any pre-testing. Even if materials are being adapted from another source, a creative brief is helpful to detail the adaptations and to ensure that communication objectives are achieved.

A creative brief template for a radio spot is included below.

Prepare an additional page which summarizes the results of any research you have gathered or reviewed. Since most creative agencies or artists are not experts on the health topic and context, this will help them focus and understand the situation.

Contracts with creative agencies and artists

A strong contract will prevent money from being wasted and protect both you and the agency from problems. The contract should clearly lay out responsibilities and the expected deliverables, timeline and the ownership rights to the materials that are produced. It should also specify that the agency's work is finished only when final approval has been given, as part of the payment plan, so that the agency cannot continue to charge for each change made after pre-testing, for example. See the Resources CD R6-12 for a sample contract.

To be effective, radio spots must say the right thing, in the right way, to the right people, at the right time, via the right channel, with sufficient frequency for a sufficient period of time, whether adapted or developed from zero. This means they should be developed for a specific audience. They need to communicate a clear objective—a practical, clear course of action, that your target audience is capable of doing. And they should promote one benefit that persuades your target audience to do what the spots are asking.[f]

Radio and television spots

In most countries, radio reaches a much larger percentage of the population than television, and is a more cost-effective method of disseminating information to the general population.

For integrated and stand-alone campaigns, key messages should be developed and pre-tested at the national level by members of the communication sub-committee. Materials, once pre-tested and approved, should then be translated into selected major local languages (where appropriate and

Creative brief template for a radio spot

1. **Target audiences:** Who do you want to reach with your radio spot? Be specific.
2. **Objectives:** What do you want your target audiences to do after they hear this radio spot?
3. **Obstacles:** Which beliefs, cultural practices, social pressure or misinformation are barriers to your audience doing that action?
4. **Benefit:** Select one single benefit that the audience will experience upon doing the action, from the audience's point of view.
5. **Support statements/reasons why:** Include the reasons the benefit outweighs the obstacles and why what you are promoting is beneficial. These statements often become the messages.
6. **Tone:** What feeling or personality should your communication have? Should it be authoritative, light and humorous, emotional …?
7. **Opportunities:** Which times, seasons or events increase the likelihood of reaching your audience? In which other ways might the spot be used?
8. **Creative considerations:** What should the writers and producers keep in mind during development? Which format is best for the selected radio stations and preferred by the target audiences: announced or produced, monologue, dialogue, testimonial, informational? Will the spot be in more than one language? Who are the characters? Which words, phrases or jingles should be used?

budget permitting) and sent to the regions and districts for dissemination.

Whether on radio or television, the need for messages to recognize cultural and religious differences is very important. In most African countries, there is a diversity of languages. Translation of messages at the national level should consider this situation to ensure acceptability of the final product. Pre-testing at the sub-national level among the target audience is vital. The wrong accent or terminology in the voice-over can make a message lose its target audience. This becomes even more critical with television spots, where visuals are a key component of the message being delivered. Ages and genders of the characters should promote the believability and weight of the message.

District and community radio can target specific cultural and language groups, as well as groups with access barriers related to beliefs or misunderstandings about the interventions. Dissemination of messages in local languages ensures that the communication will reach even those who do not speak the official languages of the country. It is important to reach groups that may otherwise lack information about the campaign and its value.

In some countries, the national level will produce radio spots in the national and major languages, and regional, district and community radio stations will translate them to local languages either free of charge or for a limited fee.

See resource R6-13 for the Spot-On Malaria: Guide to adapting, developing and producing effective radio spots.

Posters, flyers, stickers, t-shirts and other visuals

Posters and banners are useful for identifying campaign distribution sites, especially in non-clinic sites in urban or very rural areas. They should match the overall look of the other campaign materials, and clearly show the campaign logo (if there is one), key messages and partner logos. As with television and radio spots, persons featured on the print materials should be respected and culturally appropriate. Pre-testing will help to resolve any issues in terms of images used.

By themselves, posters are not very effective at changing behaviours, but when used as part of a comprehensive communication plan, posters, stickers and t-shirts can reinforce interpersonal and mass media messaging.

Flyers are sometimes included at the distribution point so that beneficiaries can refer to them when they are at home. If used, these should be easy to understand by non-literate audiences, for example, through the use of images instead of text. When developing the communication budget, ensure that community and district radio and interpersonal communication are fully funded before spending money on flyers, since in many countries a significant proportion of the population may be non- or semi-literate.

T-shirts or aprons printed with the campaign logo can identify campaign staff and volunteers and, being instantly recognized, may help them

Sierra Leone. © United Methodist Church

gain ready access to households. Aprons or bibs may be the most practical. The Red Cross Red Crescent has found that personnel who received t-shirts to wear during distribution and hang-up did not wear them daily as they needed to wash the t-shirt during the activity, whereas aprons or bibs which go over clothes can be used for multiple days in a row.

Songs and drama

Songs and drama can be an effective way to deliver messages about the campaign and its benefits.

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The 2007 Mali campaign, the 2009 Kano State campaign in Nigeria, and the 2009 Senegal campaign all broadcast songs throughout the target regions to raise awareness about their respective campaigns, and to engage audiences. In each case, local artists were approached and donated their time, and songs were created using key messages from the campaign communication plan. In Mali and in Senegal, multiple famous artists sang together, so that portions of the campaign song could reflect different linguistic and cultural backgrounds, and to show the whole country they were united against malaria.

Drama can be very effective, although on a smaller scale, particularly in schools and at social gatherings. Local volunteers, familiar with their audience, can put across simple messages via a brief play performed to the community.

Community and/or interpersonal communication

Community health workers or volunteers who are familiar with the population and the context are able to tailor messages to include community-specific barriers that may affect attendance during mass LLIN distribution activities. Community health workers and volunteers, given their knowledge of their area, are also best placed to be able to follow up households who have not participated in the campaign and discuss with parents and caregivers the importance of health interventions. Facility-based health workers are also effective agents for communication where they are respected by community members and considered a reliable source of information.

At the community level, some of the most effective and influential means of communicating messages (in addition to face-to-face contact) include drama, songs, stories, football matches and street announcements by volunteers, town criers and schoolchildren. Another option for reaching the community is school-based communication from teachers or MoH personnel. Children will talk with their families at home about what they have learned at school, reinforcing messages heard from other channels.

6.8 Monitoring and evaluating communication activities

Chapter 8 contains more detailed information on overall monitoring and evaluation (M&E). Supervisor checklists should include communication activities, in order to ensure that pre-, during and post-campaign IEC/BCC are taking place as planned and with the correct messaging. Communication M&E should fit within the larger M&E plan for the campaign, developed by the technical sub-committee or a separate M&E sub-committee. It is however important for the communication sub-committee to provide input to the plan, to make sure that communication activities are captured in supervision, monitoring and evaluation activities and tools.

Monitoring

Monitoring communication activities during the campaign is crucial as some volunteers, in spite of intensive training, may be disseminating inaccurate information that could endanger the campaign. Monitoring during campaigns must be timely in order to correct potential negative rumours.

Uganda. © MENTOR Initiative

Communication elements and indicators should be included in all of the monitoring and supervision tools for the campaign (before, during and after). Pre-campaign and during campaign checklists for supervisors to assess planning and implementation status should include elements related to communication.

The first step is to determine objectives for day-to-day monitoring of activities and operations. These objectives should measure whether activities are on track, how close they are to meeting the projected timeline and budget, and whether staff members understand and perform their roles correctly. This type of information should be collected and reviewed regularly to make programme adjustments and to ensure that the incoming data is reliable, complete and timely.

Key questions to ask when conducting monitoring for communication activities include:

- Were the planned activities completed, including timely arrival of communication materials at the furthest campaign sites?
- Were the BCC activities on-message?
- Did messages reach the majority of the population?
- Did the target population attend the campaign and receive the interventions?
- Among the people who attended the campaign, are the LLINs that were distributed hanging in households?

The effectiveness of communication can be monitored before the campaign, by interviewing potential beneficiaries regarding the upcoming activity and the importance of their attendance. For example, questionnaires and short interviews can be conducted to determine the understanding of services being provided during campaigns. In addition, exit interviews can be conducted with beneficiaries as they leave distribution posts to determine the source of information for their participation, as well as the key messages that they have retained about malaria prevention and LLIN use.

Indicators for each country will depend upon specific communication approaches utilized by partners in that country. Therefore, process

and output indicators can vary from country to country to reflect the specific communication plan. As a rule of thumb, each activity should have a way of being monitored and/or evaluated.

Evaluation

Evaluation, as opposed to monitoring, takes place once a campaign has been completed. Nonetheless, it is important to plan for the evaluation well in advance. As with monitoring, the communication sub-committee needs to ensure that appropriate questions are added into evaluation tools, to enable the communication activities to be measured in terms of impact and effectiveness.

In a **process evaluation**, no survey is done, or only very rough surveys are conducted to get a sense of results. Monitoring data and supervision reports play a large role in a process evaluation report, as can the minutes or results from review meetings at local level following the campaign.

If a **post-campaign household survey** is being planned, it is important to work with the technical or M&E sub-committee to include in the questionnaire appropriate questions about the communication activities and their impact. If the country is using an upcoming malaria indicator survey (MIS), demographic and health survey (DHS) or multiple indicator cluster survey (MICS)[g] to evaluate the impact of the campaign, it may be difficult to add a large number of questions on communication, as the questionnaires are already quite long. A post-campaign household survey should ideally measure the following:

- Exposure to campaign messages, to determine which channels were successful at reaching the population, as well as to measure which messages were retained by the population. Note that it may be difficult for people to recall messages accurately that they heard more than two months in the past.
- Whether households received a hang-up visit, if hang-up was included in the strategy.
- Additional questions regarding net care and repair, reasons for not wanting to use nets, recall of the campaign slogan, knowledge of malaria and malaria prevention, and levels of perceived threat of malaria and perceived self-efficacy can be helpful to include in order to refine the post-campaign communication strategy.

By measuring exposure to messages and to the various channels used, it may be possible to determine which messages and/or channels were most effective at encouraging or changing behaviours. The answers to these questions will inform not only the communication strategy after the campaign, but will also help the planning for communication in future campaigns. Evaluation of effectiveness of communication activities should be included in the final report, so that others implementing integrated or stand-alone campaigns may be made aware of what worked and what did not, especially for particular countries, communities or minority groups. The results of the evaluation of the communication activities can also be used to guide future proposal development by providing data on what has worked and associated costs.

For sample questions to include on a post-campaign survey, please see Chapter 8, Monitoring and evaluation and Net Use M&E Guide (Resource R6-14 on the CD).

6.9 Key communication recommendations

Campaigns implemented to date have led to clear lessons learned. Often communication activities are undervalued by countries and by donors, leading to underfunding and insufficient planning and evaluation. Recommendations for communication activities include:

- A rational, costed communication plan should be developed sufficiently early to allow for prioritization of key activities. Key partners, organizations and private sector companies that are able to contribute to mobilizing the community by producing and disseminating messages via print, radio or television or able

to take other measures to ensure participation and ownership should be engaged in the planning.

- The communication plan should contain harmonized key messages for each stage of the campaign: pre, during and post, to ensure beneficiaries are reached with appropriate and prioritized messages.
- The basic campaign message and key materials should be pre-tested prior to production and dissemination. What has worked in the past may not be appropriate in the new situation.
- For integrated campaigns, the number of interventions increases the number of key messages that need to be coordinated and harmonized. Care should be taken not to overwhelm the target audience with too many messages. Focus should be on key benefits and actions they need to take.
- Communication activities, including IPC messaging and mass media dissemination, should have a clear planning calendar and should be included on all supervision checklists and monitoring forms. Activities should be monitored pre-, during and post-campaign to assess effectiveness and to ensure remedial action if necessary.
- Communication activities must be included in the evaluation of the campaign to provide an assessment of their effectiveness, both in terms of reach and reception of messages, and in terms of their cost-effectiveness. Funds should be invested appropriately to ensure maximum reach.
- Communication activities should be included in final campaign reports to use as a future advocacy tool. A brief review of the relative cost and effectiveness of the materials should be included.

Appendix 6A: Distinguished visitors

Helpful points for both international and national partners to plan for visitors include:

- Plan early (at least four to six weeks ahead of launch) and set deadlines for announcements of arrivals to facilitate protocol issues (such as visa, use of VIP rooms and other services at airport), as well as planning various meetings and activities. Note that special permits may be required for visitors to travel to conflict areas or refugee/displaced person camps.
- Plan for the launch to be a few days before the start of the campaign to allow for this event to be:
  - used as a social mobilization activity
  - picked up by the media to help in publicity
  - attended by high-level donors and visitors
- Ensure that each organization bringing visitors is "attached" to an in-country host organization.
- A central planning person or a small group of individuals representing organizations with visitors coming to a country should draft itineraries for all arriving groups. Working together will ensure no overlap on field trips planned to avoid overcrowding at sites.
- International partners should be asked whether their preference is to go to the field (and if so, for how long and how far) or if they prefer to stay around the capital city. There may be security issues or it may be necessary to seek official clearances. Planning should be done accordingly.
- For site visits, ensure that the MoH provides a list of appropriate sites and that the site supervisor has been informed of the arrival of visitors.
- Visitors should receive a briefing from campaign planners or the public relations focal point that explains the scale of the campaign, what they are going to see, how the campaign was planned and its importance for the health of the beneficiaries. Include a safety briefing at the same time. If the briefing is before the campaign begins, put together a rolling slideshow of photographs showing the steps that have been taken and the various activities that are complete. In addition, visitors should receive briefing documents, including safety advice, key contact numbers, restaurant options and a list of "places to visit" during their free time.
- Ensure that each visitor has written basic and essential information about the host country.
- If possible, a reception can be planned for international partners and donors, and hosted by the MoH and in-country partners.
- Often organizations will wish to arrange "high-level" protocol visits for their most important visitors. If possible, organizations should arrange together to meet with key individuals, such as the health minister or the president of the country, to minimize the number of requests for visits.
- When organizing vehicle rentals, make sure that there are functioning safety belts and that the car and driver are insured. Make sure to include first aid kits in the car, water/food supply for any emergency and appropriate communication mechanisms if there are security concerns.
- Organize a time for visitors, media and technical observers to debrief about their visit and what they have seen, and allow them to discuss their visit. If this proves difficult given arrival and departure dates and times, assign a focal point in-country to be responsible for collecting and collating written comments into a brief report.

Appendix 6B: Press and media relations

- Obtain a letter from the country president or prime minister and send it to major media outlets four to six months before the campaign. Journalists will usually be interested in visiting the campaign on a presidential invitation.
- Send broadcast media footage (such as film) to partners (national and international) ahead of time for production of mass media materials.
- Plan for the possibility of negative rumours being published or spread, and have a shared strategy ready for roll-out to counter such rumours. Identify individuals who will perform as spokespeople in charge of positive and negative communication and solicit for partners' commitment to support the activity. See the information on crisis communication in 6.5.
- Ensure that spokespeople are in contact with one another and are passing similar messages. Preparing a talking points document with agreed messages and statements is helpful to make sure that messages are consistent and effective for the audience and stakeholders.
- Avoid discussion of individual interventions, but focus on the campaign and its impact on improving overall health and child survival.
- Involve media such as television and radio early in the campaign process in order for the media to get a full picture of what is going on. Often, media tell a story without understanding the background to it. Journalists should be encouraged to visit a village where a LLIN campaign takes place.
- Media tools should involve local people and should be done at regional and district levels to be sure to reach the targets. Video, photos and radio are very effective if the target population can identify with the content.
- Local journalists should be trained and briefed on the campaign. They should be encouraged to use their role to promote and support activities. Journalists should be provided with a list and encouraged to get in touch with doctors and community leaders to get better stories and to use these stories to mobilize support for the campaign, as well as to mobilize the population to participate.
- Post-campaign advocacy with the media can focus on follow-up, including the utilization of LLINs.

Appendix 6C: Pre-testing[h]

Once communication materials and messages are developed, it is crucial to pre-test them before disseminating them widely. Pre-testing is a way to find out from members of your intended audience how to improve your draft materials.

Pre-testing helps to avoid costly errors by pinpointing problems before final production and distribution. It helps ensure that materials are appropriate, understandable by your intended audience, non-offensive, and that they communicate your intended message. Even with high-quality formative research, and a talented and creative materials development team, unintended interpretations of the messages and materials can still occur. This can waste resources, alienate or annoy people, and/or communicate the wrong messages. In some cases, these problems can seriously affect the project's impact.

Methods for pre-testing

Pre-testing is most often done using one or more of the following methods:

1. Focus-group discussion: qualitative interviewing typically conducted with groups of eight to ten people representing the intended audience.
2. In-depth interview: one-on-one interviews conducted with experts and/or peers whose input is necessary due to their technical knowledge or skill.
3. Intercept interview: brief interviews with representatives from the target audience using short, closed-ended questions, used to assess logos and slogans.

Pre-testing can be carried out with:

1. Representatives from the target audience (most important).
2. Gate-keepers: partners and ministry officials who must approve materials.
3. Technical experts, to check accuracy of information.

It is vital that the pre-testing be done with participants who represent your target audience. Officials and those working in the capital cannot completely put themselves in the shoes of your target population in the village. Take the time to gather a small group of people, or several groups in different geographic areas if needed, and show them the materials.

Pre-testing guidelines

1. Design the pre-test methodology
   a. Outline characteristics and requirements of pre-test respondents. They should match your intended audience by age, gender, educational level, rural versus urban, etc.
   b. Decide which method you will use to gather data (focus group discussions, in-depth interviews, intercept interviews).
   c. Draft budget and timeline.
2. Select and train facilitators for the pre-test and ensure that they:
   a. Understand the material they are pre-testing.
   b. Can use the pre-test tool.
   c. Can speak the language of the participants.
   d. Are similar to the pre-test participants (gender, age, etc.).
   e. Are able to ask probing questions.
3. Design the pre-test tools using the following questions as a guideline. NOTE: ensure that pre-test questions address both the images and graphics (print and video) and text (written and audio):
   a. What message does the audience get from the material?
   b. Who do they think the materials are designed for?
   c. Is it easy to understand the materials and the message?
   d. Is there anything offensive? If so, what?
   e. Is there anything they do not understand? What?
   f. What do they like about the materials? What do they dislike? (including sounds, voices)

g. Is there anything that should be added or removed from the material to improve understandability?

4. Prepare the materials for the pre-test:
   a. Prepare the tape-recorders or digital voice recorders, or prepare note-takers with pens and paper.
   b. Make copies of the pictures/drawings for print materials.
   c. Make copies of text.
   d. Prepare storyboards for videos.
   e. Develop pre-test instruments and make copies for facilitators.
   f. Prepare dramatic readings or recordings for radio scripts, in local language where necessary.
5. Pre-test:
   a. On the day of the pretest make sure all the participants are present on time.
   b. If using focus groups, facilitate the discussions using at least two people: one moderator, who asks the questions and the follow-up questions, and a recorder, who starts the tape recording and also takes written notes on participants' reactions to the materials.
   c. Tape record all discussions if possible.
6. After the pre-test:
   a. Summarize the findings in a brief report.
   b. Revise materials in accordance with comments, especially if the majority or "sizeable minority" have made similar comments.
   c. Finalize materials and produce!

Appendix 6D: Creative brief template

Steps	Instructions
1. Intended audiences	Who do you want to reach? Be specific in terms of primary audience and secondary audiences.
2. Desired behaviours, social norms or policies	What do you want the audiences to know, feel or do after they experience your communication?
3. Obstacles and barriers a) Reasons why the audience is currently not doing this? b) Key constraints to adopting behaviours above	Choose from the obstacles the one that is providing the biggest barrier to adopting behaviours above.
4. Communication objective by audience addressing the key constraint	*After the communication there will be an _____ increase in the proportion of primary audience who_____*
5. a) Key promise/benefit	Select ONE single, subjective benefit that the audience will experience upon following your communication objectives. Use the following formula: *If you do (communication objective) _____ you will benefit by (key promise) promise_____*
b) Support statements/reasons why	Include the reasons why the key promise outweighs the key constraint. These often become the key messages. Continue the sentence from above: *Because…..*
c) Call to action	What do you want people to do or where should they go to use the new product? E.g., "for more information, call the hotline at…."
6. Key content	Give key content bullet points grouped in the order they should appear in the material.
7. Tone	What feeling or personality should your communication have? E.g., warm, funny, surprising, innovative, traditional etc., or a combination thereof.
8. Activities	Give details on number and type of materials and activities that are planned to best reach your audience.
9. Openings and creative considerations	What opportunities, (e.g., times and places) exist for reaching the audiences? Is there anything else the creative people need to know? Will more than one language be used? Literacy level? Style? Illustration type?

Endnotes

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b Hawley W A, Phillips-Howard P A, ter Kuile F O, Terlouw D J, Vulule J M, Ombok M, et al. *Community-wide effects of permethrin-treated bed nets on child mortality and malaria morbidity in western Kenya.* American Journal of Tropical Medicine and Hygiene 2003;68(4):121-7. See: www.ncbi.nlm.nhi.gov/pubmed/12749495

c www.allianceformalariaprevention.com/documents/TOGOFINALCommSurveyReport.pdf

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e See: whqlibdoc.who.int/publications/2011/9789241501705_eng.pdf

f "Spot On: A Guide to adapting and producing Radio Spots for Malaria", The Change Project, USAID. Available at: www.rollbackmalaria.org/toolbox/docs/rbmtoolbox/spotonguide.pdf. Also Resource R6-13 on the CD.

g See Chapter 8 and the Resources for more detailed information on these surveys.

h Adapted from the Roll Back Malaria "A toolkit for strategic communication for malaria", 2006.

Sierra Leone. © Melanie Caruso, IFRC

7: Implementation

Ensuring successful implementation of a mass LLIN distribution campaign requires a large number of complex and disparate activities to be undertaken over a lengthy period before, during and after the campaign itself. These activities are described in detail in the other chapters of this toolkit, including the setting up of central coordination structures and partnerships (Chapter 2), the procurement of LLINs (Chapter 4), the logistics of secure and timely storage and transportation of the LLINs to where they will be distributed (Chapter 5), the communication required for advocacy, social mobilization, and behaviour change communication (Chapter 6), the monitoring and evaluation of the process of the campaign and its results (Chapter 8), and the systematic reporting of all aspects (Chapter 9). Chapter 3 describes the planning process at the macro level, undertaken largely at the central level. The result of the process is a campaign plan of action, timeline and budget to guide the implementation. Before the campaign is implemented, regional, district, health facility and community actors must be engaged in the process.

7.1 Regional, district, health facility and community engagement

Engaging the operational levels of the health system is critical for a successful campaign. Once the macro-planning has been completed and the campaign plan of action and timeline have been validated, the vital next step is to ensure that regional and district health authorities are informed of the upcoming campaign in order to begin collecting data for micro-planning at the operational level. They should be informed in an official manner, such as by a letter from the Minister of Health, which will also contain information on the roles and responsibilities of the health teams at the various levels.

It is recommended that as soon as the plan of action has been validated at the central level, initial communication should begin with the operational levels and funding and resources, including templates, made available for micro-planning.

The micro-planning process must take place early enough for regions and districts to have time to form their own coordination structures and begin engaging local partners to support operational plans.

The official information letter to regions and districts should:

- provide an overview of critical activities and dates and a list of key national level partners, as well as a description of the campaign plan of action and the way LLINs will be allocated to beneficiaries (see Chapter 3)
- provide instructions on the most important next steps for the regions and districts, such as establishing coordination structures or engaging local authorities and partners
- explain how and when further engagement will take place, such as approximate dates for the micro-planning exercise (dates for central level support visit, date that plans must be finalized and submitted) and the household registration
- alert regions and districts to any significant differences from more recent EPI campaigns in terms of coordination, financial policies, flow and management or central level involvement

To aid the process, the letter can include any draft terms of reference for regional and district structures that have been developed, or the terms of reference for the central level committees to act as an example that might be copied.

COUNTRY CASE STUDY

For the universal coverage and hang-up campaign that took place in Northern Ghana in May 2010, an informative meeting was held between the National Planning Committee and the Regional Health Administration to engage them in the impending campaign and to give details of availability of nets, finance and technical support. Attendees also discussed criteria for selection of personnel, volunteers, supervisors, etc. to ensure the success of the campaign.

7.2 Micro-planning

Micro-planning is one of the most important elements for the success of the campaign. It is a bottom-up process to gather critical operational information from the lowest levels. Micro-planning results in two vital outcomes:

1. refining of the macro-plan at the operational level to reflect local context and ensure sufficient resources for implementation
2. refining, at central level, of the estimated global budget and district level resource allocation to address actual needs at the operational level

Each of these is critical to smooth implementation and success of the campaign. Refining of the macro plan helps to ensure that all levels, including the lowest, are engaged in the process, and that there are sufficient supplies and sufficient personnel to reach all areas, including any that are difficult to access. Refining and finalization of the overall campaign budget and district level resource allocation based on micro-planning information allows for timely advocacy to fill any gaps in costs for implementation of activities.

Micro-planning is necessary for all phases of the campaign: household registration, LLIN distribution and hang-up activities. Depending on the campaign timeline and the arrival of LLINs, it may be possible to combine the micro-planning for some or all of these phases.

The responsibility for micro-planning should be at the administrative level where the activities will actually take place, such as district level or health facility. For each health facility catchment area, plans should be based on local conditions, taking into consideration:

- geography and accessibility
- population density and population structure
- culture and normal working hours (to find people at home during household registration)
- local resources available (such as transport means)

Micro-planning should be done as early as possible. The ideal situation would be one single micro-planning exercise for all aspects of the campaign (communication, logistics, implementation, monitoring and evaluation) and for every phase of the campaign (household registration, LLIN distribution, hang-up activities). This may not, however, be feasible because of the timelines for arrival of nets and the state of preparedness of the in-country team to begin implementation at the operational level. For this reason, there are often two micro-planning exercises, one specifically related to the logistics of the transport, storage and security of the nets, and the other related to the broader campaign elements (identification of personnel for each phase of activities, training, communication, monitoring and evaluation, etc.).

Micro-planning for logistics (see Chapter 5) needs to be completed before the arrival of the LLINs in the country. Micro-planning for the broader campaign elements should be completed between four and six months before the planned LLIN distribution dates. When developing timelines, it is important that adequate time is allocated to micro-planning for the collection, cleaning and synthesis of data.

Micro-planning takes place at the operational level, but planning for the exercise begins centrally. The process for micro-planning preparation at the central level begins with the development of the micro-planning template (see the next section in this chapter, and Resources R7-1 to R7-4 on the CD for examples) for data collection and a system for management of the data at each level. Once the templates are ready, the preparation at central level also includes communicating with regions and districts to provide them with:

- dates for the micro-planning exercise, including a deadline for receipt of final plans and budgets
- budget for the micro-planning exercise, if applicable
- names and responsibilities of supporting central level personnel who will be arriving in the district
- templates and instruction documents for the exercise

By sharing the templates and providing a comprehensive overview of the things to be included and quantified, the districts can begin immediately contacting health facility coordinators to collect information, ensuring completion of the micro-planning within the specified timelines.

Preparation at central level also includes the training of central level personnel to ensure clear understanding of the micro-planning activity. Training should include all the elements that are required and how the provided templates should be used.

Given their extensive experience, central level personnel may not feel the need to be trained, but to ensure clear understanding and consistency in approach, a minimum of a one-day briefing session should be organized to work step-by-step through each of the worksheets in the micro-planning templates.

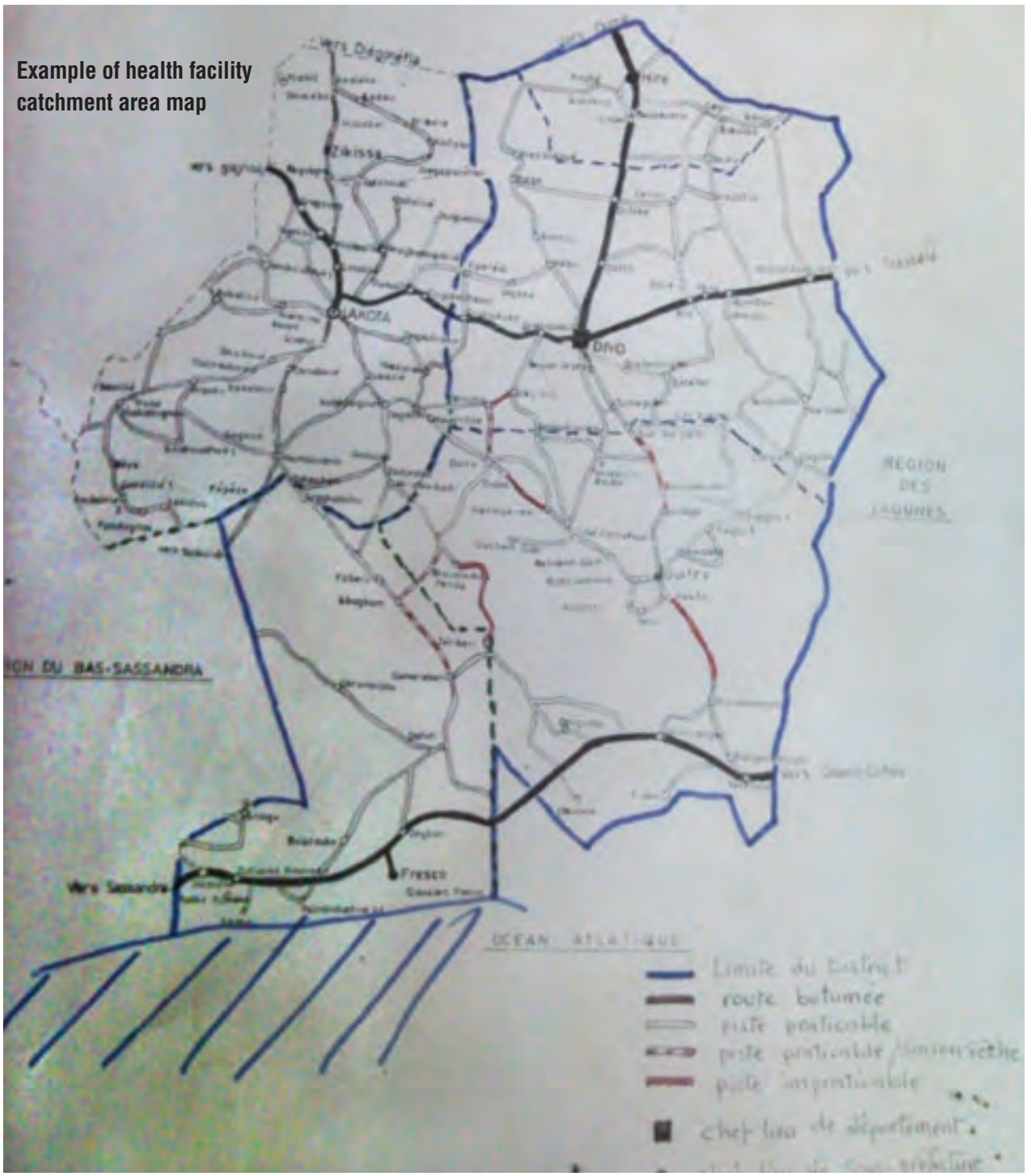
The central level teams supporting micro-planning should consist of Ministry of Health (MoH) and partner organization staff. In preference, each team should be multidisciplinary, consisting of logisticians, programme staff and communication experts. The number of central level teams should be sufficient to support and complete the micro-planning. Where micro-planning is at regional level with district representatives grouped together, at least one team from central level should work with each region. At the regional/district level, participants in the micro-planning exercise might include health facility staff, non-governmental, faith-based and community-based organization representatives and any other stakeholders identified as key to the implementation of the campaign activities. The number of team members should, however, be limited to ensure that planning is done effectively and in a timely manner. Larger groups tend to take longer for discussion to reach consensus.

The number of personnel, and therefore the number of training sessions, supports, data collection materials, and so on, will vary for each phase of the campaign (household registration, LLIN distribution and hang-up activities), so it is important that the planning for each phase is meticulous and the budget adjusted accordingly. Early micro-planning allows the necessary structures to be in place for implementation, but also represents an opportunity to engage and advocate with local authorities and influential members of the community through the dissemination of information about the campaign.

The preparation of a map of the health facility catchment area is important. It should illustrate the key landmarks, such as health outposts, private dispensaries, other buildings where LLIN distribution could take place, such as schools, community centres or religious institutions, areas that are difficult to access, such as riverine or mountainous areas, and any population groups that have specific known barriers to uptake of health services. It should include roads and paths and distances between landmarks. The map will

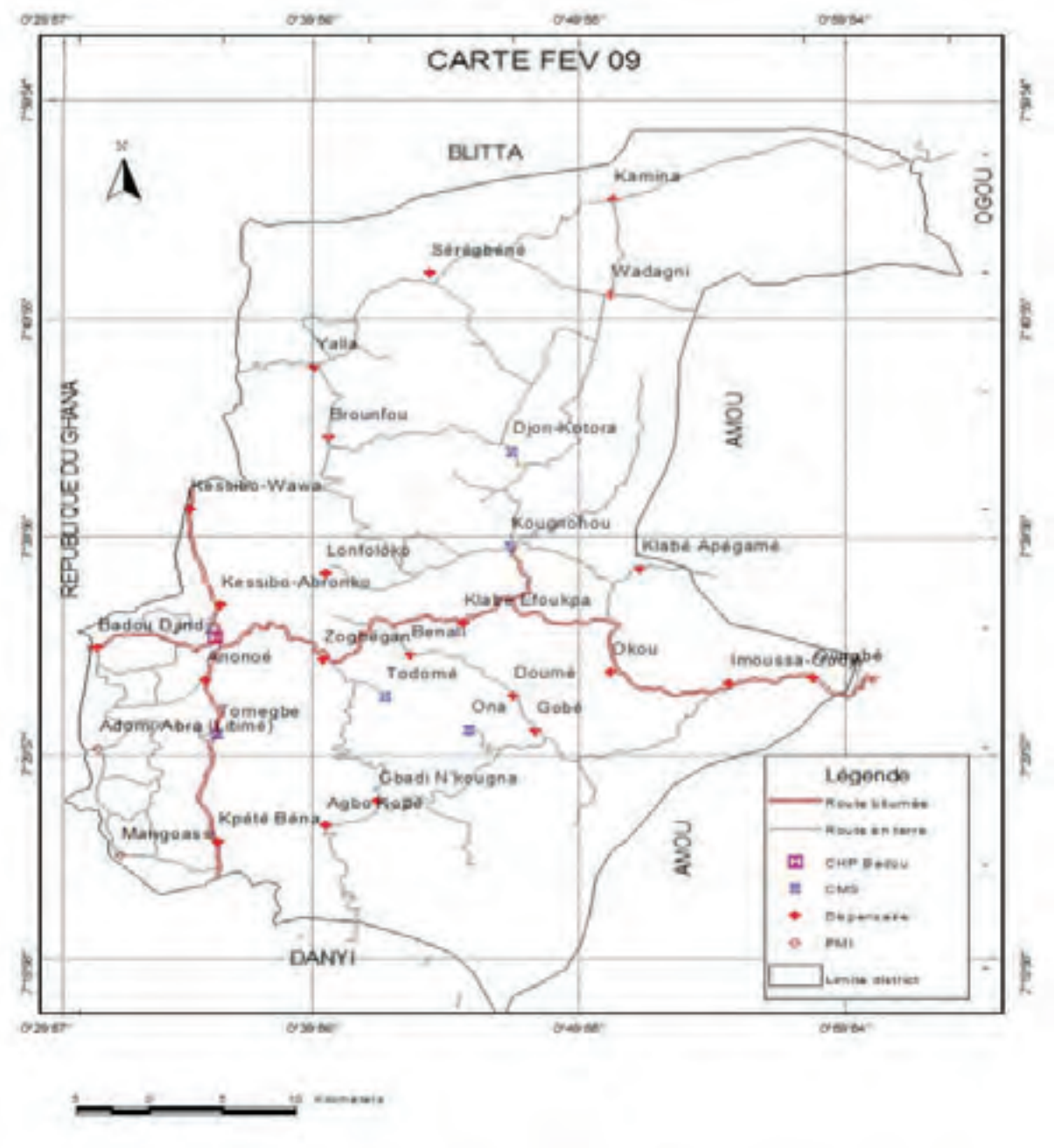
facilitate the understanding of the central and regional teams supporting the micro-planning process.

An example of the starting-point of such a map can be seen below from Côte d'Ivoire[a]. It is hand-drawn and shows paved and dirt roads, major centres and location of villages. With information added as above, including whether areas are difficult to access, and the reason why, the situation can be seen in a graphic manner which helps to support the same information on paper.



A further example from Togo shows paved and dirt roads, difficult access areas, hospitals, health centres and dispensaries.

Map of the health district of Wawa, North West Togo[b]



Note: difficult access to villages between:

- Sérgbéné and Kamina
- Brounfou and Djon kotora
- Kougnohou and Amou
- Yalla and Wadagni
- Todomé and Ona
- Adomi Abra and Kpétébéna
- Agbokopé and Danyi
- Kessibi Wawa and Brounfou
- Southern part of Wadagni

Micro-planning templates

Micro-planning templates will vary by country and by type of campaign, but many elements remain consistent. The micro-planning template is normally developed in a spreadsheet program, such as Excel, and consists of a series of worksheets. See Resources R7-1 to R7-4 on the CD for examples. A summary sheet provides parameters or guidelines for planning that have been established at national level, and will include a number of the following:

- average household size (where possible, by region or district and urban or rural, noting that in general the average size of a rural household will be larger than an urban household)
- number of households (urban and rural) that can be reached per day for household registration and for hang-up where the strategy for hang-up is door-to-door
- number of vouchers per booklet (e.g. 50 or 100) to allow calculation of the number of booklets needed to reach the population in the area
- number of volunteers needed per household registration or hang-up activity (urban and rural) where the strategy for hang-up is door-to-door
- number of days allotted for household registration and hang-up to allow standardized planning for personnel and budgeting
- number of household registration or hang-up teams per supervisor (urban and rural)
- daily incentive for household registration and hang-up personnel
- daily incentive for team and district supervisors
- calculation to determine the number of distribution points according to population estimates or according to number of LLINs to be distributed per day (urban, rural, difficult access)
- number of volunteers needed per distribution point team (urban, rural, difficult access) and roles (since the criteria for selection vary by role)
- number of days allotted for LLIN distribution
- number of distribution teams per supervisor (urban, rural)
- daily incentive for distribution site personnel
- daily incentive for site and district supervisors
- number of people per training (facilitators, supervisors, household registration, distribution site and hang-up personnel)
- number of people per net for quantification (e.g. 1.8)
- size and weight of one bale of nets to facilitate calculations for storage and transport
- estimated fuel needs and costs per 100 kilometres for vehicles, motorcycles, boats, etc., and maintenance of vehicles

While the information provided in the summary sheet will vary from country to country, it should be comprehensive enough to allow for standardized planning throughout the targeted implementation area.

The templates should include formulae that automatically calculate according to the centrally-determined parameters. These might include number of households/number of days the household registration will last/number of households that each volunteer can visit in one day. Health facilities will input the estimated number of households in their catchment area, and the template automatically generates the number of household registration volunteers needed. The cells where the information will be generated automatically should be differentiated in some way (e.g. colour) from the cells requiring information from regions, districts and health facilities. It may be necessary to put some information in manually where areas represent exceptions to the norm, such as hard-to-access areas.

The worksheets in the micro-planning template serve to collect detailed information about different elements, as follows:

Worksheets in the micro-planning template

Worksheet	Variables	Notes
Demographic	• Population (urban, rural, hard-to-reach)	The demographic worksheet will give a total population by village for the catchment area of each health facility. Where a campaign is targeted, rather than universal coverage, information specific to the target group should be collected.
Pre-positioning of LLINs	• Pre-positioning locations and distribution sites served from each location (if not the same) • Number of LLINs needed	The worksheet will provide the name of each pre-positioning location together with the number of LLINs needed (an estimated number based on available information for macro-planning prior to the household registration), and name and contact number of the person responsible for receiving the LLINs. Depending on the size of each health facility catchment area, it is possible that there will be one or multiple sites for the pre-positioning of LLINs. For example, for door-to-door distribution, nets must move to village level to facilitate access by the volunteers and reduce time and costs of transportation. There may also be a number of distribution sites served by one pre-positioning location.
Human resources	• Calculation of personnel required for each phase of activities: household registration, LLIN distribution and hang-up (broken down into urban, rural and difficult to access areas)	Calculations should be based on the information provided in Chapter 3 of this toolkit. Human resource requirements estimated from the macro-planning will be modified during the micro-planning to ensure that there are sufficient people (community volunteers and supervisors) to reach all areas, including those that are difficult to access. For the household registration, the number of personnel will be based on the number of households to be reached daily, the number of days needed to reach all households and how the personnel are organized. Note that in general, households are smaller and closer together in urban areas, so personnel can register more households per day. For the LLIN distribution, the number of personnel will be based on the roles identified in urban and rural sites and the number of people needed to staff the site (see Chapter 3 and section 7.6). For hang-up, the number of personnel required will be based on the strategy adopted (see Chapter 3).
Tools and supports required for household registration	• Number of books of vouchers or number of bracelets • Number of household registration books • Number of key messages/talking points sheets • Number of daily synthesis sheets • Number of supervision checklists and rapid evaluation forms • Number of pens • Amount of chalk • Number of badges, t-shirts, aprons or other means of identification for volunteers • Amount of phone credit for supervisors and volunteers (this must be in line with the data management needs and data transmission protocol) • Number of plastic folders to keep documents dry and safe	The required supports will vary depending on the method adopted for registering and identifying beneficiaries, but generally the total needs for the activity will be dependent on the number of personnel (volunteers and supervisors) required, the number of households to be registered and the number of days of household registration.
Tools and supports required for LLIN distribution	• Scissors (normally one pair per site, two if cutting both LLIN packaging and vouchers) • Tool for cutting bale strapping • Pens • Plastic folders • Stock sheets • Boxes for voucher or bracelet collection • Tally sheets • Daily summary sheets • Supervision checklists • Rapid evaluation forms • Waste management • Phone credit	The required supports will depend on what the country has identified as necessary for equipping the distribution site.

WORKSHEETS IN THE MICRO-PLANNING TEMPLATE (continued)

Worksheet	Variables	Notes
Tools and supports required for hang-up activities	• Household visit forms • Daily summary sheets • Supervision checklists • Rapid evaluation forms • Hammers, string, nails, chalk, etc.	The required supports will depend on the hang-up strategy identified by the country and on the tools included in the net packaging by the supplier, e.g. string. Where hang-up is door-to-door, items to assist households with proper hanging of nets may be required.
LLIN distribution sites	• Distribution points within each health facility catchment area • Total population • Number of households expected • Number of LLINs required • Distance from health facility to the distribution site • Name of storage point (if other than the distribution point) • Constraints and opportunities related to selection of sites	Sites for LLIN distribution are often modelled on sites used by the Expanded Programme on Immunization (EPI), and sometimes on sites used for national elections, although LLIN distributions do not always use mobile sites because of the difficulty of transporting bulky LLINs to the most inaccessible areas. The benefit of adopting fixed and advanced sites used during EPI vaccination campaigns is that they are familiar to the population. For very remote populations with small LLIN needs, a single distribution team may be able to cover two different distribution sites during the campaign, by spending 2—3 days in each.
Transport needs	• Number of different types of transport (all-terrain vehicles, motorcycles, boats, etc.) • Constraints and opportunities related to requirements	The number of supervision teams required will have been established following identification of total number of personnel needed. Transport allows supervisors to be effective in accomplishing their tasks. For each type of transport, the total requirement should be identified, and the number already existing subtracted to calculate need. Recognizing and noting constraints and opportunities will allow identification of local partners to assist with transport needs. It may also flag situations requiring attention from the district or regional level.
Supervision circuit planning	• Name of health facility (at district level) • Number of teams to supervise (all phases) • Distances to be covered each day relative to the health facility	For each team of supervisors, a plan should be made for supervision for each phase of activities. Ideally, the same supervision team will be responsible for a health facility for the entire duration of the campaign, including hang-up activities, to allow linkages to be made and maintained in terms of problem-solving. Where possible, the worksheet should contain the planned times that the supervision team will visit specific teams, but the micro-planning period may be too early to define this.
Communication needs and local partners	• Names of village chiefs, opinion leaders, schools, religious facilities, non-governmental and community-based organizations, private sector partners • For each structure listed, a contact person should be identified with a number where he or she can be reached • Number of local radio stations	This information should be collected for each village in the health facility catchment area. The information will depend on the local situation in the country (e.g. presence of women's groups or village development committees). If local radio stations (e.g. community radio) are available, this should be noted in the micro-plan so that budgeting and dissemination of talking points can be done on a per radio station basis.
Problem analysis and proposed solutions	• Summary	The spreadsheet should contain a summary worksheet where micro-planning team members can identify problems and solutions related to the broad micro-planning areas (logistics, personnel, communication, etc.)

See Resources R7-5 for an example of a summary of micro-plans from Cameroon.

Once all the needs have been quantified for all phases of activity, the micro-planning team should use the worksheets to calculate the budget. The budget template will be based on the key activities and should be calculated in line with the national guidelines for campaign planning and implementation. Budget headings often included are:

- workshops for briefing and micro-planning
- training of supervisors for household registration, LLIN distribution and hang-up (depending on number of training sessions planned for the entire campaign and strategies adopted)
- training of volunteers responsible for household registration

- training of LLIN distribution site personnel
- training of volunteers responsible for hang-up activities
- household registration, supervision and monitoring
- LLIN distribution, supervision and monitoring
- hang-up activities, supervision and monitoring
- communication (advocacy, social mobilization and behaviour change communication)
- logistics (if not already included in a separate micro-plan and budget)

During the micro-planning process, attention must be given to how data collected will be managed. In countries where there are staff working on health management information systems (HMIS) down to the district or lower levels, an allocation should be made in the budget for their time to assist with collating and analysing data from the household registration, LLIN distribution and hang-up. In countries where the mobile telephone network has reach throughout the country, including in remote areas, it may be possible to implement a mobile phone-based data transmission system. If this is possible, budget allocation should be made for airtime/phone cards to ensure that there is no interruption in data transmission due to lack of money for sending text (SMS) messages.

The early timing of micro-planning is important, not just to collect all the required information, but with sufficient time to collate and review, so that the overall plan of action and budget can be adjusted and finalized.

Once finalized and validated at central or regional level, the approved micro-plan and budget must be sent back to the districts and health facilities to ensure that all are working from the same micro-plan at the time of implementation.

A weakness observed in some campaigns is that micro-plans are finalized at the central level, but are then not sent back to the operational level.

If, as may happen, available resources were insufficient to support the micro-plan developed at the operational level, and it had therefore to be amended, the planning team at the operational level needs to know this and to make adjustments to comply with the amended version.

7.3 Identification of personnel

Following the engagement of the regional, district, health facility and community levels and once the micro-planning exercise has been completed, there is normally a period of weeks or months in which the teams at the operational level should begin to prepare for the implementation of activities while those at central level should finalize all the necessary materials (e.g. data collection tools, training materials, etc.).

Once the micro-planning is complete and validated and the final micro-plans have been returned to the operational level, the number of personnel required for household registration, distribution and follow-up activities is known, and identification of personnel can begin. For the household registration activity, the number of people required is important, but it is equally important to ensure that personnel are positioned so that the population in all areas, including those that are difficult to access, can be reached and registered to benefit from the LLIN distribution. See Chapter 3, Section 3.5 Quantification of personnel, for calculations of numbers required.

For the household registration, it is advantageous to identify personnel who live in the communities where they will be working. As well as reducing transport costs from the need to move household registration personnel from one area

to another, household members may be familiar with the person doing the registration (or vice versa), which may help to limit inflated figures during the registration for the purpose of receiving more nets.

Where possible, countries may want to plan to have additional volunteers available to assist at sites or, alternatively, undertake household follow-up visits to ensure that the targeted beneficiaries have come to the distribution sites to receive nets and other interventions in the case of integrated campaigns. Additional volunteers can also undertake household visits during the campaign to follow up on airing, hanging and use of the distributed nets. See Chapter 3 for further information on personnel requirements.

It is important to establish the criteria for selection of personnel (household registration, distribution, social mobilization, supervision, etc.) and to include these in the summary or as an annex to the micro-planning tool and instructions.

Criteria for selection might include, for example:

- ability to read and write
- good interpersonal and communication skills
- knowledge of local language
- resident in the community in which he/she will work
- enthusiasm, commitment and motivation
- trust and respect of the community, high moral character
- familiarity with the local population and its culture
- experience of training and supervising others (for supervisors)
- full-time availability for the duration of the activity
- ability to participate in the training for the activity
- experience with past public health campaigns

The criteria established should be specific to the activity for which people are being identified. At the distribution point, the team will consist of a number of members with different roles and responsibilities, for which the criteria may differ. Literacy may be an essential criterion for the person who is collecting vouchers and marking tally sheets, while it may not be important for individuals responsible for crowd control or health education. In some countries, there has been pressure (political, social) to select certain people given that there is often a monetary value attached to participation. Unfortunately, in situations where personnel are identified who do not meet the criteria, there are problems with the implementation of the activity itself. For example, with household registration, if personnel are identified who do not know how to read, write or undertake simple calculations, there will be data quality problems from the initial point of collection. This will only lead to more significant problems later on in terms of summarizing and synthesizing data which will have a negative impact on the overall campaign results.

The criteria for selection of personnel should be established at the national level and shared with the regions, districts and health facilities early in the planning period. During the micro-planning exercise and district level coordination meetings, non-governmental, faith-based or community-based organizations who are already working with community volunteers, especially in remote areas, should be identified and invited to participate in terms of "contributing" volunteers to the campaign. The involvement of these organizations from the outset will allow for coordination of activities during the implementation period, and will reduce the possibility of duplication of activities. In addition, volunteers who are already working in the community are most likely to have the trust and respect of community members. Using the same people for household registration, distribution and follow-up activities should help to minimize the scope of the training required.

Senegal. © Maggie Hallahan /Sumitomo Chemical

7.4 Training

Good quality training is critical to ensure a well-run and successful campaign. In most countries, training is done through a cascade system, where personnel from the central level train those at regional or district level, who then pass the training down to staff at the health facilities. Health facility personnel will then train the people that have been identified for the implementation of activities.

With each level of the cascade, it can happen that information is lost or misrepresented, often owing to inadequate training or lack of comprehension at the level above. If the participants at each level are not totally clear on the content of the training, or if misunderstandings are not clarified, any weaknesses are carried over to the next level, with a corresponding impact on implementation of activities. It is also important to include in the training some system of post-testing, both to check the knowledge and comprehension of the participants and to evaluate the quality of the training itself.

Cascade training is helpful and saves time, but care must be taken to maintain high-quality training throughout the levels. Wherever possible, countries should try to limit the number of cascades to improve the quality of the training.

At all levels of the cascade, training should be supervised to ensure its quality and to check that information is being retained. At the central level, once trained, supervisors will oversee the next levels of the cascade training, with supervisors from each level (regional, district) supervising the next cascade following their own training. Supervision should allow for immediate remedial action if it is found that incorrect or incomplete information is being passed on. In addition, supervision acts as a further method of evaluating the quality of the training at the cascade level above, and of providing corrective action if necessary.

Training is important at all levels, beginning with the central level which represents the first level of the cascade. In many countries, it is believed that the central level personnel do not need any training as they are familiar with the activities taking place.

With universal coverage campaigns, and the additional activity of the household registration, however, there are aspects that may be completely new to central level personnel. From the outset, they must understand these aspects so that they may pass on the important points correctly to the personnel at the next level of the cascade.

Central level trainers must be qualified to deliver the content of the training using the principles of adult learning, that is they must be equipped with appropriate teaching techniques and practical activities for each key learning objective. They must practise with the data collection tools to ensure that they are familiar with the tools themselves and can explain the importance of each piece of data to be collected and how data should be summarized and transmitted.

For training to be effective, it needs to be planned well in advance and standards should be set for the number of training sessions needed, the number of participants per session, the duration of each training session, the venue, and the materials and content required. In most universal coverage campaigns, there are four key phases of activity at the operational level[c]:

1. micro-planning (discussed above)
2. household registration for beneficiary identification and LLIN allocation
3. LLIN distribution
4. post-distribution hang up-activities

COUNTRY CASE STUDY

For the universal coverage and hang-up campaign in Northern Ghana, there were three levels of training. The central team was sensitized through planning meetings, development and review of training materials and other awareness-raising interactions. This team then undertook training of district officials at the regional level. Participants, three from each district, were mainly disease control officers, public health nurses, those responsible for the management of drug supplies, and in some cases the directors of health. They received a training manual covering the different aspects of the campaign: volunteer selection and training, basics of malaria and LLINs, logistics, behaviour change communication (BCC), household registration, validation of registration data, monitoring and supervision and follow-up. Once trained, the district trainers cascaded the training to community-level volunteers, training on both household registration and hang-up activities. With a maximum of 60 participants at each training session, it took between one and two weeks for all volunteers to be trained.

Volunteers trained for household registration practised with the household registration forms during their training. They were also taught how to interact with household members in order to be allowed to view their sleeping spaces.

Twice as many volunteers were trained for the hang-up activities. These volunteers took nets around to households and showed occupants how to hang them. Their training consisted of the basics of malaria and LLINs, key BCC messages to give to each household, and how to hang a net. They were also trained on interpersonal communication so that the household head would allow them to view or count sleeping places where nets were to be hung. Training included use of tally sheets and what to do if a registered beneficiary was not at home.

Ideally, each phase of activity will have a separate training to ensure high quality implementation. However, depending on the campaign strategy and timeline, if hang-up activities are beginning immediately following the LLIN distribution, there may not be time for a separate training and therefore one training will cover these two phases of activity. At a minimum, there should be three training sessions: one for micro-planning, one for the household registration and one for the LLIN distribution and hang-up. Often the micro-planning training is more "on the job" where the central-level supervisors and regional and district-level authorities actually fill in the micro-planning templates together, rather than a formal training session followed by the micro-planning exercise (aside from at central level, described above).

It is recommended that the number of participants in each training session is limited to ensure that the training environment is suitable for question and answer, plenary discussion and practical exercises. Encouraging participants to engage in discussion, ask questions and undertake practical activities such as simulating a household visit, helps their knowledge and understanding. Role plays can be essential to practise the delivery of key messages and the calculation of the number of nets needed per household. Where there are too many people in a training session, it is difficult for the facilitators to ensure full participation in an interactive manner by all trainees. As a general guideline, the number of participants in a training session should not exceed 30—35, but often budget constraints lead to larger training sessions which may be less effective.

The development of training manuals and guidelines, as well as training agendas, needs to be undertaken at central level to ensure consistency in implementation of the various activities. Their reproduction may take place centrally or at regional or district level, according to calculated needs during the micro-planning. Contents of the manuals and guidelines will depend on the campaign strategy or hang-up strategy chosen, and on the level of the cascade. Those passing on training to the next cascade level will need additional guidelines on interactive training methodology. These guidelines could be brief suggestions on the most effective use of question and answer, simulation, role play, group work, etc. At the volunteer level, it would be more appropriate to train with the help of a job aid that will then be handed out to the volunteers to refer to during implementation. See the Resources R7-6 to R7-32 for examples of training agendas, guidelines on interactive training, training manuals, job aids for volunteers, training post-tests and templates for reporting on training sessions.

COUNTRY CASE STUDY

In Mali, a health facility nurse was responsible for the household registration training of 60 volunteers. To keep the training size manageable and to ensure the training was effective, he trained half the volunteers on the first day. These volunteers then went out to start registration while the second half were trained, and were then only a day late starting their own registration activities.

Job aids help to reinforce training and to reduce mixed messages and misinformation during implementation. It should be noted, however, that distribution of training manuals and job aids does not substitute for face-to-face training.

7.5 LLIN allocation strategy and beneficiary identification

For all campaigns, whether targeted or universal coverage, stand-alone or integrated, it is necessary to define the strategy detailing how LLINs will be allocated to beneficiaries, and how

beneficiaries will be identified at distribution points where the implementation strategy is not door-to-door.

The LLIN allocation strategy and the method for beneficiary identification are normally defined in the campaign plan of action and are based on the number of nets available and on the campaign implementation strategy (targeted, universal coverage, integrated, stand-alone, fixed point, door-to-door). For universal coverage campaigns, while the method for beneficiary identification will remain aligned with the campaign plan of action at the operational level (e.g. vouchers, bracelets, etc.), the LLIN allocation strategy may change based on the results of the registration exercise if insufficient nets are available when the actual LLIN needs to achieve the campaign target are calculated.

In campaigns targeting children under five, the LLIN allocation strategy is normally one LLIN for every child, but where there are LLIN shortages during the campaign the LLIN allocation strategy may change to one LLIN per mother or caregiver for example. In universal coverage campaigns, a number of methods for LLIN allocation have been used, each with its own challenges. The LLIN allocation strategy may be based on providing:

- one LLIN for every two persons in a household (rounding up or down in the case of odd numbers of household members[d])
- one LLIN per sleeping space (as defined in the campaign plan and training manuals). This requires some information about common sleeping patterns
- a fixed number of LLINs per a range of household occupants (such as one net for one to three persons, two nets for four to six persons)
- a fixed number of LLINs per household based on average household size. This method is not recommended as setting a fixed number of LLINs per household will over- or underestimate need in at least half of cases[e]. However, in many countries, this method may be used where LLINs available are insufficient to adopt a different allocation strategy or where the distribution strategy needs to be simplified for operational feasibility (e.g. urban distribution, population movement between household registration and LLIN distribution, etc.).

With the first three LLIN allocation strategies, a limit can be put on the number of LLINs distributed to any household. The limit is commonly based on average household size and the structure of households in terms of space for physically hanging nets.

For the purposes of macro-planning, the target population is normally calculated based on population census results projected for the year of the campaign, using the annual average growth rate. In the case of campaigns targeting children under five years of age, EPI often has the most accurate figures based on the last mass vaccination exercise (especially if the number of children served at the time was greater than the number of children estimated) which are projected for the year of the campaign. For all campaigns, the micro-planning exercise described above, as well as the household registration exercise, in the case of universal coverage campaigns, are crucial for refining the estimated population figures and aligning them with information from the operational level.

Once the LLIN allocation strategy has been determined, an activity to count the number of people, sleeping spaces or households (or any combination) must take place. It is critical to include in the communication plan the need to inform beneficiaries in good time about the registration activities and what will happen. With universal coverage campaigns, since the entire population is the target group and the LLIN allocation strategy is not one LLIN per person, it is not possible simply to disseminate messages that beneficiaries should come to the distribution point to collect a LLIN. It is necessary to determine a way to identify beneficiaries at the distribution point. This is commonly undertaken via a household registration exercise, but can also be done by means of

consulting with traditional leaders or using other community-based methods where the population is relatively well-known and where corruption is not a large problem. During the household registration, beneficiaries are provided with a means of identifying themselves (e.g. one voucher or bracelet per household representative) in order to retrieve their LLINs at the distribution points.

COUNTRY CASE STUDY

In a pilot project in Mozambique in 2009, a district with a population of about 33,600 people was selected for a universal coverage distribution. To identify beneficiaries, a mini census of the district was carried out through the local political system, training local chiefs who each have responsibility for about ten households to list the information required. Each chief was asked to check with the families in the ten households that the information was correct and that all people were included, listed by their age and gender. At the same time, they were asked to give out simple messages about malaria prevention and treatment, including using nets every night of the year. Once the lists were collated, the number of nets to be allocated to each family was calculated according to set criteria and based on typical sleeping arrangements in Mozambique.

In general, beneficiary identification is easier for targeted campaigns, whether stand-alone or integrated, where the target group is children under five. Children under five can be identified using their health cards or through methods such as asking them to reach over their head and touch their left ear with their right hand. Children who are able to touch their ear are most often over five years old. In campaigns targeting children under five where there is no independent means of beneficiary identification (e.g. voucher or bracelet), children's fingernails are often marked with indelible ink to prevent parents from returning to the same or different sites in order to acquire more LLINs and, with integrated campaigns, expose children to adverse effects from immunization (AEFI) through receiving multiple doses of vaccine. For implementation consistency, which fingernail and the type of marking (for all interventions if the campaign is integrated) should be specified in the training guidelines and job aids.

Household registration and beneficiary identification for universal coverage campaigns are more complex than for campaigns targeted at children under five. With universal coverage, the target is one LLIN for every two persons, so the most common way (so far) for identifying household needs is through a household registration process. The household representative receives a voucher or bracelet during the household registration and must then redeem it at the distribution site in exchange for LLIN(s). In order to prevent a household from returning to the same or a different site with the intention of acquiring more LLINs, the voucher or bracelet is normally cut and stored by the distribution team at the moment when the LLINs are handed over.

COUNTRY CASE STUDY

In Cross River State, Nigeria, trained community volunteers undertook a door-to-door household registration exercise. Over 2,800 volunteers worked over a ten-day period to reach every household in 16 out of 18 Local Government Areas. At the end of the exercise, a total of 2,727,489 people in 589,041 households had been registered. The total registered need for LLINs was 1,461,594, in line with the current quantification recommendations (one LLIN to every 1.86 people).

Following training, the household registration agents go to each household in their assigned area to collect the necessary information for the LLIN campaign. Social mobilization, an important activity to undertake prior to the household registration, should also give focused messages about the data collection exercise and how households will

benefit later on. At each household, the volunteers should introduce themselves and then explain the purpose of their visit and the reason they are collecting information from the household members. In some countries or in areas of countries, or in certain time periods, such as around elections, there may be sensitivities about data being collected and how they will be used. Prior to household registration, communication activities are vital to raise awareness among the target population of the household registration exercise and the overall campaign. Where specific barriers exist, it is important to address them in tailored messages to disseminate to the population. It is also important to ensure that the volunteers can be easily identified, by means of bibs, caps, t-shirts, badges, etc. as being part of the campaign.

After the introduction, the volunteer should collect the necessary information from the household members. The key information required for the household registration is:

- name of household head (in some countries, the name of a second person in the household is also recorded with instructions that only the listed people can come to the distribution point to retrieve nets)
- total number of people who regularly sleep in the household (visitors are typically not included)
- total number of LLINs the household should receive (based on the LLIN allocation strategy adopted)
- identification number of voucher(s) or bracelet handed to household

Additional information that may be collected includes:

- number of existing, viable LLINs in the household (when it is necessary to account for existing nets). The definition of "viable" must be clearly understood by all volunteers to avoid subjective assessment of net condition
- number of sleeping spaces (where LLIN allocation is based on this criterion)
- number of children under five (there must be a clear purpose for collecting this information. For example, the accuracy of the data collection can be cross-checked by calculating the percentage of children under five among the target population and comparing it to the national or district average)

Sierra Leone. © Melanie Caruso, IFRC

The household registration form (see Resources R7-33 to R7-37) should be simple and should include enough space in each line for the volunteers to write easily and legibly. It should have a heading area where the volunteer will record the name of the district, the health facility from which they are working, the name of the village, their own name, the name of their direct supervisor and the date. In some cases, registered beneficiaries are also asked to sign at the time of registration. Each household registration form or sheet in a household registration book should include space at the bottom for the volunteer to summarize the information collected.

In general, unless pregnant women are targeted specifically during the distribution, there is little need to collect information about them. It does not relate directly to the LLIN distribution and is unlikely to be used for other purposes given the volume of data that would need to be entered and analysed.

Overall, household registration data are generally quite flawed and should not be used for any other purpose unless an investment is made into training, analysis and synthesis of data collected into an electronic format that can be regularly updated. Otherwise, the data is a snapshot of time that does not reflect a monthly or annual picture of the real situation.

One of the key lessons learned from countries that have implemented universal coverage campaigns involving household registration is that any extra information collected (1) increases possible errors by volunteers, (2) increases complexity of data synthesis and (3) increases the amount of time that each household visit takes, thereby increasing the number of volunteers and/or days of registration needed, which in turn increases the budget. Although the household registration may be seen as an opportunity to collect extra data, it must be kept in mind that the data are time-specific, and unless they are going to be put in a database immediately for further use, they quickly become irrelevant as the population structure changes.

The summarized information is passed on to the supervisor, who is responsible for collating the data collected by the volunteers under his or her supervision. See Resources R7-38 to R7-42 for examples of household registration data collation sheets. Finally, the data will be transmitted to the central level where they will be synthesized and validated for the entire country. See Resource R7-43 for an example from Togo of a synthesis of household registration results. At the end of the household registration period, supervisors should complete a report regarding the roll out of the activities (see Resources R7-44 and R7-45).

After filling in the household registration form, normally the volunteer provides the household with some means of identifying itself as a registered beneficiary that should receive LLINs during the distribution. Some options for beneficiary identification were presented in Chapter 3, the most common of which is a voucher. The volunteer should be provided with a job aid (Resources R7-23, R7-24 and R7-26) to ensure that the key messages about the value and importance of the voucher and the timing of the distribution of LLINs are consistent and clear. Some countries may opt to use only the voucher stub (when using two-piece vouchers with one half of the voucher given to the beneficiary and the other half of the voucher remaining in the booklet) for record-keeping and not fill in an additional household registration form. This has the advantage of less paperwork, as each stub corresponds to a net. However, it is still necessary to have a summary form to compile daily data, and if vouchers are lost for any reason, there is no back-up system to ensure that beneficiaries receive nets.

Vouchers need to be designed and produced early to be ready to be distributed to volunteers during their training for the household registration activity. If in-country printing capacity is low (e.g. no facilities to print serial numbers or to print on the type of materials required), the contract will have to be outsourced, which will require additional time for the international tender and the shipping. If logos (for example, from donors) are included in the design it is important to get approval of the mock-up before printing takes place, as many organizations have policies regarding the use of their logo (for example, it must always be printed in colour, or be a specified size). Vouchers might also be an IEC opportunity to disseminate some key messages related to malaria or the campaign. In order to avoid copying of vouchers, some countries also opt to include a hologram or to print the vouchers on plastic material. A two-piece voucher, with one half of the voucher given to the beneficiary and the other half remaining in the booklet, would also help to deter copying.

Sierra Leone. © United Methodist Church

The voucher is exchanged for LLINs at the distribution point. The information provided on the voucher will vary by country but will typically include:

- region, district, village, health facility (as decided by technical sub-committee)
- name of the household head (and name of a second person if necessary)
- number of people in the household
- number of LLINs the household will receive (optional – see below for comments)
- date that the voucher is given out

Generally, the vouchers are compared to the household registration list, checking that the correct number and name of head of household are included, and nets are distributed accordingly.

In the event that a prolonged period of time elapses between the household registration and the distribution, with the risk of voucher loss therefore being higher, the country might decide to accept the national ID of the registered household head as a substitute for the voucher. The complication of this strategy is that without the serial number found on the voucher, it will be much more time-consuming to find the household head's name among the household registration sheets at the distribution site. In addition, using national ID of registered household heads will exclude any households that have not been registered in the national system.

There have been a number of lessons learned in countries using vouchers. Two of the most important are around the inclusion of the dates of the distribution (which often shift for a variety of reasons) and inclusion of the number of nets a household will receive. Household registration data often show a higher need than anticipated during the micro-planning, and therefore reductions in the numbers of LLINs given to each household are made to ensure each household receives at least some nets. In some cases, nets have been distributed on a first-come, first-served basis, but this may mean that families with easier access to the distribution site get priority, so it is a strategy that should be carefully considered.

Countries are urged to consider whether they wish to include dates or numbers of nets a household will receive. In terms of the dates of the campaign, these can be made known through social mobilization and other communication activities (see Chapter 6) once everything is in place for the distribution. In terms of the number of nets, often the LLIN allocation

COUNTRY CASE STUDY

In Senegal, during the first phase of the universal coverage distribution, the number of LLINs the household was to receive was written on their voucher, together with the name of the head of the household. The main reason for marking them in this way was to discourage resale. The registration data, however, meant that adjustments had to be made at local level, with the result that the number of nets a household received had to be capped or reduced. For the subsequent phases of the distribution, the voucher did not list the number of LLINs to be given out, so that any adjustments after household registration would not cause disappointment and confusion during the distribution.

Example of a net coupon from Senegal


COUPON DE GRATUITE

Nom du Bénéficiaire :.....

Nombre de MILDA :.....

Agent recenseur :.....

Date :.....

.....

Village :.....

.....

Signature Agent

Signature Bénéficiaire

World Vision Tostan malaria NO MORE

Date :.....

Suite à la constatation de l'existant, Monsieur/madame-----

chef de ménage dans le village de....a droit à ..... MILDA dans la cadre de la couverture universelle.

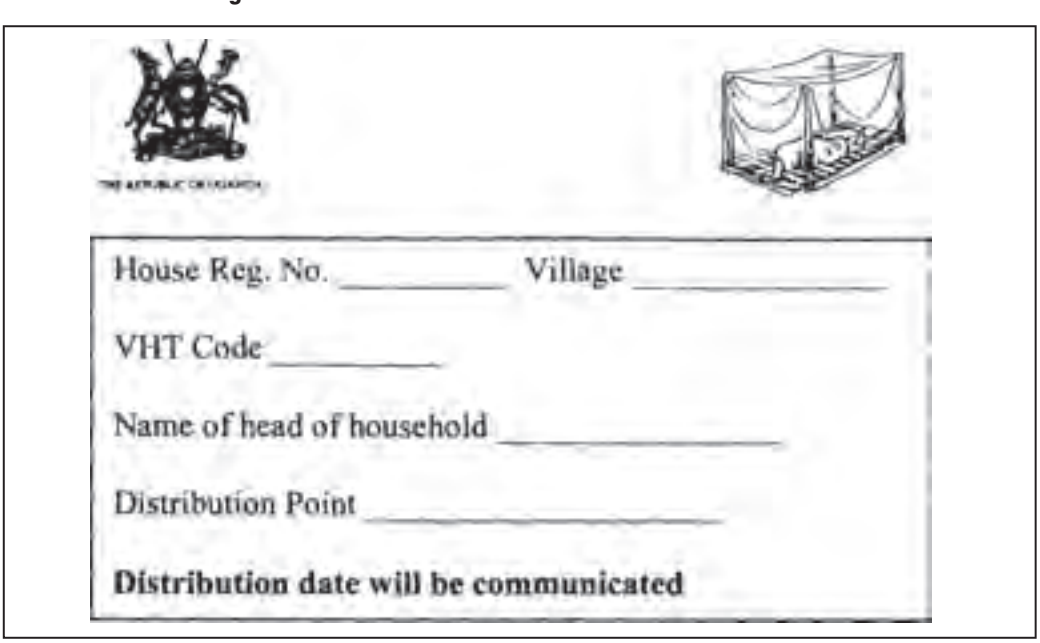
Signature Agent

Signature Bénéficiaire

strategy is changed based on the results of the household registration when it is determined that the number of LLINs in the macro-planning is insufficient to meet the registered need during implementation. If the number of people in the household (not the number of LLINs) is written on the voucher, it is possible to distribute nets according to a modified LLIN allocation strategy (e.g. if there are five people, two nets instead of three are provided) with few problems. Once the number of nets is written on the voucher, beneficiaries know what they are to receive and feel entitled to what is written on the voucher. In order to change the LLIN allocation strategy in these situations, communication is extremely important to prevent problems at the distribution site.

In other countries, the total number of people in the household is recorded during the registration and, following the analysis of the household registration data, the LLIN allocation strategy is determined at the operational level to take account of shortages of LLINs versus registered need. This was done in Senegal in the later phases of the universal coverage campaign.

Example of a voucher from Uganda



COUNTRY CASE STUDY

In Burkina Faso, the number of nets a household should receive was written on each voucher. During the data analysis of the household registration information, it became clear that there were insufficient LLINs to meet the registered need using the planned LLIN allocation strategy. The country needed to develop a communication strategy for explaining to households that, if the voucher gave a figure greater than three nets, they would receive one fewer than had been written. This worked in Burkina Faso to manage the gap existing following the household registration.

Similar solutions were developed at community level in Senegal and Mali. In some communities, nets were capped at 10 per household, while in others, the number of nets was reduced by an overall percentage in order to serve all households.

Many countries have to manage gaps following the household registration and must come up with a local solution. Most often, these solutions are not ideal in terms of the "universal coverage" objectives, but they do serve to meet the operational reality of the distribution at the time.

In countries distributing a fixed number of nets per household, either based on average household size or based on number of people in each visited household, vouchers can be printed to indicate the number of nets per household, either through differentiating by colour or by image.

In other countries with sufficient budget, two visits to each household are undertaken in advance of the distribution. The first visit is to register the household and collect population information. After that information is analysed and the LLIN allocation strategy is finalized, the second visit is to distribute a voucher listing

Example of a voucher from South Sudan

exactly how many nets each household should receive. Burundi did this for their 2010 and 2011 universal coverage campaigns. In between their first and second household visits, the LLIN allocation strategy was revised from one LLIN to two persons to a limit of six LLINs per household. Vouchers were colour-coded to show how many LLINs they represented.

In such cases, it may be possible for countries to know the gap in nets more accurately and to:

- redirect LLINs to areas with the highest malaria prevalence to ensure full coverage while leaving other areas to be covered when additional LLINs are mobilized
- divert routine nets to the campaign
- have a slightly different LLIN allocation strategy in different parts of the country depending on malaria prevalence or LLIN coverage rates

Tchad. © MENTOR Initiative

7.6 LLIN distribution

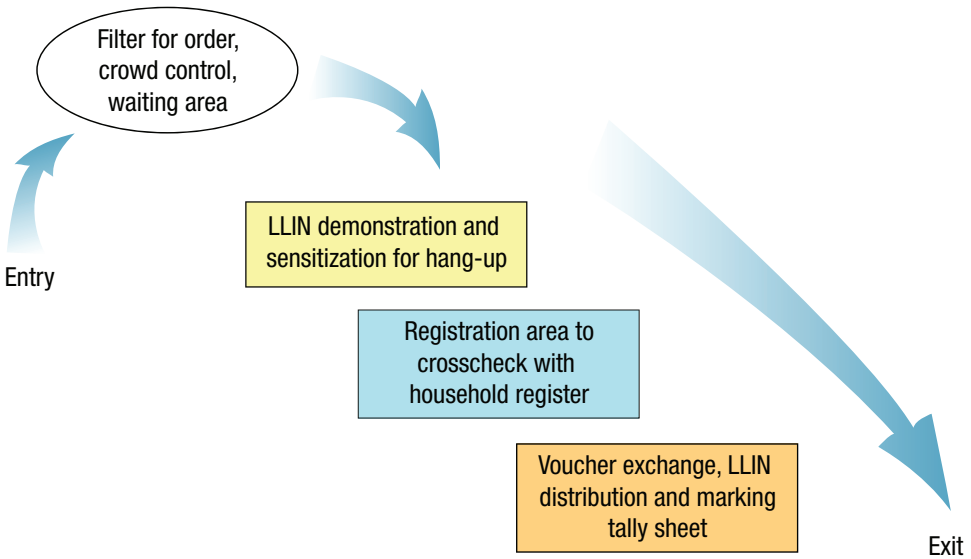
LLIN distribution is typically done through fixed site or door-to-door delivery. Both methods of distribution can be used for integrated or stand-alone, targeted or universal coverage campaigns. When distribution is through fixed site delivery, the organization of the site is a critical component for the success of the activity and safety of the site personnel. It is important to ensure that urban sites are staffed appropriately and that security measures for both commodities and site personnel are planned and budgeted. The number of beneficiaries that can realistically be served per day should be defined during planning (see Chapter 3) so that a sufficient number of sites are organized, which will help minimize overload problems during the LLIN distribution.

Communication activities are important for ensuring full participation in the LLIN distribution and for reminding beneficiaries of the process for receiving nets (e.g. bringing voucher, who should come to the site, etc.). Where dates for the LLIN distribution are not provided on the voucher, and even where they are, it is important to disseminate messages about the start and end dates, as well as the hours that the LLIN distribution site will be open. In Chapter 3 (Planning), the parameters for determining the number of LLIN distribution sites were outlined. While the ideal is to serve 150—250 beneficiaries per day, it is common that a higher number will attend sites over the first days with the corresponding need for a higher number of staff.

Where LLINs are integrated with a broader health activity, such as vaccination against measles or administration of vitamin A, fixed site distribution is most common. Door-to-door distribution of LLINs can be integrated with polio vaccination campaigns, but more often, owing to difficulties with transporting the nets, caregivers of children receiving the polio vaccine are provided with a voucher to exchange for a LLIN at fixed sites.

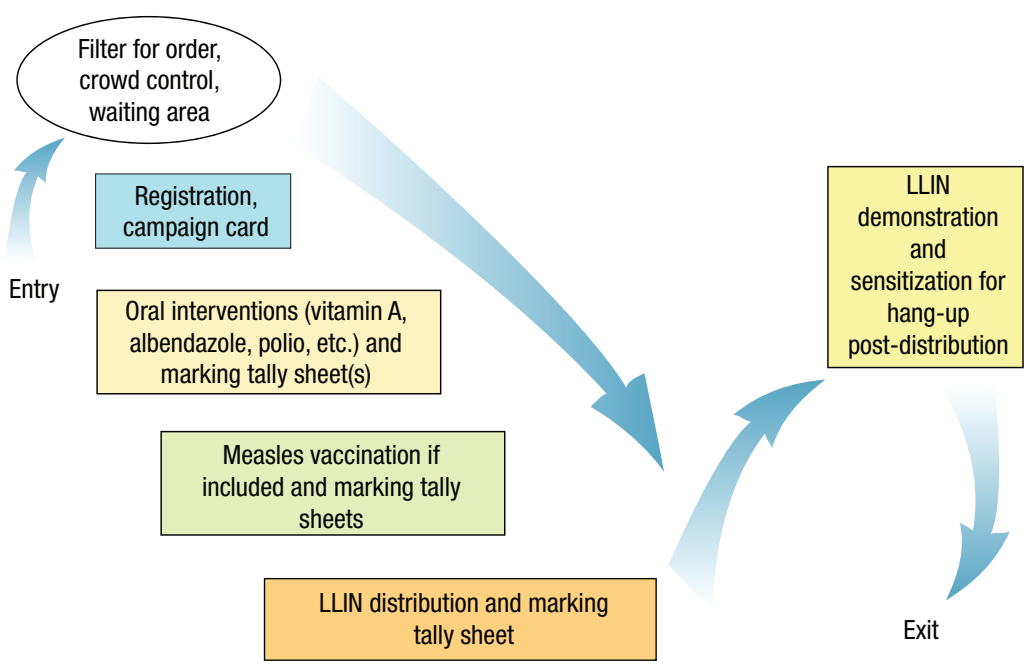
During integrated or stand-alone campaigns, sites should be organized in a way that ensures a systematic flow of the crowd through the

Stand-alone campaign site set-up



distribution site area, with a separate entrance and exit. Waste management during distribution should be planned, including the waste generated from the LLINs (bale strapping, bale wrapping, cut vouchers, LLIN packaging if beneficiaries are not taking packages home), as well as syringes or other medical waste from vaccinations and other interventions.

Integrated campaign site set-up



Sites selected as net distribution points should be familiar to beneficiaries and should be identified with posters, banners or other methods. Where possible, sites should be located in areas that offer some shade, have adequate sanitation facilities and are not in areas of major traffic. To secure LLINs, there should be a lockable storage area, or an area easily protected by security guards.

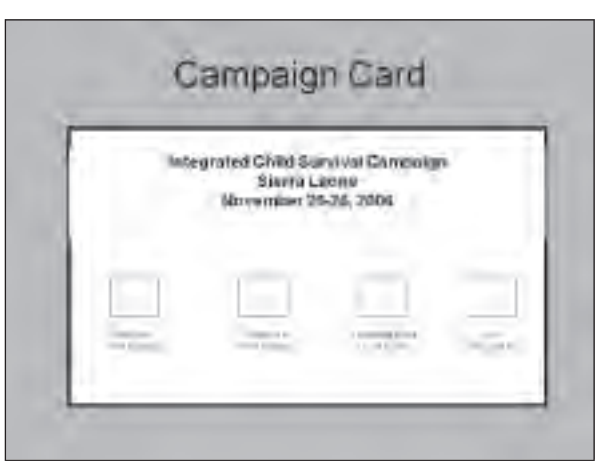
For integrated campaigns, it is important to make each station within the site clear and to make LLINs the last intervention so that beneficiaries receive all other interventions prior to receiving the LLIN. In integrated campaigns, the site structure and stations may include:

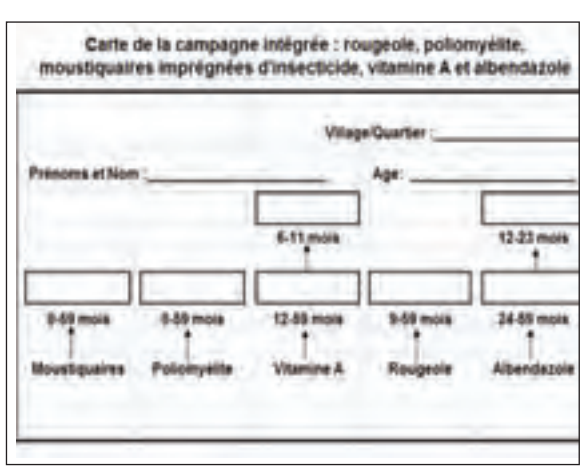
- **Waiting area:** especially for urban areas, it is important to have an area outside the actual distribution site where people can be organized for entry into the site according to the volume of beneficiaries coming in and departing the distribution site area.
- **Registration table:** often, integrated campaigns will have interventions that target specific age groups. The registration table is where mothers come to receive a campaign card for each of their children. The child's name and age is written on the campaign card, facilitating the work of the teams at each intervention station where the card is marked. In integrated campaigns that have used campaign cards, they have at times also served as vouchers in the case of stock-outs during the distribution: where a child did not receive a net, the card was left unmarked for redemption at a health facility after the campaign. Where the caregiver retains the campaign card, it can be used during post-campaign activities or surveys to verify the interventions a child has received.
- **Intervention stations:** each intervention should be separated from the others so that mothers can clearly see the various teams and do not miss any of the stations. At each station, the team will mark that the child has received the intervention, as well as fill out the tally sheets being used to account for commodities.
- **LLIN distribution:** LLINs are placed last in the campaign site and a net is given only when targeted children have received all other interventions.
- **Health education:** in many countries, plans are made for a health education area where messages are disseminated about the importance of routine health service (such as regular administration of vitamin A and completion of the routine vaccination series for children under one), hanging LLINs, and monitoring children for any adverse reactions to vaccines or other interventions.

For stand-alone LLIN distribution, the site structure and stations may include:

- **Waiting area:** as described above. This is a good place to site the health education area. While beneficiaries are waiting their turn, they are a captive audience to hear about how malaria can be prevented and treated and to see a demonstration of how LLINs should be hung and cared for. In some cases, vouchers are marked at the end of the education session so that distributors know beneficiaries have attended the session before LLINs are handed over.

Examples of campaign cards





- **Registration table:** where the implementation strategy includes cross-checking voucher numbers with household registration forms, a registration table may be necessary. Note that this method can cause backlog and crowding if it is not very well organized.
- **Voucher exchange and LLIN distribution:** the main station will be where beneficiaries exchange their vouchers for nets. A box should be used to collect the vouchers from the beneficiaries to allow for cross-checking of vouchers with numbers on tally sheets and stock sheets. Once the voucher has been received, the number of nets allocated to the beneficiary should be handed over and the tally sheet marked accordingly. The volunteer collecting vouchers and/or registering beneficiaries should not be the same person as the volunteer distributing LLINs and filling out the tally sheet. Vouchers should not be destroyed by site personnel, but should be kept and handed over to the site supervisor for safe keeping until the LLIN distribution campaign is complete and data from the campaign have been validated. LLIN packaging should be opened/cut before handover to beneficiaries in order to discourage resale.

All distribution site personnel must be trained to ensure that the site functions well and problems are avoided. Both site personnel and beneficiaries must be protected. It is more difficult to solve problems on the spot once the crowd is on site. Where problems do occur, it is important for the site supervisor to manage them quickly and appropriately. If a problem continues or increases, it may be necessary to close a site entirely in order to make modifications to the organization of the site prior to re-opening the following day. Problems with crowd control, notably in urban areas, can quickly escalate if they are not anticipated, planned for and managed when they occur.

Door-to-door distribution

In some countries, the LLIN distribution is done door-to-door. In these situations, trained personnel take LLINs from a storage point at village level and go to each household to distribute the number of nets required. During the visit, the nets are typically hung in households using the tools that have been provided to the volunteers (nails, string, hammers, hooks, etc.). The logistics micro-planning must be meticulous for door-to-door distribution as the nets need to be as close as possible to where the personnel are working since people cannot carry too many nets at once and will need to replenish nets over the course of the day.

COUNTRY CASE STUDY

In Northern Ghana, nets had been pre-positioned accurately following the earlier household registration activity. For hang-up, a team of two volunteers picked up nets from the sites, together with nails, hammer, nylon ropes, scissors and a stamp pad for fingerprints if beneficiaries could not sign their names. They identified beneficiary houses from the registration details, and marked tally sheets to track hung nets. Entering the household, they greeted household members and showed the necessary courtesies to be allowed into the sleeping places to hang nets. After showing them how to hang the nets, and giving them the BCC messages they had been taught, they folded the hanging nets, and informed households that they should not be unfolded and used until the next day in order to avoid any skin or eye irritation.

Door-to-door distribution has the advantages of ensuring immediate hanging of nets and allowing for interpersonal communication and question and answer between the trained personnel and the household. The possible disadvantages of door-to-door distribution of nets include the heavy workload for the personnel, the possibility of skin or eye irritation if nets are not aired for 24 hours before use and the complex logistics. If personnel are not well trained and well supervised, including those responsible for the lowest storage

sites, door-to-door distribution has the possibility of increasing LLIN "leakage" either through LLINs going missing with all the movement of the volunteers carrying small numbers of nets or through incorrect tracking of LLIN movement on the supply chain management tools.

As at the writing of this toolkit, there is limited evidence that door-to-door distribution is more effective for increasing hanging rates of LLINs.

Accounting for nets and managing stock-outs

A key supply chain management tool is the tally sheet. It is an important tool for both the programme and logistics aspects of the campaign in terms of ensuring accountability (see Chapter 5). Tally sheets can be cross-checked with the stock in and out forms at the storage point, as well as with the number of vouchers redeemed for LLINs. Tally sheets provide a means for assessing what has been distributed and what is remaining, allowing site supervisors to provide early communication to higher levels regarding possible stock-outs or surplus of LLINs.

In the past, tally sheets were typically designed such that one circle on the form was equal to one LLIN distributed to a beneficiary. These tally sheets remain the simplest, and therefore the most accurate, of the variety of tally sheets currently being used (see Resource R7-46). In recent campaigns focused on universal coverage, some countries have modified the tally sheet to a version where the number of LLINs received is noted (e.g. if a household receives four LLINs, one circle is filled in under a column headed "4"). As there is less inherent logic in these alternative methods (versus one circle equals one net), there is a greater likelihood of errors in filling them out. Where alternative versions of tally sheets are being used (see Resource R7-35), it is important for distribution site personnel to practise filling them in during their training sessions.

An important element to consider from the outset of planning is the management of LLIN stock-outs and repositioning of LLINs during the distribution period. Stock-outs are common and are typically related to poor pre-positioning of LLINs, possibly due to use of micro-planning data rather than the more accurate household registration data. However, stock-outs can also be related to the actions of distribution site personnel if the LLIN allocation strategy is not well understood or defined rules are not respected. In some cases, stock-outs can be avoided by anticipating which days will have the highest beneficiary traffic (e.g. weekends, market days, day one of the distribution) and ensuring that extra stocks are available. This is particularly relevant to sites that do not have enough secure storage space to store their allotment of LLINs for the entire distribution period, and instead require daily deliveries and top-ups.

A process should be established for communicating net stock-outs so that site supervisors are clear and consistent on how the situation can be managed. Normally, the daily summary data can be used to assess existing stocks and expected beneficiaries so that possible stock-outs can be flagged to the district team responsible for monitoring the situation at all health facilities. (See Resources R7-47 to R7-51). If this is done, LLINs can be moved in the evening to prevent stock-outs the following day during the actual distribution. Often, however, stock-outs are not foreseen in advance and occur randomly. Each site supervisor should know the person that they should call in the case of this kind of problem at the site.

Communication is very important in the case of stock-outs, whether they are real (there are no more nets available) or related to pre-positioning (more nets are available but not at that particular site at that time). Where beneficiaries have vouchers or other means of identifying them as beneficiaries, clear messages should be disseminated about the need for re-stocking and that they will be told when nets will be available so that they can come to redeem their voucher. If beneficiaries do not have a voucher or other means of identification (e.g. children

under five), it may be necessary to make a list for follow-up once the LLIN availability problem has been solved.

While supervision is important throughout the entire distribution period, it is particularly important in the first days when problems are most likely to occur. Site supervisors must be active and alert to possible issues arising, and supervisors from other levels (district, regional, central) must plan to ensure that sites with anticipated challenges are visited and assistance is provided to keep the distribution on track. A final distribution report should be completed by supervisors (see Resources R7-52 and R7-53).

Waste management

More detailed information on the guidelines for waste management can be found in Chapter 3[f]. For the safety and security of the beneficiaries and the site personnel, it is important that training covers waste management. The disposal of waste, particularly insecticide-treated non-biodegradable materials, such as LLIN plastic packaging, must be planned for in advance.

7.7 Data management

Data collection and data management are crucial in all phases of a campaign, from initial planning and training to implementation and follow-up, and can be problematic given the volume of data that needs to be collected. Countries consistently underestimate the amount of time, the training needed and the amount of work required to ensure both that the data are collected systematically and that they are managed well.

During training, for example, data collected will detail numbers of people trained, dates training took place, results of any participant learning assessments (e.g. post-tests), and so on. Analysis of data will give an indication of the effectiveness of the planning process and of the quality of the training, and should supply feedback for instant remedial action, if required, as well as lessons learned for the future.

With the shift from targeted to universal coverage, given the necessity to determine needs and provide beneficiary identification, the requirements for data collection and management increased significantly. To give an example, when collecting data during household registration activities in a country with a population of 10 million people, with an estimated 2,127,660 households and a planned household registration period of 10 days at 25 households per day, more than 8,500 volunteers would be required, each with a separate household registration sheet for each day (85,000 sheets of paper).

Household registration

The information collected during the household registration is critical to the LLIN distribution, as it is typically used for the pre-positioning of LLINs. Volunteers will collect information on a daily basis, and the sooner that the information can be summarized and sent to the level where it will first be collated (normally health facility), the more quickly the synthesis of the data can begin. Supervisors will need to collect summarized information from the volunteers under their responsibility each day and transmit it to the health facility staff responsible for data management. Data can be transferred through a telephone call or by sending a text message. Where it is possible and sufficient numbers of volunteers have mobile phones, a country may train volunteers to send the information directly by text, but this will depend on network coverage, among other factors.

Regardless of the means of data transmission and to which level the information is being sent, it is important to have a pre-established template and timeline for reporting developed for data management at each level (see Resources R7-38, R7-39, R7-40, R7-41 and R7-43). While health facilities may need to work from paper, in many countries, computers are available at the district or regional levels, and once it is possible to use electronic means for collating the data, this is the preferred option to speed up the process.

Tchad. © MENTOR Initiative

It is recommended that a minimum of two to three weeks is planned for the collation and synthesis of the data from the household registration. Where the household registration data are being used for pre-positioning of the LLINs, the time required to move the LLINs to the distribution points must be determined with the logistics subcommittee before setting the distribution dates.

LLIN distribution

The information collected during the LLIN distribution is important for generating administrative coverage information and allowing for modifications to LLIN (or other intervention) delivery for increasing reach of the campaign. The information from the tally sheets at the distribution sites should be summarized daily by site supervisors and transmitted to the health facility or district level staff responsible for data management. The health facility or district level staff should be able to compare the daily totals from the distribution sites with the expected number of beneficiaries to check progress of the distribution. The review might highlight the need to restock sites, including redistribution of supplies between sites. Where numbers are lower than expected in terms of beneficiaries served, it may be necessary to increase communication efforts or move the site to a different location in order to increase the coverage of the interventions being provided (see Resources R7-48 to R7-51 for examples of collated LLIN distribution data).

Hang-up

If the hang-up strategy involves door-to-door visits by volunteers or community health workers, often data are collected about each household and the hanging and use of their nets. Where volunteers are physically assisting beneficiaries with hanging (not just disseminating messages), it may be important to collect information about how many nets the volunteer helped to hang in order to assess the value-added of the activity. Hang-up data are often considered less important as they do not have a direct bearing on getting the LLINs distributed and campaign personnel are tired by the end of the activities. However, hang-up data can be very useful with targeting further interventions where needed to increase the hanging or utilization rates of the LLINs distributed.

Monitoring and evaluation

During each phase of activities, monitoring should be taking place in addition to supervision. Monitoring data will often take the form of results of rapid surveys undertaken to assess coverage of the activity. Monitoring data must be collected, analysed daily and discussed at the daily supervision meetings to determine actions. Monitoring data are important to direct changes in the implementation of the activity to improve quality, coverage or both. In most cases, monitoring data are not transmitted through the system. The greatest use of the information is for making day-to-day improvements to the implementation of the activity.

For more detailed information on monitoring and evaluation see Chapter 8.

7.8 Hang-up activities

Hang-up activities can take a number of forms, as discussed in Chapter 3. The hang-up strategy should be defined early in the planning period and should reflect the known situation around

LLIN hanging and use in households and the resources available to support this activity. Where use is high, door-to-door hang-up campaigns may not be necessary and mass media communication combined with messaging from community and traditional leaders during specific events may be sufficient. In many countries, LLIN hanging and use rates are low and other actions, such as door-to-door hang-up campaigns to assist beneficiaries with correct installation of the nets, are useful to increase net use.

Hang-up campaigns often involve door-to-door visits soon after a mass distribution campaign. Trained volunteers visit households to help hang their nets if this has not already been done. Volunteers will also inform household members about net use, care and repair. Many countries have run hang-up campaigns in the first week after a mass distribution, but they may also be planned later at an appropriate time (such as the start of the rainy season) to increase utilization rates. Some households will need physical assistance with hanging nets, so volunteers should be equipped with the necessary tools (e.g. hammer, nails, string and ideas for creative hanging strategies in inconvenient sleeping space set-ups). In some cases, nails and string may be included in the LLIN specifications at the time of procurement and will be already supplied in the LLIN packaging.

There must be a sufficient number of volunteers to reach all the households in the target group. Volunteers must be trained to give correct and consistent messages, and to fill in monitoring forms systematically. Supervision of the activities is essential. A job aid (see Resources R7-26 to R7-28) should be developed that will be used during training and by each volunteer while carrying out the tasks allotted. If possible, supervisors should observe volunteers visiting households, and should ensure that they fill hang-up forms in correctly. Hang-up household visit forms (see Resources R7-54 and R7-55) are important to increase understanding of the situation at the household level in terms of LLIN hanging and use. They are also important to show the value-added of the volunteer visits as the form should contain the number of nets hanging at the start of the visit and the number of nets the volunteers themselves hung in the households. Supervision of the volunteer activities during hang-up may include visiting households that have received a volunteer visit to ensure that the correct actions have been taken and messages disseminated. A monitoring form (see Resources R7-56 and R7-57) is useful for ensuring that the supervisors are assessing the same elements while undertaking their activities.

The hang-up activity is very largely a communication exercise, helping raise awareness of net utilization, care and repair, and often providing other health education information to households. See Chapter 6 for further suggestions on hang-up campaigns.

7.9 Supervision and monitoring

Supervisors and monitors at all levels will watch over a particular task or activity being carried out by others to ensure that it is being done correctly and adequately, and will take remedial action if necessary.

The systematic supervision and monitoring of all activities prior, during and post campaign, is an essential element in its success.

Supervision

To ensure consistency across the campaign, supervision checklists should be developed at central level for all activities taking place prior to, during and post campaign. Checklists to be used before the campaign should help confirm that preparations are adequate and supplies and supply chain elements are in place. Chapter 5 describes the steps necessary to ensure that preparations for transport and storage management have been put in place, and that LLINs will reach distribution sites in a timely manner.

Key campaign activity checklist

Checklists remind monitors and supervisors of key campaign activities to observe before, during and after the campaign. Supervision checklists normally focus on (but are not limited to):

Activities	Focus points
Micro-planning	Coordination Target population LLIN requirements Personnel requirements Logistics Communication Map
Training activities	Training materials (e.g. manuals, data forms for practice sessions) Coverage of the content Facilitation Knowledge and understanding of trainees
Communication	Timing for pre-campaign, during campaign and post-campaign activities Social mobilization activities IEC materials and their dissemination to and use by appropriate actors Radio/television spot dissemination Comprehension of messages by target audiences
Household registration	Information given to household members and understood Allocation algorithm correctly applied by volunteer Data collection Data transmission
Logistics	Warehousing of nets Security of nets Transport of nets Arrival of nets and other commodities at lower levels
Site set-up and management	Accessibility Identification Waiting area Shade Sanitation Registration table Intervention stations Waste management Health education/communication Supplies and equipment Transport for supervisors Security of personnel
LLIN distribution	Crowd control and flow Completion of tally sheets Stock control Communication activities Waste management
Hang-up	Information/assistance/communication to households Data collection Data transmission

See Resources R7-58 to R7-64 and R7-34 for examples of supervision checklists.

Example of a checklist from Ghana

Rapid monitoring surveys

A rapid monitoring survey is a non-scientific programmatic tool to help determine quickly whether the target population is being reached by the campaign and to identify any significant gaps in coverage. The Pan American Health Organization (PAHO) originally developed this supervisory assessment strategy for use in poliomyelitis and measles vaccination campaigns. Malaria programmes integrating LLIN distribution with child vaccination campaigns then adapted the methods to identify LLIN gaps as well. During or immediately after campaigns, supervisors identify areas that are at high risk of low coverage due to poor access, weak campaign team performance, inadequate social mobilization or other factors. They then conduct convenience surveys to identify 20 households that should have participated in the campaign. If two or more households were missed during the household registration, then teams can revisit the area to repeat communications activities and address missed households or individuals. If two or more households received insufficient quantities of nets, as compared to campaign guidelines, then the supervisors should discuss the findings with the local team to determine what actions to take, if any, to address the gap. The same can apply to hanging of LLINs in households. Rapid monitoring does not produce statistically valid coverage results. However, as a supervisory tool, it can be very useful to identify under-served areas and validate coverage.[g]

7.10 Key implementation recommendations

- In order to acquire sufficiently accurate and timely information at the operational level, it is recommended that as soon as the plan of action has been validated at the central level, initial communication should begin with the operational levels and funding made available for micro-planning.
- Once finalized and validated at central or regional level, the approved micro-plan and budget must be sent back to the districts and health facilities to ensure that all are working from the same micro-plan at the time of implementation.
- It is important to establish criteria for selection of personnel, and to ensure that they are followed consistently.
- When training, wherever possible, countries should try to limit the number of cascades and ensure standard content is passed down the chain to improve the quality of the training. It is also important to include in the training some system of post-testing, both to check the knowledge and comprehension of the participants and to evaluate the quality of the training itself.
- It is recommended that the number of participants in each training session is limited to ensure that the training environment is suitable for question and answer, plenary discussion and practical exercises such as role plays or simulations.
- The data collected during household registration should be limited to data relevant to the campaign. Any extra information collected increases possible errors by volunteers and complexity of data synthesis.
- Countries consistently underestimate the amount of time, the training needed and the volume of work required to ensure the data collected are managed well. It is recommended that a minimum of two to three weeks is planned for the collation and synthesis of the data from the household registration. Where the household registration

data are being used for pre-positioning of the LLINs, the time required to move the LLINs to the distribution points must be determined with the logistics sub-committee before setting the distribution dates.

Endnotes

a. Reproduced with permission from Programme National de lutte contre le Paludisme de Côte d'Ivoire.

b. Source: Ministère de la Santé du Togo.

c. Logistics and communication are also key activities throughout the campaign. Their training needs are covered in Chapters 5 and 6.

d. When rounding down, the intra-household coverage will be lower than when rounding up. See Kilian A, Boulay M, Koenker H, Lynch M, *How many mosquito nets are needed to achieve universal coverage? Recommendations for the quantification and allocation of long-lasting insecticidal treated nets for mass campaigns.* Malaria Journal 2010 9:330. See: www.malariaconsortium.org/userfiles/file/Malaria%20resources/Netscoverage_malariajournal.pdf

e. "When two nets are allocated to households, the percentage of households receiving one net for every two household members ranges from a low of 11.3 per cent to a high of 35 per cent. When three nets are allocated, the percentage of households receiving one net for every two household members ranges from 15.7 per cent to 43.3 per cent. In nearly all countries, an allocation of two nets per household provides an insufficient number of nets to achieve universal coverage, while an allocation of three nets provides households with too many nets and is an inefficient use of resources." Ibid.

f. See also WHO interim recommendations (WHO Global Malaria Plan – draft publication).

g. See also Luman E et al. *Use and abuse of rapid monitoring to assess coverage during mass vaccination campaigns.* Bull World Health Organ. 2007 September: 85(9): 651. See: www.ncbi.nlm.gov/pmc/articles/PMC2636402

Mozambique. © Ramesh Khrishnamurthy, CDC Malaria Branch

8: Monitoring and evaluation

LLIN scale up efforts, especially mass distribution campaigns, represent unprecedented financial, planning and logistical challenges. Countries can benefit from a careful monitoring and evaluation (M&E) strategy in order both to determine optimal use of resources during the campaign and to provide lessons for future distributions. The international shift toward universal coverage of malaria interventions, and the trend toward more stand-alone versus integrated campaigns, will require a thorough assessment of how well existing and new strategies meet the objective of universal coverage. This assessment will require careful monitoring and evaluation as well as a comprehensive analysis of results.

An M&E strategy focused on a campaign must be consistent with, and complementary to, the country's overall malaria M&E plan. However, each campaign needs a specific M&E plan to ensure data are collected in order to determine if it has met its objectives, to assess the strategies used and to provide lessons for future activities. Activities carried out through M&E may also help inform other countries and partners on the design of ITN[1] hang-up interventions and assessments, whether these are campaign or continuous distributions.

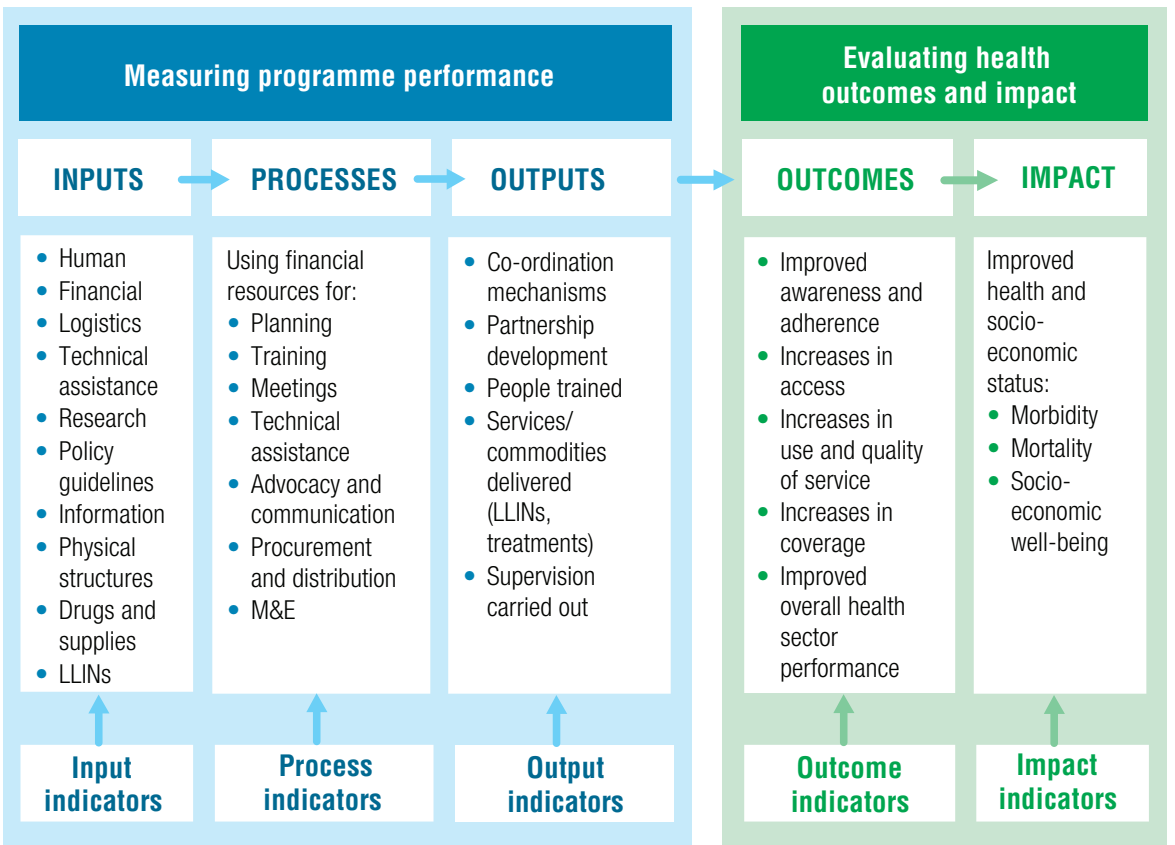
Monitoring is "the routine tracking of the key elements of programme performance through record-keeping, regular reporting, surveillance systems and periodic surveys", while evaluation is "the periodic assessment of the change in targeted results that can be attributed to an intervention"[a]. This chapter will focus on the monitoring of the entire campaign process, evaluating campaign outcomes (in terms of ITN ownership and use), the monitoring of ownership and use over time, and briefly on estimating the impact achieved by the campaign.

Figure 1 provides a basic framework for M&E related to LLIN campaigns. This framework gives examples of key inputs, processes, outputs, outcomes and impact that can be considered in formulating measurable indicators. Records from the National Malaria Control Programme (NMCP) and its partners, the National Coordinating Committee (NCC), supervisory checklists, minutes of meetings and similar documents are good sources of information for assessing inputs, processes and outputs. Household surveys or high-quality routine reporting systems may be used to measure outcome and impact.

Senegal. © Robert Perry, USAVPMI

[1] Though most campaigns distribute LLINs, non-long-lasting insecticide treated nets, whether treated during production or by the end user, also provide protection for around 6—12 months. When assessing coverage and use, the standard indicators include insecticide-treated bednets (ITNs) of all types, not just LLINs.

Figure 1: Basic monitoring and evaluation framework



Adapted from *Framework for monitoring and evaluation of integrated child health interventions*, draft February 2006, WHO/AFRO, page 8.

8.1 Contents of the M&E section of a LLIN campaign or scale-up plan

A group of persons responsible for designing and implementing M&E strategies should be formed early in the planning process, whether as part of the NCC's technical sub-committee or as a separate M&E sub-committee. It can include NMCP and partner staff designated for M&E activities, along with members of the Census Bureau, academic institutions and others with relevant experience. To develop the M&E section, this group should start by reviewing and building on M&E chapters of an existing strategic plans such as health sector plans, national malaria plans and Global Fund proposals and plans. The key documents at the end of this chapter give general guidelines for M&E of malaria programmes and examples of indicators that might be included. The M&E section of a LLIN campaign plan of action or broader continuous distribution plan should describe the planned activities such as training, monitoring, surveys and reporting of results. It should also clearly delineate the partners involved and the responsibility of individuals for each activity, the timeframe and the resources (human, financial and infrastructural).

The M&E section of the LLIN campaign plan of action should contain:

- Introduction
- M&E framework: goals, objectives, indicators, outputs, outcomes, relationship to national malaria M&E plan
- Methodological approach: M&E design, data sources, data collection methods and tools (tally sheets, supervision checklists for monitoring, post-campaign surveys for evaluating outcome)

- Implementation plan: description and schedule of activities, roles and responsibilities
- Reporting and dissemination plan for the information collected; use of indicators for improving the LLIN distribution programme
- Budget for all activities, materials and equipment

The M&E group, together with NMCP managers and others overseeing LLIN distribution campaigns should consider developing an **advocacy and fundraising plan** for M&E. Preparing a concise, well thought-out and thorough M&E section and presenting it early in the campaign planning process to government officials and partners will help ensure adequate attention and funding. The guidelines for measles and polio vaccination campaigns (see key documents) give good examples and suggestions for the M&E section of a LLIN distribution campaign plan.

Questions to answer and indicators to use

The first and often overlooked step in developing an M&E plan for a campaign is determining key questions requiring answers, together with identifying the indicators that will help to answer them. Relevant indicators should be linked to the goals of both the national programme and the LLIN campaign plan of action. Remember that a viable indicator is **SMART**:

- **S**pecific: identifies concretely what will be accomplished
- **M**easurable: quantifies the amount of resources, activity or change
- **A**ppropriate: makes sense in terms of what the programme wants to do
- **R**ealistic: achievable with available resources, plans and experience
- **T**ime-based: specifies when it will be achieved

Each indicator should specify exactly what is to be measured for the numerator and denominator (for example, number of volunteers actually trained for household visits versus number planned to be trained), the link to a campaign goal or activity, and the methods and frequency of data collection. When identifying and prioritizing indicators, consider the cost and feasibility of collecting the data, and keep the number of indicators to a minimum.

In brief: what information does the programme need now, how will each indicator be used, and how might measuring this indicator influence future decision-making for action?

Indicators developed for LLIN campaign evaluations typically answer these questions:

- Ownership: Do you own a net? Where did you get it?
- Use and determinants of non-use: Was it used (e.g. last night)? Who used it? If not, why was it not used?
- Knowledge: Why are nets used? How long does a net last?

Indicators found in the sample post-campaign survey questionnaires may also answer questions related to campaign operations:

- Were you visited by a door-to-door team?
- If a voucher scheme was used, did they give you a voucher?
- Did you exchange the voucher?
- Do you still have all the nets?

Appendix 8A gives examples of process and output indicators that have been used during universal coverage campaigns[b] and Appendix 8B describes standard ITN-related outcome indicators, many recommended by the Monitoring and Evaluation Reference Group (MERG) of Roll Back Malaria (RBM) as key measures to include in national population-based surveys such as the Malaria Indicator Survey (MIS), and additional indicators proposed for measuring progress towards universal coverage.

See Section 8 of the Resources CD for examples of M&E plans (R8-1 to R8-5).

8.2 Monitoring campaign performance

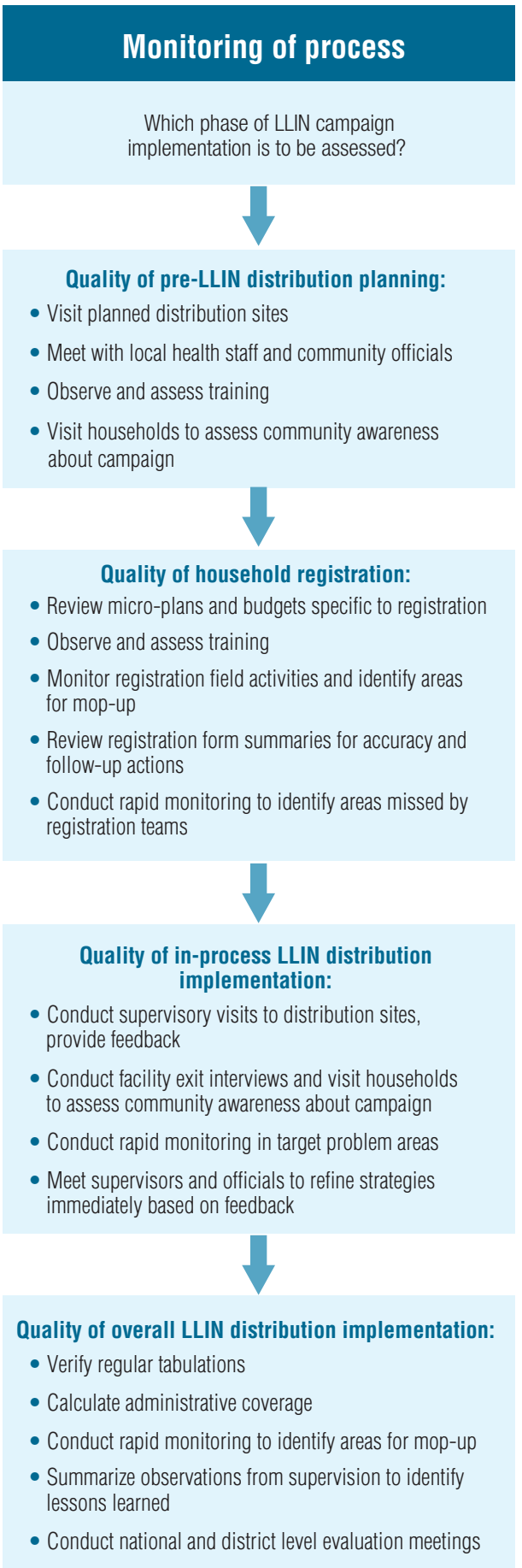
Monitoring campaign performance is an assessment of process. Process assessment can cover monitoring campaign inputs and activities during three parts of the overall campaign timeline:

1. Pre-campaign assessments of the quality of the budgets, maps and timeline used in micro-planning.
2. Assessments during the campaign (or "intra-campaign") using supervisory checklists, narratives and rapid monitoring surveys.
3. Post-campaign summaries of logistics and other inputs used and administrative estimates of coverage.

The process monitoring flowchart (below) gives a sample of activities that could be conducted during each phase of the campaign.

A key part of the process assessment comes from post-campaign review meetings that can be conducted at each level of the health system. These meetings should involve a standardized summary and assessment of delivery and use of LLINs and other items or services provided in the campaign. The information presented in these meetings should be collected to calculate the process and output indicators in the M&E plan, and should be used to develop a short post-campaign technical report and a larger campaign report, as described in Chapter 9.

Examples of information to review during these meetings include the number of LLINs delivered, the number and duration of stock-outs and the implementation of training workshops. The data should come from stock inventory forms documenting delivery of LLINs and other commodities at all levels, tally sheets, storeroom logbooks and if possible a physical count of key remaining materials (LLINs, vouchers, etc.). These data should be collected at district level using a spreadsheet similar to those in the key documents and compiled at higher levels. Evaluation of the logistics process, including commodity management assessment, is covered in Chapter 5.



These meetings and reports should also provide the overall budget for the campaign at the local level, the sources of the funds used to support the budget and the actual amounts spent. Key factors contributing to or detracting from the success of the activity can be added.

Process assessment can also include a general qualitative process review, involving structured interviews of key personnel at various points during preparation, implementation and follow-up phases of activity. Much of the information for the process assessment and review meetings will come from monitoring and supervisory activities described in Chapter 7. Communications activities should also be addressed in the meetings and process evaluation, as described in Chapter 6. Supervisors' observations recorded on checklists along with specific tips to monitor social mobilization can all add to this assessment. People can also be assigned to listen to local radios and/or scan newspapers for campaign announcements. Some campaigns have also used exit interviews and rapid monitoring (described in Chapter 7) to assess the success of communication activities in terms of reaching the target populations with LLINs. Key issues for process evaluation and for supervisors at each level to address during campaigns depend on the exact strategy used but might include:

- **Registration:** how complete was the registration process in each administrative unit? Were large numbers of households missed during the registration process? Entire communities? For what reasons?
- **Distribution:** how many LLINs were delivered? How many households collected their nets? Why did households not pick up their nets? Did any households not receive the number indicated at registration?
- **Stocks of LLINs:** do the numbers of LLINs match at each dispatch and receiving point in the supply chain? Are tally sheets complete and accurate? Who is responsible for checking, and are they able to match on-loading and off-loading tally sheets quickly? This information will help in detecting possible "leakage" or diversion of LLINs.
- **Training:** did training workshops for each cadre (supervisors, village registration teams, etc.) occur on schedule (or at all)? Did they follow the established curriculum? How many days did the training really last? What proportion of workers in each cadre attended training? If trainees received a post test, what were the results?
- **Supervision:** did each team receive a supervisory visit? How many? What were the results from the supervisory checklists?
- **Communications:** compared to the number planned, how many times were television and radio spots played? How many banners produced? Home visits made? Community health education sessions done?

Another priority is to decide how the programme would respond to information about areas identified with weak household registration, or as poorly covered during distribution. When the villages visited first are covered well, teams may run out of nets, leaving other villages completely without nets.

Teams may also inadvertently skip villages altogether, notably villages thought to have been covered by other teams. If a mop-up activity is indicated, then programmes must determine whether nets are available, and if so, how soon they would arrive. If adequate nets have been procured and the problem is re-distribution, then teams may want to focus on covering entire villages and leaving others for mop-up activities when additional nets are available. However, if additional nets are not available, district managers may elect to cover all villages but to reduce the number of nets going to any one family. A description of the areas of high and low coverage and the decisions made in response to inadequate numbers of nets can be used to adjust the continuous distribution system to target areas of low coverage.

Note that coverage should *not* be estimated from rapid monitoring tools. Instead, these reports

should be used for a qualitative assessment of the completeness of the campaign and to identify reasons for non-participation and the success of communication strategies. Coverage should instead come from data on LLINs delivered ("administrative coverage", see below) and if possible from surveys using statistically sound sampling methods and standardized questionnaires.

Administrative coverage

Coverage achieved for an intervention can be assessed simply by comparing the number of people reached or the number of LLINs delivered to the target population. Usually called "administrative coverage", this indicator is based on data collected on tally sheets during the campaign. As this information is readily available during the campaign, it can be used to monitor progress and quickly identify any areas or populations requiring mop-up activities. The spreadsheets included in the key documents are good examples that countries should adapt and use to collect this data at district level for compilation at regional/provincial/state and national levels. These data can also provide coverage estimates soon after the campaign for any level of the health care system, from national to local. The accuracy of administrative coverage depends on the quality of the collection, synthesis and transmission of data on the number of LLINs and other interventions delivered during the campaign and on the quality of the estimates of the target population.

Often population estimates are inaccurate in countries with high birth and mortality rates, poor vital registration systems, or significant population movements. The nature of administrative data only allows the calculation of coverage estimates, leaving no opportunity to learn about ITN utilization or communication strategies, or to collect information from persons who did not participate in the campaign. These data also do not allow for calculating key indicators such as the proportion of households with an ITN, the number of ITNs per household, or the proportion of households reaching universal coverage.

Figure 2 gives the formulae for calculating administrative coverage. See Section 8 of the Resources CD (R8-18 to R8-20) for examples of spreadsheets showing recording and summarizing of administrative data collected during campaign operations.

Figure 2: Administrative coverage

$$\text{Coverage} = \frac{\text{Number of targeted people receiving a LLIN}}{\text{Estimated size of target population}} \times 100$$

This formula can be modified for universal coverage campaigns. For example, when the strategy is distributing one LLIN for every two people, the administrative coverage is:

$$\text{Coverage} = \frac{\text{Number of LLINs delivered X 2*}}{\text{Estimated size of target population}} \times 100$$

If an estimate for household coverage is needed this can be obtained as:

$$\text{Coverage} = \frac{\text{Number of LLINs delivered}}{\text{Mean LLIN/household delivered x estimated households}} \times 100$$

For campaigns targeting sleeping spaces, the formula might be:

$$\text{Coverage} = \frac{\text{Number of LLINs distributed}}{\text{Number of sleeping spaces needing nets**}} \times 100$$

* Needs estimation may use a different ratio in order to account for households with an odd number of members. For administrative coverage the ratio remains one bednet will cover two people.

** The number needing nets depends on how pre-existing nets are handled. Some countries choose to ignore pre-existing nets because their age and treatment status may be unknown so the number of sleeping spaces needing nets is the total number found. For countries opting to account for existing nets, the number here would be the total number of sleeping spaces not already covered by an ITN.

8.3 Outcome evaluation

Further assessment of the campaign's outcomes will often use surveys to focus on measuring rates of net ownership, hanging and utilization. Surveys should also be used to assess the success of distribution and communications strategies and to identify reasons for participation or non-participation in the campaign. For integrated campaigns the survey should assess coverage and reasons for participation or non-participation for all interventions provided.

Roll Back Malaria MERG recommends that malaria-endemic countries regularly monitor coverage of key malaria control interventions based on data derived from high quality and statistically-sound household surveys, such as the Multiple Indicator Cluster Survey (MICS), Demographic and Health Survey (DHS) or Malaria Indicator Survey (MIS). The methods for these surveys are given in the key documents listed in Appendix 8D. They use a standardized methodology and questionnaire to determine, among other indicators, the rates of household possession of ITNs and of ITN utilization in the general population (for universal coverage) and for vulnerable groups such as children under five years of age and pregnant women.

Options for measuring outcomes of LLIN distributions range from a DHS, MIS or MICS to more focused "stand-alone" post-campaign surveys. A stand-alone survey could use a methodology similar to the MIS or others such as the International Federation of Red Cross and Red Crescent Societies' RAMP (rapid mobile phone-based) surveys, based on a modified Expanded Programme on Immunisation (EPI) survey methodology. Simple estimates of ownership, though not of hanging or utilization, can also come from routine administrative data.

COUNTRY CASE STUDY

An example of a two-phase process assessment approach to improve campaign implementation and planning for follow-up activities comes from Nigeria's National Malaria Control Programme.

For the in-process assessment, monitors and supervisors are embedded into the local government area (LGA) supervisory structure to assess campaign operations using a standard data collection tool. The information is used to take immediate corrective action. Such activities have helped identify missed households and inadequately covered zones in urban areas, poor distribution of net cards (vouchers) and inadequate supplies of LLINs.

The end-process assessment is used to assess overall campaign implementation and address any follow-on problems. This phase involves a rapid assessment conducted by independent monitors one day after the campaign ends. The assessment uses convenience sampling[2] to identify gaps in household registration, LLIN ownership and use, and to learn how household members heard about the campaign (and, thus, the reach of communications activities). The LGAs summarize the data and use them to identify follow-up activities, such as mop-up in poorly served areas, and hang-up efforts. The key process indicators being assessed in both phases are:

- quantity of LLINs moved to secured storage sites at LGA warehouses
- quantity and cadre of campaign personnel trained prior to implementation activities
- quantity of net cards issued to households
- number of LLINs distributed
- number of persons who received correct information about the campaign (reasons to get a LLIN, where and when to access the LLINs, how to install LLINs properly, etc.)

[2] Convenience sampling: a sample of households/individuals that can easily be reached or observed, but may not be representative of the actual population of the area since they are not selected at random.

An outcome evaluation should measure the indicators noted above and those listed in Appendix 8B. The percentage of persons of all ages using an ITN last night is the most important indicator of ITN utilization and the most important indicator for monitoring universal coverage. The indicators for monitoring ownership and access are still being finalized, as are questions on sleeping spaces or loss of nets, or information about why nets are not being used. Updates to these indicators are on the RBM[c] website as they become available, and AMP will post updates to its website[d] as well. It is important to remember that usage rates depend on the timing of a survey relative to the rainy season and when communications strategies to improve usage have been implemented. As the DHS and MICS are often conducted in the dry season those surveys may show ITN use to be lower than if conducted in the rainy season.

Communications assessment is covered in Chapter 6 with a discussion of key indicators on knowledge and behaviours that can be incorporated into outcome evaluations.

Selecting the best approach to measuring campaign outcomes depends on a number of factors:

- LLIN distribution programme objectives
- questions to be answered
- anticipated uses of the data
- timeframe needed for obtaining the information to help improve the LLIN distribution programme
- smallest difference (between subgroups, e.g. regions/provinces or urban/rural or between surveys) that is programmatically relevant and the level of statistical precision that is needed to detect that difference
- timing of the campaign, relative to data collection activities planned by the NMCP, and the availability of partners to help collect information on coverage and use
- budget and personnel available for the evaluation

Mozambique. © Ramesh Khrishnamurthy, CDC Malaria Branch

In general, given the large investments made in the campaign and the innovative nature of the activity, the outcomes and operations for the distribution should be assessed by means of a survey using a standard methodology. The survey should ideally be conducted during the next rainy season following the distribution. Countries are urged to take advantage of already-planned surveys, if one is scheduled sometime between the distribution and the end of the following rainy season, in order to increase efficiency, save costs and reduce the burden on health workers that comes with multiple surveys. If a national survey is not conducted in the desired timeframe and if resources are available, a specific post-campaign survey should be considered. Figure 3 gives a flowchart with key questions to consider in deciding whether to conduct a stand-alone versus an already-planned survey. Additional important questions include:

- Is the proposed post-campaign survey clearly described and justified in a LLIN mass distribution plan of action or the campaign M&E plan?
- What new information is needed to evaluate the campaign strategies, such as targeting

sleeping spaces, accounting for pre-existing nets, household distribution of vouchers, behavioural questions surrounding ITN care and use, hang-up visits and targeting universal coverage rather than vulnerable populations alone?

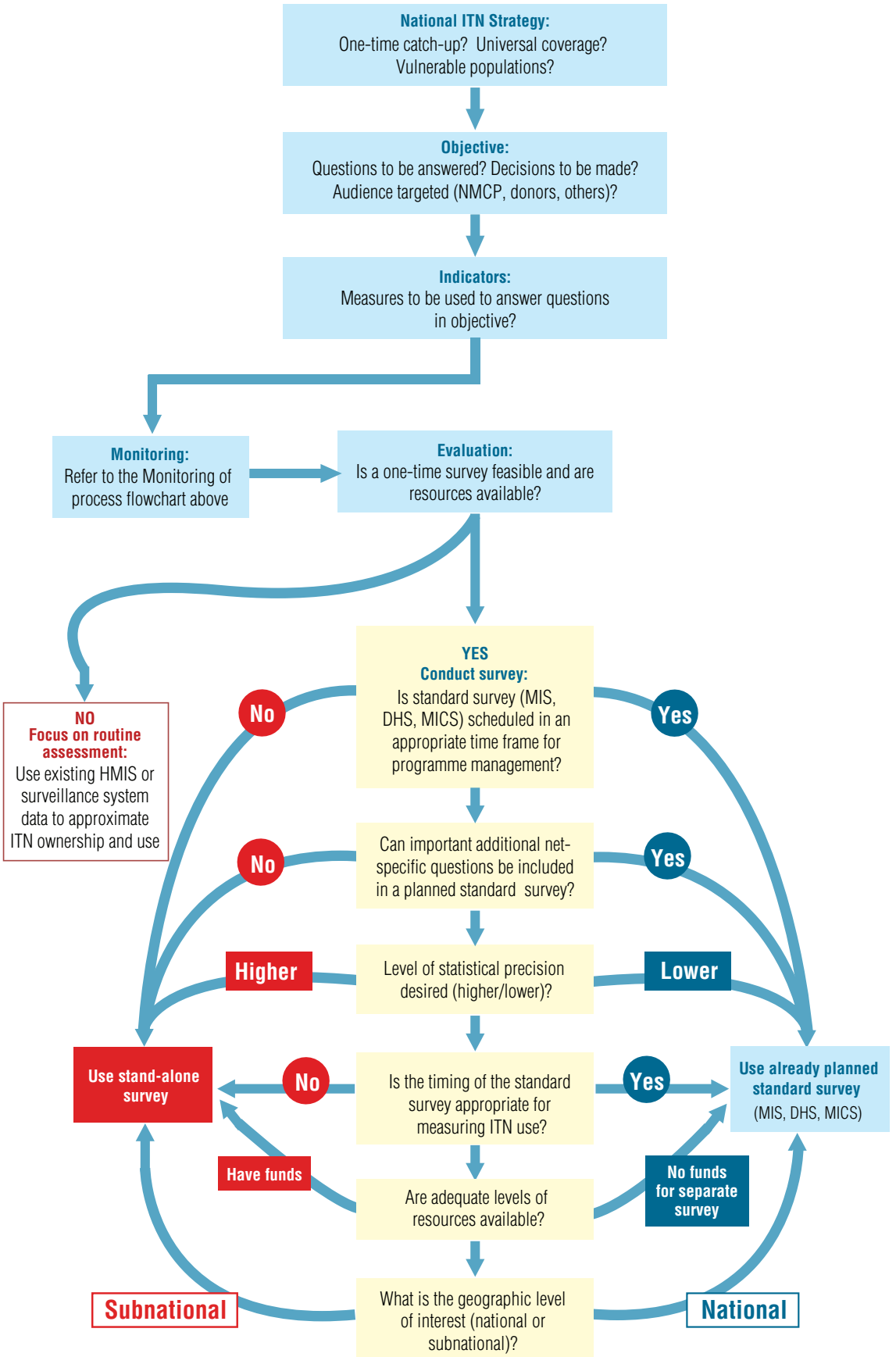
- Can the new information be measured through an already-planned population-based survey? If the distribution was sub-national, will the already-planned survey provide results for the area covered by the campaign? Are the indicators for the campaign consistent with those recommended by MERG for use in the DHS, MIS and MICS? If a key goal is measuring ITN usage, would that survey be conducted during the high transmission season when the usage information would be most useful for programme development?
- Will the results of the stand-alone survey answer critical questions for improving LLIN ownership and use?
- Which critical questions can be answered through an end-process assessment immediately post-campaign, and which questions require a household survey? Do the additional indicators and results justify a survey or adding extra questions to an already-planned survey? If you could not conduct the survey or add the extra questions to an already-planned survey, how would you answer your key evaluation questions in the required timeframe?
- At which level (national, regional, district) should the results ideally be available? Does the survey need to be national or sub-national? Remember that national post-campaign surveys are not usually designed to detect local areas with low coverage.
- How will the results be used in programme management? If areas of low coverage are found, whether through end-process assessment or through the survey, what sort of a reaction is planned? Is further distribution feasible?
- If areas of high coverage and low use are found, whether through end-process assessment or through the survey, what kind of reaction is planned? Is intensified BCC an option?
- How quickly is the information needed? If the NMCP is conducting a rolling campaign, is the information needed quickly to adjust strategies midway as needed? Or is the next campaign planned for some years in the future to replace old LLINs?

Periodic nationally representative surveys

Most countries regularly monitor coverage of key malaria control interventions through surveys such as the DHS, MIS or MICS and if possible such a survey should be used to evaluate a LLIN distribution. The list of key documents includes references for the methods and questionnaires used. An advantage of these surveys is the inclusion of impact measures such as parasitaemia prevalence and under-five mortality rates. They also collect data on many confounding factors such as education and those used to construct a relative wealth index (see Rutstein reference in key documents). The interpretation of results from these surveys depends on their timing relative to the malaria transmission season. The DHS or MICS are typically conducted during the dry season for logistical reasons, while the MIS is normally conducted during the high transmission season for malaria, that is, during or at the end of the rainy season.

A potential disadvantage is that the campaign M&E group may not have the power or influence to modify the questionnaire used for DHS, MICS or MIS surveys to collect information specific to the campaign, such as a roster of sleeping spaces, information on the success of communication strategies and the location of any LLINs received during a prior campaign. Countries may be reluctant to add questions to already lengthy survey instruments. These comprehensive household surveys may take many months from the time of planning the survey to receipt of results. They are expensive, but are usually funded through other sources and may not affect the campaign's operational budget.

Figure 3: Decision flowchart to guide the choice of methods for monitoring and evaluation of LLIN distribution campaigns



Post-campaign LLIN coverage and utilization surveys

Stand-alone post-campaign coverage and utilization surveys are another means to confirm campaign coverage estimates from administrative data, to assess the implementation of campaign strategies (including communication), to measure ITN utilization and to collect information on members of the target population who did not participate in the campaign. These surveys can also determine rates of possession and use of ITNs from any source, ask questions specific to the LLINs given out during the campaign, and assess communication strategies for increasing net use. They were initially conducted twice, once just after a mass distribution, then again six to nine months later, during the following rainy season. As no significant differences in ownership have been found in several countries, it is now recommended that a single survey be done during the first rainy season following the campaign. As indicated earlier, these stand-alone surveys should only be conducted if the periodic nationally representative surveys are not feasible or timely for programme planning. These surveys usually do not include the collection of blood samples for parasitaemia or anaemia testing, as these tests are included in the DHS and MIS. Stand-alone surveys, with a shorter questionnaire and often a smaller sample size, can cost much less and be completed much more rapidly than the periodic surveys.

Appendix 8C and the key documents listed under this section in Appendix 8D contain more detailed descriptions of possible methods to use when conducting post-campaign surveys.

The International Federation of Red Cross and Red Crescent Societies (IFRC) and the WHO's Global Malaria Programme are collaborating on developing rapid mobile phone-based (RAMP) surveys based on the EPI cluster survey methodology, with the goal of reducing the cost and the need for outside technical assistance. The RAMP survey follows standard survey methods and uses a questionnaire similar to the one used in a MIS. It uses inexpensive public-domain mobile phone-based tools and software for data entry and a smaller sample size (30 clusters of 10 households each) to reduce costs. Additional innovations are questions on net possession, use and physical condition in aggregate together with a net and household roster, with the aim of assessing whether these rosters could be dropped. The goal is to simplify the methods and tools to allow malaria programme managers to conduct repeated surveys to track rates of ITN possession and use after a mass distribution campaign. Disadvantages include the wider confidence intervals[3] for stratified analyses, and for a national survey, the need to increase the sample size greatly to have results for provincial/regional levels. These methods and the questionnaire are currently in the process of being validated.

Three pilot surveys were conducted in 2011, in Kenya, Namibia and Nigeria, using Red Cross volunteers to collect data on mobile phones. Further details are available from the IFRC.

See the Resources CD for examples of a post-campaign survey questionnaire (R8-6 to R8-9).

8.4 Practical considerations

The choice of survey methodology depends on a careful assessment of the advantages and disadvantages of each possible approach. Though the costs of periodic nationally representative surveys are often borne by other groups and the methods are sound, they require a long period of time for data collection and may not be well timed relative to the campaign and the malaria transmission season. It may also be difficult to make modifications to standard questionnaires to include specific questions about campaign interventions, campaign operations and

[3]Confidence interval: an interval calculated from the observed data that gives an indication of the precision of the result, for example the precision of the estimate of household coverage with one or more ITN.

communication activities. A stand-alone survey allows a more focused collection of information on the campaign and may be less costly, but the costs and organization of the survey must be handled by the groups supporting the distribution campaign. The methods and questionnaire of a stand-alone survey should be as similar as possible to the relevant parts of a periodic nationally representative survey.

A less costly alternative should ideally be considered only it if has been compared to standard methods. For example, the sampling methods and questionnaire of a style of survey exemplified by an EPI coverage survey would have to be modified to overcome sampling errors, properly account for net possession and use, and include the larger target age group. Appendix 8C and the article by Luman et al. in the key documents address several important methodological issues for improving the quality of these surveys.

For all survey types, increasing the sample size to obtain results below the regional/provincial level is often operationally and financially challenging.

Statistical sampling and analysis

The M&E group (as part of the NCC's technical sub-committee or as a separate M&E sub-committee) should consider accessing specialized statistical expertise within the MoH, the National Statistics Agency or Census Bureau, universities and non-governmental partners to assist with sampling, design and analysis. The ideal survey method will give statistically valid, relatively simple measurements of campaign indicators at low cost, with little or no external technical assistance. Campaign M&E staff and the NMCP M&E focal persons should work closely with the statistician and provide appropriate guidance in analysing the data. As campaign organizers and the NMCP M&E team review the approaches

Senegal. © Robert Perry, USAID/PMI

recommended by statisticians, they should keep the following points in mind:

- The standard method for a large-scale survey in malaria endemic countries is a multi-stage cluster survey. (Appendix 8C gives more detailed definitions and information on this kind of methodology.) The method for selecting clusters and selecting households within clusters should be well described and statistically valid. The method should also give results at the desired level, typically the level of region or province.
- Determine the desired precision of sampling. In cluster sampling, generally select at least 20 to 30 clusters so as to give reasonable bounds of precision around the resulting estimate. Fewer clusters will not give estimates with the desired precision, while additional clusters will give more precision than necessary. In order to have results at the provincial/regional or district levels, each unit (province, region or district) will require 20 to 30 clusters giving a total of 120 to 475 clusters depending on the size of the country and the area at risk for malaria.
- Select at least 10 households per cluster, but no more than 30 per cluster. A large number of households may not be necessary to obtain an acceptable confidence interval for programme planning purposes and may increase the time spent (and cost) per cluster.
- Use appropriate software for the analysis, if stratification[4] or cluster sampling is used.

When reviewing the results of the survey and comparing it to earlier ones, programme managers and the campaign M&E group should keep these points in mind:

- Any comparison of surveys should take into account the timing of data collection relative to the malaria transmission season. For example, the DHS is often conducted in the dry season, while ITN usage and parasitaemia prevalence are best measured during the rainy season (when the MIS or most stand-alone post-campaign surveys are done).
- Understand and agree on the "programmatically significant" threshold level of key indicators where additional action should take place, and what additional actions are possible. Regional estimates for indicators are less precise than national estimates. For a typical DHS or MIS, differences should be at least 10 to 15 per cent before they could be statistically significant.
- Be sure the analysis properly accounts for the survey design.
- Small differences in survey findings between regions or other groups are not important.

Implementing post-campaign surveys

Various resources are available that describe in detail the organization and implementation of surveys. Based on experience with numerous LLIN post-campaign surveys, some practical considerations and lessons learned include:

- Mobilize partners for conducting the survey, but have a written agreement about roles and responsibilities.
- Develop a standardized survey protocol adapted from existing examples used within the country and elsewhere.
- Obtain clearance from a national ethical review board. Partners may have different requirements, and thus the process may be lengthy.
- Prepare a budget and timeline of activities together with the protocol.
- Develop, test and revise the questionnaire. Strive for consistency with the most recent model available from the MERG or on other recent MIS or other surveys done nationally or in the region to save time and ensure consistency of results. Add questions based on the campaign objectives, but only

[4] Stratification: dividing the population into distinct categories, for example rural or urban, and drawing a sample from each category. This sampling method helps to obtain representative results from each stratum.

those critical for LLIN programme needs. For example, previous surveys have added the creation of rosters for sleeping spaces and recently discarded nets, and questions about knowledge of malaria causes and prevention, visits by community health workers, reasons for non-use of ITNs and the condition of ITNs.
- Establish clear criteria for selecting survey workers, clear definitions of their roles and clear policies for how they are paid.
- Focus training on good interview techniques, the definition of a household (or other sampling frame), obtaining interviewee's consent and handling data. These issues are as important as the questionnaire itself and an understanding about why questions are being asked.
- Plan well to ensure security and well-being of interviewers in the field. Consider taking out insurance policies from a local firm.
- Plan adequate and reliable transportation and always have a back-up plan in case of problems.
- Ensure that the fieldwork itinerary will allow teams to make any follow-up visits needed.
- Ensure adequate funding and that cash is available in the field.
- Arrange for regular supervision of teams and monitor the supervisors.
- Set up a system for data entry for paper-based surveys, or for downloading data from electronic data collection devices. Paper forms should be double-entered to ensure accuracy.

See the Resources CD (R8-6 to R8-9) for examples of model post-campaign survey questionnaires.

8.5 Continuous post-campaign monitoring of ITN possession and use

Assessment of changes in the ownership and utilization of ITNs and the coverage of other proven preventive measures has traditionally relied on periodic nationally representative surveys. Relying only on data from periodic national surveys, however, does not allow measurement of interim progress critical to programme management and does not provide data at the operational level.

Kenya. © Karen Bramhill, IFRC

Programmes can take advantage of campaigns to revisit and strengthen the routine collection of data on ITN possession and use. Many strategies can be used for the collection of these data, each with its strengths and weaknesses, and countries should consider what is feasible locally. For example, after a mass campaign, programmes can strengthen the reporting of routine LLIN distributions to the national Health Management Information System (HMIS) or to the NMCP.

Other methods are available for tracking ITN possession and use. For example, during campaigns for indoor residual spraying of insecticides for malaria control, the spray teams could also collect data on the number and utilization of nets in each house visited. Lot quality assurance sampling (LQAS), described in detail in Appendix 8C and the key documents, has also been proposed as a low-cost, easily-analysed method to determine if local areas (such as a health facility catchment area or a health district) meet certain criteria for the rate of ITN possession or utilization. This method has been used in many contexts for assessing coverage but has not been widely used as a post LLIN distribution campaign coverage survey approach.

8.6 Assessment of impact on malaria

The ultimate goal of LLIN campaigns is to reduce the intensity of malaria transmission in the total population at risk, and especially to reduce the burden of disease in the most vulnerable groups (children under five years of age and pregnant women). Assessing impact may be challenging for several reasons, among them the availability of data on the number and causes of deaths occurring outside the formal health system, where a significant proportion of deaths may take place. Other confounding factors, such as other health interventions affecting child mortality and factors such as climate affecting disease incidence must also be considered. Potential sources of data to measure such impact include nationwide household surveys such as a DHS, MICS or MIS, routine nationwide reporting of malaria morbidity and mortality, and sentinel surveillance[e] data.

The relationship between ITN coverage and use and impact on all-cause mortality in children under five years of age has been well documented in the last decade, and the impact on malaria morbidity and mortality is established in the literature through well-recognized plausibility arguments[f]. Nevertheless, mass distribution of LLINs on a national or sub-national scale is relatively new; every campaign provides additional data and insights into the effects of different programmatic choices on outcome and impact.

In malaria endemic areas, national household surveys should include measurement of the prevalence of parasitaemia and anaemia in children 6—59 months of age as well as measurement of overall infant and under-five mortality. Impact of campaigns can be monitored using routinely reported surveillance data (inpatient and laboratory-confirmed outpatient) from HMIS, though in many countries these data are often of poor quality. Data from sentinel sites could also be used to measure impact if the country has such a system in place for malaria surveillance, but these sites may not be representative. To address these limitations and to build capacity, countries and their partners should consider including support for strengthening routine reporting of malaria morbidity and mortality into the campaign planning process, similar to the scheme the Measles Initiative promoted for countries conducting measles supplementary immunization activities. For example, by implementing the WHO recommendation for parasitological confirmation of all suspect malaria cases, countries can begin to strengthen the capacity of the HMIS to improve the quality of reported malaria data. In addition, countries can implement periodic (typically quarterly) review meetings for districts to present malaria surveillance and programme performance data to ensure that data are being used for decision-making. Partners should support a national government entity such as the NMCP or the MoH's Disease Surveillance Unit to improve such efforts, and possibly expand it to include data collection and reporting on indicators for other malaria programme strategies, such as case management or the number of LLINs distributed through continuous distribution systems.

Additional information on approaches to post-campaign impact evaluation is available through the Surveillance, Monitoring and Evaluation Unit at WHO's Global Malaria Programme and through the RBM MERG.

8.7 Reporting and use of evaluation results

The assessments of the various phases of the campaign can be summarized in a post-campaign report, described in Chapter 9 of this toolkit. More detailed reports of evaluations should be shared and discussed widely when available. Early in the planning process, the campaign M&E group and the NMCP M&E focal persons should obtain consensus on where the survey data will be stored, who will be authorized to use the data for further analysis, and what authorization will be necessary to share the data. The data collected are valuable resources to improve future

campaigns and guide continuous distributions, and must be used for those purposes. Analysis of results and lessons learned must feed back into the planning cycle.

Examples of how the information collected during post-campaign surveys was used to improve LLIN distribution efforts come from Senegal and Madagascar (see below).

See the Resources CD for examples of reports and use of evaluation results (R8-10 to R8-17 and R8-21).

COUNTRY CASE STUDY

In 2009 Senegal conducted a nationwide mass distribution of LLINs targeting children 6—59 months of age in two phases. Two months after the second phase, at the beginning of the dry season, a nationwide survey was carried out. This survey provided results for standard RBM indicators as well as information on sleeping spaces[5] and various potential universal coverage indicators. The results of the study were used to:

- show the limitations of a targeted approach when the goal is universal coverage
- estimate needs for a nationwide rolling universal coverage campaign from 2010—2011
- prioritize regions in the universal coverage campaign
- prepare submissions to the Global Fund
- develop strategies and goals for the new 2011—2015 National Strategic Plan

In 2007 Madagascar conducted a mass distribution of LLINs targeting children 6—59 months of age in malaria-endemic zones. Six months after the campaign, during the rainy season, a post-campaign survey was conducted. Results confirmed that free mass campaign distribution was the most equitable method of distributing LLINs in Madagascar to ensure they reach the most geographically remote and vulnerable populations. The NMCP and partners used the survey results to advocate with the Global Fund, PMI and UNICEF to increase their support for scaling up to achieve universal LLIN coverage, for estimating the LLIN gap and resources needed, and to refine the malaria programme objectives regarding LLIN availability.

In 2009 the country began a universal coverage campaign in three phases. After the second phase, the findings of the process evaluation and lessons learned based on campaign monitoring and supervision were used to modify and improve strategies for the final and largest phase. These results were used to:

- revise and clarify the method to distribute LLINs equitably to households
- eliminate the voucher system resulting in cost savings
- revise and improve the training curriculum, implement training at the community level and improve the quality of training
- standardize the micro-planning process at peripheral level
- improve selection criteria of local staff
- improve IEC/BCC messages and methods
- split heavy bales of LLINs to facilitate manual transport when needed

[5] Countries have established their own definitions of a sleeping space. In Madagascar, the evaluation team used the following definition: "a place where an individual spent the majority of their time sleeping the night before".

Appendix 8A: Examples of process and output indicators for use or adaptation in ITN universal coverage campaigns

The following table lists examples of key ITN process indicators that countries have used during universal coverage campaigns[6]. Focusing on measuring ***well*** a limited number of key indicators—perhaps 15 to 20—may help avoid overburdening staff and increasing monitoring costs. The indicators should be chosen only if they correspond to campaign strategies. The level of collection or measurement should focus on the district level or its equivalent, although it can be adapted to the region, province, state or zone if relevant and if resources are available. A complete table could include additional columns showing for each indicator:

- justification for the indicator (i.e. how the information will be used to improve campaign quality and reach coverage targets)
- data collection method and timing (such as supervisory visits, household visits and population-based surveys)
- persons responsible for overseeing data collection and reporting
- method for sharing the results (such as weekly meetings with supervisors and national post-campaign summary workshops)

KEY ITN PROCESS INDICATORS

No.	Description	Definition	Comments
1	Number and proportion of districts with functioning campaign coordination mechanisms in place	*Numerator:* Number of districts with functioning campaign coordination mechanisms in place *Denominator:* Number of districts targeted for the campaign	Countries can define "functioning" as appropriate, such as "containing at least one focal person each for planning, logistics and communications and meeting at least twice prior to the campaign".
2	Number and proportion of expected supervisory reports received at the district level	*Numerator:* Number of supervisory reports received at the district level at least one week before the campaign *Denominator:* Number of supervisory reports expected at the district level by one week before the campaign	
3	Number and proportion of planned regional campaign sensitization sessions conducted	*Numerator:* Number of regional campaign sensitization sessions completed as scheduled *Denominator:* Number of regional sensitization sessions planned	Countries can adapt the setting (province, district, etc.) as well as the target group being sensitized (district officials, community and religious leaders, etc.).
4	Number and proportion of household registration form summaries completed correctly	*Numerator:* Number of household registration form summaries observed during supervision that are completed correctly *Denominator:* Number of household registration form summaries observed during supervision	"Correct" completion needs to be defined, but can include: no missing information, no targeted household members or sleeping spaces missed, and the like.
5	Number and proportion of micro-plans finalized by targeted district	*Numerator:* Number of micro-plans completed by targeted district *Denominator:* Number of targeted districts	The reporting level can be modified for zonal, regional, provincial or any appropriate level.
6	Number and proportion of planned radio spots broadcast	*Numerator:* Number of radio spots that stations report having broadcast *Denominator:* Number of radio spots that stations planned to broadcast	Similar indicators can measure planned quantities of supporting print materials, interpersonal and community communication sessions, and other IEC/BCC activities.

[6] Sources: LLIN campaign indicator tables or supervisory checklists from Burkina Faso, Côte d'Ivoire, Ghana, Madagascar and Senegal.

APPENDIX 8A KEY ITN PROCESS INDICATORS (continued)

No.	Description	Definition	Comments
7	Number and proportion of community mobilizers trained	*Numerator:* Number of community mobilizers trained *Denominator:* Number of community mobilizers planned for training	
8	Number and proportion of community mobilizers with campaign job aids	*Numerator:* Number of community mobilizers observed during supervision who have campaign job aids *Denominator:* Number of community mobilizers observed during supervision	Similar indicators can show whether community leaders, health officials and health workers have job aids appropriate to their target group. Some countries require job descriptions, standard operating procedures, or a list of roles and responsibilities to be posted at health posts, and the indicator can be adapted accordingly.
9	Number and proportion of households visited by a community mobilizer before the campaign	*Numerator:* Number of households observed during supervision that were visited by a community mobilizer before the campaign *Denominator:* Number of households observed during supervision	This indicator can be derived from the mobilizers' own reports and compared to the households on the registration lists.
10	Number and proportion of districts that received operational funds in time for the campaign	*Numerator:* Number of districts that received their required operational funds at least two weeks prior to the campaign *Denominator:* Number of districts targeted in the campaign	Countries can define the appropriate level(s) that they would like to assess (provincial, zonal, etc.), and the appropriate definition of "in time"
11	Number and proportion of district-level campaign teams supervised during the campaign	*Numerator:* Number of district-level campaign teams supervised at least once during the campaign by a campaign official *Denominator:* Number of district-level campaign teams	Countries can modify the level of campaign teams to be supervised (e.g., regional, provincial, zonal, etc.). The campaign official can be NMCP staff or others trained and designated by the NMCP to support teams on the ground.
12	Number and proportion of distribution sites properly equipped with trained staff	*Numerator:* Number of distribution sites observed during supervision that have adequate quantities of supplies and trained staff *Denominator:* Number of distribution sites observed during supervision	The definition of "properly equipped" and "trained staff" should follow the minimum standards set in a country's campaign guidelines. "Adequate supplies" should also be clearly defined and should focus on quantities of key inputs such as ITNs and forms.
13	Number and proportion of distribution sites that report a gap in stocks of ITNs	*Numerator:* Number of distribution sites visited by supervisors that report a gap in ITNs received at the start of the campaign compared to the quantity ordered *Denominator:* Number of distribution sites visited by supervisors	
14	Number and proportion of distribution sites with ITN stocks correctly stored and accounted for	*Numerator:* Number of distribution sites visited during supervision with ITN stocks correctly stored and accounted for *Denominator:* Number of distribution sites visited during supervision	The definition of "correctly stored" should meet NMCP guidelines and can include such elements as cool enclosed area, secure, dry and with adequate capacity. Correct accounting can be verified with the supply chain management tools in use.
15	Number of ITNs or re-treatment kits distributed to people	*Numerator:* Number of ITNs + number of re-treatment kits *Denominator:* not applicable.	Potential sources of information are the records of the NMCP, medical store stock records, and the health management information system. Data can be collected quarterly and annually.
16	Number of ITNs distributed to pregnant women through antenatal clinics	*Numerator:* Number of ITNs delivered through ANC *Denominator:* not applicable.	Potential sources of information are ANC records and the health management information system. Data can be collected quarterly and annually.

Appendix 8B: Suggested outcome indicators for ITN scale-up

The following ITN outcome indicators were recommended in June 2011 by Roll Back Malaria's Monitoring and Evaluation Reference Group (MERG), or by the Global Fund's Monitoring and Evaluation Toolkit, 3rd Edition. Data to measure these indicators should be collected every three to five years through population-based surveys such as the DHS, MICS, and MIS.

No.	Description	Numerator	Denominator
1	*Households with at least one insecticide-treated net (ITN) (percentage)[7]	Number of households surveyed where number of ITNs ≥ 1	Total number of surveyed households
2	*Children younger than five years of age who slept under an ITN the previous night (percentage)	Number of children under five who slept under an ITN the previous night	Total number of children under five who reside within surveyed households
3	*Pregnant women who slept under an ITN the previous night (percentage)	Number of pregnant women who slept under an ITN the previous night	Total number of pregnant women who reside within surveyed households
4	**Households with at least one ITN for every two people (percentage)[8]	Number of households surveyed where ratio of ITNs to household residents is ≥ 0.5	Total number of surveyed households
5	**Household residents who slept under an ITN the previous night (percentage)	Number of household residents who slept under an ITN the previous night	Total number of household residents who reside within surveyed households
6	**Persons of all ages with "access" to an ITN in their household (percentage)[9]	*Number of individuals surveyed who have access to an ITN if each ITN covers two people	Total number of individuals in surveyed households
7	Households with at least one ITN for each sleeping space (percentage)[10]	Number of households surveyed where ratio of ITNs to sleeping spaces is ≥ 1.0	Total number of surveyed households
8	Number of ITNs versus number of household members in the household (ratio)	Number of ITNs in surveyed households	Number of household members
9	Number of ITNs versus number of sleeping spaces in the household (ratio)[11]	Number of ITNs in surveyed households	Number of sleeping spaces in surveyed households
10	Percentage of existing ITNs that were in use the previous night	Number of ITNs in use the previous night	Number of ITNs in surveyed households
11	Percentage of ITNs owned by a household hanging the previous night	Number of ITNs hanging the previous night	Number of ITNs in surveyed households
12	Average number of ITNs per household	Number of ITNs found in all surveyed households	Total number of surveyed households
13	Number and proportion of households that received an appropriate number of ITNs during the campaign	Number of households visited by a survey team that had received an appropriate number of ITNs during the campaign	Number of households visited by a survey team
14	Number and proportion of households that received a hang-up demonstration in the home	Number of households visited by a survey team that had received a hang-up demonstration in the home during or after the campaign	Number of households visited by a survey team
15	Number and proportion of people from targeted households who understand the reasons for using an ITN	Number of people surveyed from targeted households who can name at least one correct advantage of using an ITN	Number of people surveyed from targeted households
16	Number and proportion of people from targeted households who understand correct ways to care for an ITN	Number of people surveyed from targeted households who can name at least one correct way to care for an ITN	Number of people surveyed from targeted households

[7] Outcome indicators with a single asterisk * sign are current RBM core population-based indicators for ITNs as of June 2011.

[8] Outcome indicators with a double asterisk ** sign were recommended by MERG in June 2011 as new, additional RBM core population-based indicators for ITNs.

[9] This indicator assumes that one ITN covers two persons. It requires calculating "people with potential access to ITN" by first multiplying the ITN variable by 2.0 and then replacing it with the number of people in the household if the determined number of potential ITN users is greater than the actual household members. The indicator can then be calculated manually by dividing the sum of all potential ITN users in the sample by the total number of residents. It can also be calculated by creating a variable of "persons with access/all persons" which is the proportion of people with access at household level and then calculate the mean of that proportion using the household members as frequency weight.

[10] Appropriate for countries distributing ITNs by sleeping space.

[11] Appropriate for countries distributing ITNs by sleeping space.

Appendix 8C: Detailed technical background on post-campaign survey methodology

The post-campaign surveys, like the DHS, MIS or MICS, are typically multi-stage cluster surveys[g]. Initially, EPI-style surveys were conducted, for example after the integrated campaigns in Lawra District of Ghana in 2002 and the first of two surveys in five districts in Zambia in 2003. More recent surveys have used sampling methods similar to an MIS that allow the calculation of the probability of selection for any household in the survey. These probabilities are not usually known for EPI-style surveys but are necessary to be able to use standard statistical methods for calculating the variation in the results. Recent surveys have typically created maps of the households using pen-and-paper or a global positioning system (GPS) unit that are then used to take a random or systematic sample of households to visit. Recent surveys have also included all households in the enumeration area, not just those with target-age children. Surveys using these improved methods were conducted after the campaigns in Eritrea (2003), Togo (in 2004 and 2009), Niger (in 2005), Kenya and Sierra Leone (both in 2006), Mali and Madagascar (both in 2007), and Senegal (in 2009 and 2011). The questionnaires used in these more recent surveys have also been harmonized with those used in the DHS, MIS or MICS to assess ITN possession and use, with additional questions specific to the campaign. These surveys can provide results at the national, regional/provincial, or sub-national levels depending on the number of clusters and sample size selected.

For most malaria-endemic countries, these surveys typically use a multi-stage randomized cluster design, with first stage selection of clusters using probability proportionate to size (PPS)[h]. At the second stage, the selection of households within the enumeration area (EA) varies between methods, trading off between the cost and complexity of the survey on one hand, and simplicity and wider confidence interval of the estimates on the other. For example, minimizing the cost and the complexity of the survey by selecting fewer samples will increase the confidence interval of the resulting estimates. In some situations, this may be an acceptable trade-off. In all cases, it is critical to ensure that a statistically valid method is used for the survey so that the results can be interpreted properly.

Survey methods should minimize four common sources of survey error. Sampling error is the error resulting from methods used in sampling, whether in the selection of the EA or in the selection of households in the EA. Non-coverage error is the error resulting from the exclusion of areas that are difficult to access or are far from primary population centres. For example, the sampling frame from which clusters and households are selected should be independent of the distribution records so that communities and households missed during the campaign can be captured. Non-response error is the error arising when households that are unavailable for interview at the initial visit are not revisited. Measurement error is the use of only a single or inaccurate source of information for critical outcomes.

Traditional EPI cluster survey methods are described in the WHO manual[i]. The number of clusters and households per cluster are determined based on the desired confidence interval and logistic concerns. After selecting clusters using PPS, households are selected by going to the centre of the village or EA and selecting a direction at random. The houses from the centre to the periphery along that direction are counted and one of these houses is randomly selected. After completing the survey at that house, the next nearest house is visited until at least seven children 12—23 months of age are found; all eligible children in each household are included, even if more than one is found. Households with

children outside the target age group are skipped. The advantages of this method are that it is well-known, requires minimal external technical assistance, is relatively inexpensive and uses a standardized questionnaire.

The disadvantages of the EPI cluster survey are the significant modifications needed to account for a target age range wider than 12—23 months and to assess ITN possession and use accurately. Households and children also do not have a known probability of selection using this method, thus traditional statistical testing and estimations cannot be applied to the data. The methods of household selection in the enumeration area may over- or under-estimate the coverage achieved. When estimating overall household ITN ownership and use, the exclusion of childless households introduces a non-coverage error and prevents the survey from being able to measure these indicators directly. Coverage estimates coming from surveys involving only households with children in the target age are usually higher than those coming from surveys involving all households. The traditional method also may lead to non-response error as households with no-one home are not revisited. Several modifications proposed to overcome these problems are included in the key documents. Several groups have tested modifications to the standard EPI methods. One common method is to divide the EA into equal or unequal sized segments and to randomly choose a segment using simple random sampling. This process is continued until the segment is small enough to permit the listing or mapping of all households and drawing a simple random sample for the survey. For example, in Eritrea the NMCP and partners used a sampling method including segmentation to assess ITN coverage after a distribution campaign, and compared the design efficiency and accuracy of the methodology to a DHS-style survey done just before the distribution[j].

The DHS, MIS, MICS and many post-campaign surveys also select clusters using PPS but at the EA all households are mapped and either a systematic or simple random sample of households is chosen. The sampling methods for these surveys are designed to minimize sampling errors and are recognized as the standard for statistically valid and representative results. These surveys also avoid the problems of non-coverage and non-response errors possible with EPI coverage surveys. They are also easily adapted to universal coverage campaigns. The advantage to using methods and questionnaires similar to the DHS, MIS or MICS is that the results from the post-campaign survey are well adapted to assessing ITN possession and use. Results from post-campaign coverage surveys using these methods are comparable to these periodic surveys, an important consideration as DHS, MIS or MICS are used to routinely monitor coverage. These surveys usually only provide results at the national level or at the regional/provincial levels, with greatly increased costs to have results at district or other lower levels.

Beginning with Togo in 2004, several countries have begun using personal digital assistants (PDAs) and more recently tablet computers and/or smart phones to collect and record data for coverage and utilization surveys and MIS rather than using paper forms. The use of electronic data collection devices reduces the number of errors during data collection and allows for a more rapid analysis compared to paper forms and tools. With a GPS unit and appropriate software the devices can also help to map the EA and more easily select a statistically valid sample. While the units themselves are an added cost, they are balanced by the absence of paper and photocopying charges, the faster pace of data collection, and elimination of data entry teams. However, using these technologies requires additional technical support for programming the questionnaires, training interviewers, and troubleshooting technical problems during the survey, plus additional time during the interviewer training. More information about using PDAs in sampling and conducting a survey can be found in the key documents for Appendix 8C.

Lot quality assurance sampling or LQAS is another method for assessing the coverage attained after a distribution campaign and the utilization of ITNs. This method originated to sample production lots of a product to determine if the number of defects was small enough to allow the lot to be accepted. In the context of a post-campaign survey, the "lot" is the EA. Indicators are then constructed so that each household can have a "yes" or "no" result, for example "the number of ITNs is equal to or greater than the number of household members divided by two". For each indicator the result for the EA is the number of households with a "yes". This number is compared to a predetermined cut-off. If the number is at or above the cut-off the EA is classified as "high performing", otherwise it is "low performing". The value for the cut-off is determined by the number of households surveyed in the EA, the campaign objectives, and the acceptable levels of types of decision error (i.e., type 1 or type 2 errors). The simplest use of LQAS has the survey workers stop once the decision threshold has been reached. If, however, all households are visited the results from the EAs can be combined to determine the overall coverage. The advantages of LQAS are the simple decision rules and the possibility of assessing the success by EA. However, the method assumes that a simple random sample of households is made for each EA, so that most surveys would require mapping all households in the EA. The key documents for Appendix 8C give further details; the article by Biedron et al. describes the application of LQAS to the assessment of household ITN coverage.

Appendix 8D: Key documents

Section 8.1: Contents of the M&E section of an ITN campaign or scale-up plan

- *Evaluation guidelines for measles supplemental immunization activities*, WHO/AFRO, revised January 2006. See: www.measlesinitiative.org/mi-files/Tools/Guidelines/AFRO/Evaluation_guidelines.pdf
- *Framework for monitoring and evaluation of integrated child survival interventions*, draft February 2006, WHO/AFRO.
- *Guideline For Evaluation Of The Promotion And Implementation Of Insecticide Treated Mosquito Nets And Other Materials In The African Region*, revised trial edition, WHO/AFRO, September 2004.
- *Monitoring and Evaluation Toolkit HIV, Tuberculosis and Malaria and Health Systems Strengthening*. Part 1: The M&E system and Global Fund M&E requirements and Part 2: Tools for monitoring programs for HIV, tuberculosis, malaria and health systems strengthening: Malaria. Third Edition. Global Fund for AIDS, Tuberculosis and Malaria, February 2009. See: www.theglobalfund.org/en/me/
- *Framework for Monitoring Progress, Evaluating Outcomes and Impact*. Roll Back Malaria, 2000. See: www.rollbackmalaria.org/cmc_upload/0/000/012/168/m_e_en.pdf

See also examples of M&E plans on the Resources CD (R8-1 to R8-5).

Section 8.2: Monitoring campaign performance

See examples of spreadsheets showing recording and summarizing of administrative data collected during campaign operations on the Resources CD (R8-18 to R8-20).

Section 8.3: Outcome evaluation

- MIS survey documents are available at: www.rollbackmalaria.org/merg.html#MIS
- DHS survey documents and questionnaires are available at: www.measuredhs.com/pubs/search/search_results.cfm?Type=35&srchTp=type&newSrch=1
- MICS survey documents available at: www.childinfo.org/mics4.html
- Model post-campaign coverage survey questionnaire based on the MIS and MICS questionnaires (see examples on AMP website) www.allianceformalariaprevention.com
- Rutstein, SO. and Johnson K (2004). *The DHS Wealth Index*. DHS Comparative Reports No. 6. Calverton, Maryland: ORC Macro. See: www.measuredhs.com/pubs/pdf/CR6/CR6.pdf

Published articles describing previous campaign evaluations

Eritrea:

- Eisele TP, Macintyre K, Yukich J, Ghebremeskel T. *Interpreting household survey data intended to measure insecticide-treated bednet coverage: results from two surveys in Eritrea*. Malar J. 2006 May 5;5:36. See: www.ncbi.nlm.nih.gov/pubmed/16677379
- Macintyre K, Keating J, Okbaldt YB, et al. *Rolling out insecticide treated nets in Eritrea: examining the determinants of possession and use in malarious zones during the rainy season*. Trop Med Int Health. 2006 Jun;11(6):824-33. See: www.ncbi.nlm.nih.gov/pubmed/16772004

APPENDIX 8D continued

Ghana:

- Grabowsky M, Nobiya T, Ahun M, et al. *Distributing insecticide-treated bednets during measles vaccination: a low-cost means of achieving high and equitable coverage.* Bull World Health Organ. 2005 Mar;83(3):195-201. See: www.ncbi.nlm.nih.gov/pubmed/15798843
- Grabowsky M, Nobiya T, Selanikio J. *Sustained high coverage of insecticide-treated bednets through combined Catch-up and Keep-up strategies.* Trop Med Int Health. 2007 Jul;12(7):815-22. See: www.ncbi.nlm.nih.gov/pubmed/17596247

Kenya:

- Hightower A, Kiptui R, Manya A, et al. *Bed net ownership in Kenya: the impact of 3.4 million free bed nets.* Malar J. 2010 Jun 24;9:183. See: www.ncbi.nlm.nih.gov/pubmed/20576145
- Noor AM, Amin AA, Akhwale WS, Snow RW. *Increasing coverage and decreasing inequity in insecticide-treated bed net use among rural Kenyan children.* PLoS Med. 2007 Aug;4(8):e255. See: www.ncbi.nlm.nih.gov/pubmed/17713981

Madagascar:

- Kulkarni M, Desrochers R, Goodson J, et al. *Evaluation de l'appropriation et l'utilisation des moustiquaires imprégnées d'insecticide à longue durée (MIDs) au Madagascar six mois après la campagne intégrée rougeole/paludisme d'octobre 2007 : Rapport Final.* Unpublished manuscript dated June 2008. See: www.healthbridge.ca/assets/images/pdf/Malaria/RapportFinalMIDMadagascar.pdf
- Kulkarni M, Desrochers R, Goodson J, et al. *Evaluation of the ownership and usage of long-lasting insectisidal nets (LLINs) in Madagascar six months after the October 2007 measles and malaria integrated campaign. Final report.* Unpublished manuscript date June 2008. See: www.healthbridge.ca/reports_e.cfm#Malaria
- Kulkarni MA, Vanden Eng J, Desrochers RE, et al. *Contribution of integrated campaign distribution of long-lasting insecticidal nets to coverage of target groups and total populations in malaria-endemic areas in Madagascar.* Am J Trop Med Hyg. 2010 Mar;82(3):420-5. See: www.ncbi.nlm.nih.gov/pubmed/20207867

Mali:

Cervinskas J, Berti P, Desrochers R, Mandy J, Kulkani M : *Évaluation de la possession et de l'utilisation des moustiquaires imprégnées de l'insecticide long durée (MILDs) au Mali huit mois après la campagne intégrée de décembre 2007: Rapport Final.* Ottawa: HealthBridge Canada. November 30, 2008. See: www.healthbridge.ca/assets/images/pdf/Malaria/Final%20Mali%20Report%20nov%2030.pdf

Mozambique:

- Macedo de Oliveira A, Wolkon A, Krishnamurthy R, Erskine M, Crenshaw DP, Roberts J, Saúte F. *Ownership and usage of insecticide-treated bed nets after free distribution via a voucher system in two provinces of Mozambique.* Malar J. 2010 Aug 4;9:222. See: www.ncbi.nlm.nih.gov/pubmed/20684764

Niger:

- Lama M, Vanden Eng J, Thwing J, Minkoulou E, Gado H, Issifi S. *Second National Household Survey of Insecticide Treated Net (ITN) Coverage After an Integrated Campaign in Niger (September 11 – October 2, 2006): 2005/2006 Niger Polio/LLIN Campaign.* Unpublished manuscript dated April 2007.
- Thwing J, Hochberg N, Vanden Eng J, Issifi S, Eliades MJ, Minkoulou E, Wolkon A, Gado H, Ibrahim O, Newman RD, Lama M. *Insecticide-treated net ownership and usage in Niger after a nationwide integrated campaign.* Trop Med Int Health. 2008

Jun;13(6):827-34. See: www.ncbi.nlm.nih.gov/pubmed/18384476
- Centers for Disease Control and Prevention (CDC). *Distribution of insecticide-treated bednets during a polio immunization campaign--Niger, 2005*. MMWR Morb Mortal Wkly Rep. 2006 Aug 25;55(33):913-6. See: www.ncbi.nlm.nih.gov/pubmed/16929236

Senegal:
- Thwing JI, Perry RT, Townes DA, Diouf MB, Ndiaye S, Thior M. *Success of Senegal's first nationwide distribution of long-lasting insecticide-treated nets to children under five - contribution toward universal coverage*. Malar J 2011, 10:86. See: www.ncbi.nlm.nih.gov/pubmed/21489278
- Post-campaign survey questionnaire. See the Resources CD (R8-6 in English and R8-7 in French) for the example from Senegal.

Sierra Leone:
- The DataDyne Group. *National Integrated Child Survival Campaign Follow Up Survey: Sierra Leone, January 2007*. Available at: www.ifrc.org/docs/pubs/health/sierra-leone-report.pdf
- Wolkon A, Vanden Eng, J, Kulkarni M. *Evaluation of the Sierra Leone Integrated LLIN Campaign: Community-Based Cross-Sectional Coverage and Usage Survey One Year Post Campaign (October 29 – November 17, 2007)*. Unpublished manuscript dated September 2008.
- Vanden Eng JL, Thwing J, Wolkon A, et al. *Assessing bed net use and non-use after long-lasting insecticidal net distribution: a simple framework to guide programmatic strategies*. Malar J. 2010 May 18;9:133. See: www.ncbi.nlm.nih.gov/pubmed/20482776

Togo:
- Terlouw DJ, Morgah K, Wolkon A, et al. *Impact of mass distribution of free long-lasting insecticidal nets on childhood malaria morbidity: the Togo National Integrated Child Health Campaign*. Malar J. 2010 Jul 12;9:199. See: www.ncbi.nlm.nih.gov/pubmed/20624305
- Eliades MJ, et al. *Burden of malaria at community level in children less than 5 years of age in Togo*. Am J Trop Med Hyg. 2006 Oct;75(4):622-9. See: www.ncbi.nlm.nih.gov/pubmed/17038683
- Mueller DH, Wiseman V, Bakusa D, Morgah K, Daré A, Tchamdja P. *Cost-effectiveness analysis of insecticide-treated net distribution as part of the Togo Integrated Child Health Campaign*. Malar J. 2008 Apr 29;7:73. See: www.ncbi.nlm.nih.gov/pubmed/18445255
- Centers for Disease Control and Prevention (CDC). *Distribution of insecticide-treated bednets during an integrated nationwide immunization campaign--Togo, West Africa, December 2004*. MMWR Morb Mortal Wkly Rep. 2005 Oct 7;54(39):994-6. See: www.ncbi.nlm.nih.gov/pubmed/16208313
- Wolkon A, Vanden Eng J, Morgah K, et al: *Rapid scale-up of long-lasting insecticide-treated bed nets through integration into the national immunization program during child health week in Togo*, 2004, *Am. J. Trop. Med. Hyg.*, 83(5), 2010, pp. 1014–1019. See: www.ncbi.nlm.nih.gov/pubmed/21036829
- PNLP, Togo. *Rapport d'étude. Evaluation de la couverture de la campagne nationale de distribution des moustiquaires impregnées 2008 et de l'impact des interventions de lutte contre le paludisme au Togo*. Janvier 2010.

Uganda:
- Kolaczinski J, Kolaczinski K, Kyabayinze D, Strachan D, Temperly M, Wijayanandana N, Kilian A. *Costs and effects of two public sector delivery channels for long-lasting insecticidal nets in Uganda*. Malar J 2010, 9:102. See: www.ncbi.nlm.nih.gov/pubmed/20406448

APPENDIX 8D continued

Zambia:

- Kanne J. *Partnerships in Action: an integrated approach to combining a measles campaign with a bed net, vitamin A and mebendazole campaign in Zambia.* Washington, D.C., Child Survival Collaborations and Resources Group [CORE], 2004 Jul. (Malaria Case Study USAID Development Experience Clearinghouse DocID / Order No. PN-ADB-968).
- Grabowsky M, Farrell N, Hawley W, et al. *Integrating insecticide-treated bednets into a measles vaccination campaign achieves high, rapid and equitable coverage with direct and voucher-based methods.* Trop Med Int Health. 2005 Nov;10(11):1151-60. See: www.ncbi.nlm.nih.gov/pubmed/16262740

Section 8.4: Practical considerations

- Kilian A, Wijayanandana N; Ssekitoleeko J. *Review of delivery strategies for insecticide treated mosquito nets: are we ready for the next phase of malaria control efforts?* TropIKA.net [serial on the Internet]. 2010 Mar [cited 2010 Oct 01] ; 1(1): See: journal.tropika.net/scielo.php?script=sci_arttext&pid=S2078-86062010000100004&lng=en
- Luman ET, Sablan M, Stokley S, McCauley MM, Shaw KM. *Impact of methodological "shortcuts" in conducting public health surveys: results from a vaccination coverage survey.* BMC Public Health. 2008 Mar 27;8:99. See: www.ncbi.nlm.nih.gov/pubmed/18371195
- Model post-campaign survey questionnaires following DHS/MIS/MICS format. See examples on the Resources CD (R8-6 to R8-9).

Section 8.5: Continuous post-campaign monitoring of ITN possession and use

- *Evaluation guidelines for measles supplemental immunization activities,* WHO/AFRO, revised January 2006. See: www.afro.who.int/measles/guidelines/measles_sias_field_evaluation_guide_jan2006.pdf
- *Framework for monitoring and evaluation of integrated child survival interventions,* draft February 2006, WHO/AFRO.
- *Monitoring and Evaluation Toolkit HIV, Tuberculosis and Malaria and Health Systems* Strengthening. Part 1: The M&E system and Global Fund M&E requirements and Part 2: Tools for monitoring programs for HIV, tuberculosis, malaria and health systems strengthening: Malaria. Third Edition. Global Fund for AIDS, Tuberculosis and Malaria, February 2009. See: www.theglobalfund.org/en/me
- *Framework for monitoring progress, evaluating outcomes and impact.* Roll Back Malaria, 2000. See: www.rollbackmalaria.org/cmc_upload/0/000/012/168/m_e_en.pdf
- Reports from Togo, Niger, Sierra Leone and Madagascar campaigns given in key documents for section 8.3.

Recommendations for ongoing monitoring of ITN usage in integrated campaign countries

- Rowe AK, Steketee RW, Arnold F, et al; Roll Back Malaria Monitoring and Evaluation Reference Group. *Viewpoint: evaluating the impact of malaria control efforts on mortality in sub-Saharan Africa.* Trop Med Int Health. 2007 Dec;12(12):1524-39. See: www.ncbi.nlm.nih.gov/pubmed/18076561
- Skarbinski J, Winston CA, Massaga JJ, Kachur SP, Rowe AK. *Assessing the validity of health facility-based data on insecticidetreated bednet possession and use: comparison of data collected via health facility and household surveys—Lindi region and Rufiji district, Tanzania,* 2005. Trop Med Int Health. 2008 Mar: 31(3): 396-405. See: www.ncbi.nlm.nih.gov/pubmed/18397401
- Orenstein, et al. *Field evaluation of vaccine efficacy.* Bull World Health Org 1985; 63(6):1055. See: www.ncbi.nlm.nih.gov/pubmed/3879673

Section 8.6: Assessment of impact on malaria

- Lengeler C. *Insecticide-treated bed nets and curtains for preventing malaria.* Cochrane Database Syst Rev. 2004;(2):CD000363. See: www.ncbi.nlm.nih.gov/pubmed/15106149
- Fegan GW, Noor AM, Akhwale WS, Cousens S, Snow RW. *Effect of expanded insecticide-treated bednet coverage on child survival in rural Kenya: a longitudinal study.* Lancet. 2007 Sep 22;370(9592):1035-9. See: www.ncbi.nlm. nih.gov/pubmed/17889242
- Bhattarai A, Ali AS, Kachur SP, et al. *Impact of artemisinin-based combination therapy and insecticide-treated nets on malaria burden in Zanzibar.* PLoS Med. 2007 Nov 6;4(11):e309. See: www.ncbi.nlm.nih.gov/ pubmed/17988171
- Okiro EA, Hay SI, Gikandi PW, et al. *The decline in paediatric malaria admissions on the coast of Kenya.* Malar J. 2007 Nov 15;6:151. See: www.ncbi.nlm.nih.gov/ pubmed/18005422
- Sievers AC, Lewey J, Musafiri P, et al. *Reduced paediatric hospitalizations for malaria and febrile illness patterns following implementation of community-based malaria control programme in rural Rwanda.* Malar J. 2008 Aug 27;7:167. See: www.ncbi.nlm.nih. gov/pubmed/18752677
- Ceesay SJ, Casals-Pascual C, Erskine J, et al. *Changes in malaria indices between 1999 and 2007 in The Gambia: a retrospective analysis.* Lancet. 2008 Nov 1;372(9649):1545-54. See: www.ncbi.nlm.nih.gov/ pubmed/18984187
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- Teklehaimanot HD, Teklehaimanot A, Kiszewski A, Rampao HS, Sachs JD. *Malaria in São Tomé and Principe: on the brink of elimination after three years of effective antimalarial measures.* Am J Trop Med Hyg. 2009 Jan;80(1):133-40. See: www.ncbi.nlm. nih.gov/pubmed/19141851
- Otten M, Aregawi M, Were W, et al. *Initial evidence of reduction of malaria cases and deaths in Rwanda and Ethiopia due to rapid scale-up of malaria prevention and treatment.* Malar J. 2009 Jan 14;8(1):14. See: www. ncbi.nlm.nih.gov/pubmed/19144183
- RBM MERG Guidance Note: *Assessing the Impact of Malaria Control Activities on Mortality among African Children Under 5 Years of Age.* Available at: www. rollbackmalaria.org/partnership/wg/wg_ monitoring/docs/MERGGuidanceNote_ MalariaImpactAssessment.pdf

Section 8.7: Reporting and use of evaluation results

Draft LLIN Technical Report.
Examples of Measles – Malaria Technical Reports:

- Rapport technique de la campagne de vaccination contre la Rougeole, Togo.
- Sierra Leone Measles Supplementary Immunization Activity (SIA) Technical Report.
- Kenya Measles SIA Technical Report July 2006 – final.
- Rapport synthèse de la campagne intégrée (Rougeole, MII, MBZ, Vit A), Rwanda, September 2006.

More extensive reports:

- Ministry of Health and Sanitation, Sierra Leone. National Measles – Malaria Campaign Report. January 2007.
- Togo Campagne Intégrée de Vaccination Contre la Rougeole & la Polio, Administration de Mebendazole et Distribution de Moustiquaires Imprégnées d'Insecticide : Une Approche Intégrée de la Réduction de la Morbidité et de la Mortalité Infantiles au Togo. Unpublished manuscript, April 2005.
- Rwanda integrated campaign process indicators, 2006.

See examples of reports on the Resources CD (R8-10 to R817 and R8-21).

Appendix 8C: Detailed technical background on post-campaign survey methodology

Use of PDAs:

- Hightower A, Kiptui R et al. (2010) *Bed net ownership in Kenya: the impact of 3.4 million free bed nets*. Malar J. 2010 Jun 24;9:183. See: www.ncbi.nlm.nih.gov/pubmed/20576145
- Vanden Eng, JL et al. *Use of handheld computers with global positioning systems for probability sampling and data entry in household surveys*. Am. J. Trop. Med. Hyg., 77(2), 2007, pp. 393–399. See: www.ncbi.nlm.nih.gov/pubmed/17690421
- Krishnamurthy, R et al. *Application of pre-programmed PDA devices equipped with GPS to conduct paperless household surveys in rural Mozambique*. AMIA Annu Symp Proc 2006; 2006: 991. See: www.ncbi.nlm.nih.gov/pubmed/17238610

EPI Cluster surveys:

- Immunization coverage cluster survey – Reference Manual. WHO 2004. See: www.who.int/vaccines-documents/DocsPDF05/www767.pdf
- Henderson, RH, Davis, H, Eddins, DL and Foege, WH. *Assessment of vaccination coverage, vaccination scar rates, and smallpox scarring in five areas of West Africa*. Bull World Health Organization 1973;48(2):183-194. See: www.ncbi.nlm.nih.gov/pubmed/4541684
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- Lemeshow S, Robinson D. *Surveys to measure programme coverage and impact: a review of the methodology used by the expanded programme on immunization*. World Health Statistics Quarterly 1985 38(1):65-75. See: www.ncbi.nlm.nih.gov/pubmed/4002731
- Lemeshow S, Tserkovnyi AG, Tulloch JL, Dowd JE, Lwanga SK, Keja J. *A computer simulation of the EPI survey strategy*. Int J Epidemiol 1985, 14:473-481. See: www.ncbi.nlm.nih.gov/pubmed/4055214
- Katz J, Yoon SS, Brendel K, West KP. *Sampling designs for xerophthalmia prevalence surveys*. Int J Epidemiol 1997, 26:1041-1048. See: www.ncbi.nlm.nih.gov/pubmed/9363526
- Brogan D, Flagg EW, Deming M, Waldman R. *Increasing the Accuracy of the Expanded Programme on Immunization's Cluster Survey Design*. Ann Epidemiol 1994, 4:302-311. See: www.ncbi.nlm.nih.gov/pubmed/7921320
- Turner AG, Magnani RJ, Shuaib M. *A not quite as quick but much cleaner alternative to the Expanded Programme on Immunization (EPI) Cluster Survey design*. Int J Epidemiol 1996, 25:198-203. See: www.ncbi.nlm.nih.gov/pubmed/8666490
- Milligan P, Njie A, Bennett S. *Comparison of two cluster sampling methods for health surveys in developing countries*. Int J Epidemiol 2004, 33:1-8. See: www.ncbi.nlm.nih.gov/pubmed/15020569
- Luman ET, Sablan M, Stokley S, McCauley MM, Shaw KM. *Impact of methodological "shortcuts" in conducting public health surveys: results from a vaccination coverage survey*. BMC Public Health. 2008 Mar 27;8:99. See: www.ncbi.nlm.nih.gov/pubmed/18371195
- Luman ET, Worku A, Berhane Y, Martin R, Cairns L. *Comparison of two survey methodologies to assess vaccination coverage*. Int J Epidemiol. 2007 Jun;36(3):633-41. See: www.ncbi.nlm.nih.gov/pubmed/17420165

LQAS surveys

- Valdez, JJ et al. *Assessing Community Health Programs, A Trainer's Guide*: Using LQAS for Baseline Surveys and Regular Monitoring. Teaching-aids at Low Cost, 2003. See: www.coregroup.org/working_groups/lqas_train.html

- Lanata CF, Black RE. *Lot quality assurance sampling techniques in health surveys in developing countries: advantages and current constraints.* Wld Hlth Statist Quart 1991, 44:133-139. See: www.ncbi.nlm.nih.gov/pubmed/1949880
- Lemeshow S, Taber S. *Lot quality assurance sampling: single- and double-sampling plans.* Wld Hlth Statist Quart 1991, 44:115-132. See: www.ncbi.nlm.nih.gov/pubmed/1949879
- Robertson SE, Valadez JJ. *Global review of health care surveys using lot quality assurance sampling (LQAS)*, 1984–2004. Soc Sci Med 2006, 63:1648-1660. See: www.ncbi.nlm.nih.gov/pubmed/16764978
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- Biedron C, Pagano M, Hedt BL, Kilian A, Ratcliffe A, Mabunda S, Valadez JJ. *An assessment of Lot Quality Assurance Sampling to evaluate malaria outcome indicators: extending malaria indicator surveys.* Int J Epidemiol. 2010 Feb;39(1):72-9. See: www.ncbi.nlm.nih.gov/pubmed/20139435

See the Resources CD for examples of LQAS surveys (R8-22 and R8-23).

Endnotes

a Definition from WHO/AFRO.

b Sources: LLIN campaign indicator tables or supervisory checklists from Burkina Faso, Côte d'Ivoire, Ghana, Madagascar and Senegal.

c www.rollbackmalaria.org/mechanisms/merg.html=expand_node

d www.allianceformalariaprevention.com

e Sentinel surveillance: collecting data from selected health facilities that have received additional training, supervision and supplies so that they are capable of reporting monthly on inpatient and/or outpatient malaria cases as well as on other indicators of care not included in the routine information system. Such data, collected at a small set of health facilities, can demonstrate trends in malaria morbidity and mortality, complement information obtained through other sources, and help estimate malaria burden for the country as a whole.

f Plausibility arguments are based on an assumption that mortality reductions can be attributed to programmatic efforts if improvements are found in steps of the causal pathway between intervention scale-up (of LLINs and other malaria interventions) and mortality trends. See Rowe A K, Steketee R W, Arnold F et al. *Viewpoint: evaluating the impact of malaria control efforts on mortality in sub-Saharan Africa.* Trop Med Int Health, 2007. 12(12):1524-39.

g Multi-stage sampling: in the first stage a sample of areas ("clusters") is chosen; in the second stage a sample of households or respondents within those areas is selected.

h Probability-proportional-to-size (PPS) sampling: the selection probability for each cluster is set to be proportional to the number of households (or people) it contains.

i World Health Organization (2004) *Immunization coverage cluster survey – Reference Manual.* Available at: www.who.int/vaccines-documents/DocsPDF05/www767.pdf

j Eisele T P, Macintyre K, Yukich J. Ghebremeskel T. *Interpreting household survey data intended to measure insecticide-treated bednet coverage: results from two surveys in Eritrea.* Malar J. 2006 May 5;5:36.

Nigeria. © Benoist Carpentier, IFRC

9: Campaign Reporting

Reports on large scale mass LLIN distribution campaigns that highlight successes, challenges and lessons learned are essential and, unfortunately, rare. A post-campaign report provides the MoH, contributing partners and donors with information that can be used to advocate for continued support, and perhaps more importantly, provide lessons learned that can help guide future campaigns, both nationally and in other countries. Comprehensive post-campaign reports have not been routinely prepared, and this represents a serious lost opportunity. To ensure objectivity and accuracy, it is particularly important to prepare a report by gathering data and experiences from personnel and partners involved at all levels of campaign planning and implementation, ranging from those at central level to those on the ground at district and community level.

This chapter provides a suggested outline for the report and guidance on the most useful content. Not all sections and questions, however, will be relevant to all distribution campaigns and in some cases, a country may wish to increase, adapt or modify the elements included in the outline to meet their own reporting objectives.

The final post-campaign report should provide an objective assessment of the strengths and weaknesses of the campaign, including the challenges faced and the solutions found to overcome them. The report should describe the process, answering as many of the questions posed below as possible, and should detail results of action taken compared to planning outcomes. It should contain an analysis of what worked well and what was not so successful, i.e. the lessons learned, and any recommendations stemming from the overall activity from the point that planning began up to the point that the activities have been completed and the report is being drafted.

The value of good and timely reporting cannot be emphasized enough. Objective reports on events, processes and outcomes in country universal coverage campaigns help the both the country and the international community to learn lessons and to improve the implementation of future campaigns.

The NMCP should assign responsibility for different sections and take the lead in ensuring adherence to timelines for report writing, and should also be responsible for approval, production and dissemination of the final document. While information for the report needs to come from many people at all levels, the NMCP should consider assigning or hiring one person who will be responsible for collecting and assembling that information and finalizing the report. Final reports should be completed within two to three months of the end of the campaign. This will ensure that the experience does not become dated, and that lessons learned are documented for use in planning future campaigns and for donor proposals.

It is paramount to provide an overview of the performance of the campaign based on process and administrative outputs. This can later be linked in with a post-campaign coverage and use survey if one is done. Outcomes such as administrative coverage, and those linked to the process, such as the number of people trained, the number of radio spots aired, and so on, should be reported.

Those aspects of the campaign report focused on process and administrative outputs should be developed while records and personnel at all levels are still readily available to make a contribution, i.e. within two to three months of the campaign.

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9.1 Suggested outline content of a campaign report

Below is a recommended table of contents, with an outline of what might be included in each section and some questions that should be considered. Adaptation and modification of this outline are inevitable but each report should describe the key elements and outcomes of:

- planning and coordination
- implementation
- logistics
- communication
- budget/finance
- administrative results indicating coverage

This report on the performance of the campaign should be combined with any post-campaign survey results showing coverage and utilization when they are available.

The report should be prepared by gathering contributions from a range of personnel and partners at all levels and all stages of the campaign to ensure accuracy and objectivity, and to give a wide-ranging viewpoint.

The narrative part of the report should not exceed 30 pages, but a number of annexes are likely to be included to ensure that all relevant data are represented. Some guidance is given below on suggested section lengths.

See Resources R9-1 and R9-2 for examples of final reports from Ghana and Mali and Resource 9-3 for a report template.

Main title

Executive summary (one to two pages)
This should be a brief summary of main points of content, emphasizing important processes and outcomes. It can be useful as an advocacy aid in future campaigns, and may also be used to interest the media in the results of the campaign.

Table of contents including annexes, list of figures and tables, list of acronyms and abbreviations

Introduction (one page)
This covers the background, including a country overview, justification for the campaign, goal, objectives and expected results.

The overall campaign plan of action should provide information for this brief background section, and it is not necessary to repeat it if the plan of action is annexed. The campaign plan of action will provide data such as map of country, population numbers and percentage urban or rural, geography and climate, health system structure and access, health and socio-economic indicators. It will also provide the justification for the campaign in terms of malaria specific data and the goal and objectives against which the campaign is being measured, e.g. 100 per cent coverage of population at risk, 80 per cent utilization of LLINs distributed, etc. If available, mention the coverage data on ITN ownership and use from the most

recent national population-based survey, such as the Demographic and Health Survey (DHS), the Malaria Indicator Survey (MIS), or the Multiple Indicator Cluster Survey (MICS). The plans proposed by each different sub-committee will provide more detailed information, together with information on the roles and responsibilities of each partner. Ensure that the campaign planning documents are annexed to the campaign report (plan of action, communication plan, logistics plan of action, monitoring and evaluation plan) and refer to them appropriately.

Key points (two to three pages)
This section provides more detail than the executive summary, describing very briefly those aspects of the campaign that should be highlighted, from both the overall campaign and from the viewpoint of each of the sub-committees. What was successful? What were the main challenges? What were the results of each phase of activities? What lessons have been learned? It is important to refer back to the goal and objectives in the campaign plan of action to measure results against plans and expectations.

This section will probably be easiest to write at the end of the report writing period since challenges and lessons learned will come out of each of the sections of the report.

Recommendations for future activities (two to three pages)
As above, this section will probably be easiest to write at the end. It is closely linked to the key points.

Recommendations should be clearly explained and should be based on lessons learned during all phases of the campaign. Recommendations are most useful when they give an objective view, and are realistic and achievable. While they are often focused on roles and responsibilities of the different areas and partner organizations and on specific activities, they should be presented in a constructive and positive rather than a critical way.

9.2 More detailed information

Up to this point, the report gives a more general overview of the campaign as a whole. From here on, the narrative should describe each process, and the results of each process, in greater detail.

Overview of planning and coordination (two to three pages)

Development of plan of action and macro-planning
Who was responsible for developing the plan of action, for example, was it developed jointly by the NMCP and partners? Was any external advisory support required? What were the main challenges or points of discussion in developing the plan of action? How were LLIN needs quantified? Were there gaps in LLINs or operational costs from the point of macro-planning?

▶ **Annex the overall plan of action to the campaign report, including timeline.**

Budget
This is a brief section to describe the process of developing the budget. The main section reporting in detail on the budget and finance management is at the end of the report.

Did major cost gaps occur and if so, where and why? How was the issue of cost gaps addressed? How did partners contribute to filling gaps? What lessons were learned for the future?

▶ **The budget should be annexed to the campaign report. See also the section on Budget and financial management below.**

Coordination
When were coordination structures officially established? Were meetings scheduled on a regular basis and attended regularly by all the partners? Describe each committee at central, regional and district level. What deliverables were sub-committees expected to produce? Did they do so? How were regional level and district level officials involved in the planning and implementation? Describe the lines of communication and note any barriers to good communication between partners and committees. If there were barriers, what was done to improve the situation?

▶ **Annex any terms of reference for committees/sub-committees.**

Implementation overview (three to five pages)

Micro-planning
Who was responsible for development of the micro-planning templates? What was the process for micro-planning (e.g. were messages sent to regions and districts, did staff from the central level go to the lower levels to support the micro-planning process)? Did training take place for micro-planning? Who was involved with micro-planning at each level? What were the responsibilities of the people involved from the bottom levels to the top levels? How did planners ensure that there was input from the lowest levels, and how was that information incorporated into the overall detailed plan? What timing was planned at the outset for micro-planning and when did it actually take place? Was micro-planning completed in sufficient time to identify potential gaps and advocate for filling them? How were data collected, managed, communicated, revised and validated? What were the key challenges with the micro-planning exercise and how were they addressed?

Training activities and outcomes
Note that training may be planned for a number of different processes: household registration, LLIN distribution, social mobilization and BCC, logistics, monitoring and evaluation. For social mobilization/BCC and logistics training, add the detailed information in the respective overviews below.

▶ **Annex final results of micro-planning. Where possible, present a comparison of differences between the macro- and micro-planning figures.**

Insert a table for number of people projected for training and number of people actually trained. Describe reasons for any variation and how any gaps were filled. Insert a table for expected dates of trainings versus actual dates for trainings. Did trainings involve any practical exercises, such as role plays or filling in forms? At each level, who was responsible for training? What were the challenges with the training? What was the overall quality of the training? How was the quality tested? If the quality was found to be poor, how was this issue addressed pre- and during the campaign. What lessons have been learned for the future?

For household registration, was the definition of a household made clear to trainees? What was the operational definition for persons undertaking household registration? Did the definition change according to region of implementation?

▶ **Annex any training materials to the campaign report.**

Household registration, beneficiary identification and outcomes
How was household registration organized, e.g. how many households were volunteers expected to visit? Did a micro-planning exercise take place to ensure there were adequate numbers of volunteers relative to population and the geographical situation? Were households informed about the registration beforehand? If so, how?

Namibia. © Malaria No More UK

How did beneficiary identification take place, e.g. household visits to register and receive vouchers, wristbands etc.? Were existing nets accounted for? What information was collected about each household? How were registrars supervised? What method was used to check that all households had been visited?

Did the activities remain on schedule? If not, why were planned dates and actual dates different?

Were criteria established for the selection of volunteers, and if so, what were they? Did volunteers have job aids? Were they compensated? What means of identification did volunteers receive to show them working for the campaign activities when approaching households?

How many households were registered versus how many were included in the plan? What was the method used for allocating numbers of LLINs to households? How many beneficiaries were identified? Did households contain the expected number of people? Did the registered need for LLINs align with the number of LLINs available for distribution based on micro-planning? If not, how were gaps or surpluses addressed?

Did any challenges arise during or after the household registration and beneficiary identification? How were these addressed?

▶ **Annex a table with the results of household registration activities. Annex any other data collection forms and tools used (e.g. job aids).**

Distribution strategy and outcomes

What distribution strategy was adopted? How were target populations informed of the distribution strategy? Was the distribution fixed site (if so, how many distribution points and how were they organized?), door-to-door or through another methodology?

Were the scheduled dates for distribution kept? If not, why not, and how were beneficiaries informed of any changes?

How many staff and volunteers were involved in the distribution? What specific tasks were personnel responsible for at distribution sites? What training did distribution site personnel receive? How was crowd control addressed? Were plans for distribution in urban and rural locations different and, if so, what were the differences?

Which elements went well during the LLIN distribution? What challenges were experienced during the LLIN distribution? Which measures were put in place to ensure security of the LLINs? Were there any shortages of nets? If so, what caused these shortages and how was this addressed? Were shortages of nets due to an insufficient number available in total or due to problems with inaccurate quantities positioned at specific sites? Was it necessary to redistribute nets between sites and, if so, how was this managed? If there were real net shortages (e.g. no more nets available), how was this situation managed? If there were nets remaining at the end of the distribution, what was done with those nets?

What were the major issues arising during the distribution and what was done to resolve them? What were key lessons learned during the distribution?

Annex tables with number of nets distributed in each district and number of nets pre-positioned for the campaign.
Annex roles and responsibilities of distribution site personnel if available.
Annex training and data collection materials used for distribution.

Management and collection of data

Describe the reporting chain and how information was communicated and summarized. How well were data collection tools used? What training was provided to ensure data were collected systematically? What were the challenges with the data collection and management and how were these challenges overcome? How was the information collected and analysed? What were the key lessons learned from the data collection, management and analysis activities? How were data acted upon during the campaign and how will these data be used to improve future performance?

Data collection tools should be annexed to the campaign report.

Supervision, monitoring and evaluation and outcomes

At which levels did supervision and monitoring occur, e.g. central, regional, district, health facility, community, and for which activities, e.g. household registration, distribution, hang-up? What monitoring system was put in place? How many supervisory and monitoring visits took place? How were supervisors and monitors trained? Were supervisors and monitors provided with tools for undertaking their activities? Did supervisors and monitors provide reports, and to whom? Were they given clear guidelines on what to provide and when? What was the quality of the reports? How were monitoring data analysed and what were the results? Were monitoring data used to modify implementation of the household registration, distribution and hang up activities? Were supervisory reports shared? If quality of the reports was not adequate, how was this issue addressed during the campaign?

Did an overall process evaluation take place? If so, which indicators were measured, including end process indicators? What methodology was used, and who conducted the evaluation? What were the results? How will the data be used to improve future campaigns?

Supervision, monitoring and evaluation tools, including checklists and questionnaires, should be annexed to the campaign report.

Senegal. © Maggie Hallahan /Sumitomo Chemical

Administrative results indicating reach and coverage of the campaign (one to two pages of tables)

- percentage of districts (or lower geopolitical division) where there was a surplus of LLINs
- percentage of districts (or lower geopolitical division) where not enough LLINs were available to meet the need
- total LLINs distributed
- total LLINs left over
- total number of people estimated covered

Logistics overview (three to five pages)

For the section of the report giving information on the logistics operation, input from personnel at all levels of the campaign is required. It is particularly important to report on how well the logistics operation worked at every level, and on lessons learned for future campaigns, as well as any applicable to continuous or routine distribution. Personnel and partners working at community level, for example, should contribute information on availability and timing of funding and information and their impact on implementation.

Procurement of LLINs

How were LLINs ordered, e.g. through third party, independent, etc.? What were the timelines for the different processes: preparation for tender, publication of tender, bid opening, evaluation of bids, award of contract, issue of contract, shipping and receipt, and were they kept? Were there any issues about waiving of taxes, duties etc.? Was there sufficient finance available at the right time to pay supplier(s)? Did LLINs arrive at the expected time, in the right place and in the right quantity and quality?

Macro-planning/development of logistics plan of action

Once quantification of LLINs had been determined (overall campaign plan of action), who was responsible for developing the logistics plan of action (LPoA), e.g. joint development by NMCP and partners from the central logistics team? Was external advisory support required? Did the LPoA work well as an implementation tool? Was it complete and did it cover every aspect of in-country logistics? What were the main challenges, e.g. adequacy of number of LLINs? What was the impact of the plan on the implementation at community level? How can logistics planning and the LPoA be improved for the future?

Micro-planning

Micro-planning will be based on the selected national delivery method as stated in the overall campaign plan of action. The report will contain contributions from districts, villages and communities, such as providing detailed information on routes, road conditions, transport costs, labour costs, positioning plans, etc.

Who was responsible for developing the logistics micro-plan? How were the staff at the lowest level consulted and how was their information incorporated? When were micro-plans finalized? Was there sufficient time to advocate to fill any gaps identified? Was sufficient training and guidance supplied from central level? Were standard templates used for micro-positioning/ transport plans and for micro budgets? Were timelines realistic and were they kept? What lessons were learned for future campaigns?

Delivery and storage

Was delivery centralized or decentralized and what were the reasons behind the choice? How successful was the choice? How many, when and where were nets delivered and pre-positioned? Which measures were used to ensure physical

security of the LLINs? Which methods were used to combat LLIN leakage and what were the overall commodity/accountability controls (cross reference to supply chain management tools)? Report on both macro and micro storage levels.

Transport

What type of transport was used? How was it organized? Was transport efficient and timely? How long did it take to transport nets from one level to the next, and how long to distribution points? How many LLINs were transported? What was the overall cost of transport, and therefore what was the cost of transporting one LLIN? What were the challenges and issues (e.g. access, climate), and how were they solved? What specific lessons were learned and how would they impact on future planning for campaigns? Report on both macro and micro level transport.

See the Resources R9-3 for a template reporting on transport.

▶ **Annex schedules and dispatch control tools with details of timelines and quantities.**

Training and outcomes

Insert a table for number of people projected for logistics training and number of people actually trained. Describe reasons for any variation and how any gaps were filled. Insert a table for expected dates of trainings versus actual dates for trainings. At each level, who was responsible for training? What were the challenges with the training? What was the overall quality of the training? How was the quality tested? If the quality was found to be poor, how was this issue addressed pre- and during the campaign? How was training integrated into the overall campaign training?

▶ **Any logistics training materials should be annexed to the report.**

Supply chain management tools

This describes the logistics tracking tools (waybills, stock sheets and tally sheets) used to control and track LLINs to final destination points. See Resource R9-3 for a template reporting on commodity tracking.

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Which tools were developed and how were personnel trained to use them? Were the tools used systematically at all levels, e.g. throughout the in-country supply chain at both macro and micro level? Were they user-friendly? Were there common errors, and if so, how were these issues addressed during the campaign? What recommendations are there for the future, e.g. should the tools be modified or should training be improved?

▶ **Annex results of tracking tools to the report.**

Commodity management assessment (CMA)
If CMA has been completed, include the overview, major findings and important recommendations. If CMA is ongoing when the report is being prepared, include the proposed dates of completion.

A CMA is based on collaboration between MoH/NMCP/partners to review a limited sample of the internal supply chain in order to assess and verify degree of success, areas for improvement and/or weak tracking methods, etc. Information might include:

- what the CMA focused on and the types of sampling used
- selection of routes from start point to finish point at distribution point (DP).
- quantitative data (e.g. how many nets were moved from point A to point B with proper tracking)
- qualitative data (e.g. feedback from the field logisticians on the usefulness and effectiveness of tracking tools and processes)
- list of documents tracked (waybills, warehouse stock sheets, tally sheets, etc.) and examples
- data on other areas related to the logistics supply chain (training, planning process, communications, etc.)
- which individuals conducted the CMA
- budget, resources and timelines against actual expenditure, time, etc.
- findings and recommendations resulting from CMA

▶ **Annex results of CMA and if available, the logistics final report.**

Communication overview (three to five pages)
Planning and objectives
What were the planned objectives for the campaign's communication and social mobilization activities, and how were these objectives determined? What was the process for developing and validating the plan, and who was involved in the planning process? How were the various target groups and channels determined?

Strategies, key activities and outcomes
Which activities were carried out to meet the objectives at national, regional, district, community and household levels? Which activities were planned for advocacy at both international and national level? Which activities were planned for social mobilization and behaviour change communication? Which channels were used and what were the key messages for the various target groups? Were materials pre-tested before production, and if so, how? Were changes to materials made based on the pre-test and, if so, why were these changes important? How many and which local organizations and leaders were involved in communication activities? Were any job aids developed? How were activities prioritized given budget constraints? How did partners contribute to the plan and to the budget? What were the results compared to the plans?

Annex the communication plan to the final report.

▶ **Any materials developed for communication, social mobilization and behaviour change communication should be annexed to the report. Include radio dissemination schedules or reports if possible.**

Training and outcomes
Insert a table for number of people projected for advocacy, social mobilization and behaviour change communication training and number of people actually trained. Describe reasons for any variation and how any gaps were filled. Insert a table for expected dates of trainings versus actual dates for trainings. At each level, who was responsible for training? What were the challenges with the training? What was the overall quality of the training? How was the quality tested? If the quality was found to be poor, how was this issue addressed pre- and during the campaign? How was training integrated into the overall campaign training?

▶ **Annex any communication, social mobilization or BCC training materials.**

Supervision, monitoring and evaluation
Was supervision of communications aspects integrated into the supervision and monitoring forms/tools? If so, how did this work? If not, how was supervision of communications activities organized? What monitoring system was developed, and how were monitoring data analysed? Were monitoring data used to modify or intensify communication activities nationally or in certain areas? How were communication activities evaluated and what were the results of the evaluation?

Relationship with media
What role did the media play in the campaign? Were there any issues and what were the solutions? How were media contributions monitored? How many contributions were there (e.g. articles, radio spots, etc.)?

Challenges
What were the major communications challenges? Were households well-informed about the campaign? How was this evaluated? Were there any negative rumours, and how were these addressed?

Budget and financial management (one page)
What was the total expenditure versus the original budget? How were variances dealt with? Was there overspending, and if so, were additional funds needed? Were there unspent funds, and if so, what happened to them? How was the budget controlled? Were funds available in a timely manner throughout? Was the budget process transparent? What were the challenges and how were they solved? What lessons were learned and what are recommendations for future control of budgets? What was the overall cost of the campaign? What was the cost per net delivered?

▶ **The budget spreadsheet should be annexed to the final report.**

Conclusion (one page)
Brief summary.

9.3 Annexes to the main report

While all areas work under the umbrella of the main campaign plan of action, and will be overviewed in the overall campaign report, they will have developed detailed plans for their own areas of expertise, as well as guides, forms, manuals, and so on. These should be annexed to the main report. They include:

Plan of action
- Terms of reference for committees and sub-committees
- Training materials
- Results of household registration activities
- Tables with number of nets distributed and number of sites with surplus or deficit of nets
- Data collection tools
- Supervision, monitoring and evaluation tools, including administrative coverage results

Logistics plan of action
- Transport schedules and dispatch control tools

- Logistics training materials
- Results of LLIN tracking tools
- Results of CMA, if available
- Logistics final report (if applicable)

Communication and social mobilization plan

- Materials developed for communication, social mobilization and behaviour change communication
- Communication, social mobilization and BCC training materials

Monitoring and evaluation plan

It may be possible to annex survey results from a population-based survey on net coverage and use. It is, however, rare that such a survey can be completed within the two to three months post-campaign recommended for the development of the final report. If a timely population-based survey is conducted, it will take precedence over administrative results which need not be reported. If the survey is conducted later, results should be added to the final report when available, but should not hold up prompt publication. At a minimum, include in the report the results obtained for the RBM Monitoring and Evaluation Reference Group (MERG) core indicators listed in Chapter 8, Appendix 8B.

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10: Sustaining gains: moving beyond scale-up

Reaching the full public health potential of ITNs as a vector control tool will require achieving and maintaining net coverage levels as close as possible to universal coverage. All mosquito nets work by acting as a physical barrier to prevent vector mosquitoes from biting those who sleep under them. Insecticide-treated nets add to this personal protection with a chemical barrier which kills mosquitoes when they come in contact with the net. Therefore ITNs, when used by a majority of the target population, provide what is called a "community-wide effect", as they reduce the number of vectors in the community, giving some protection even to those not sleeping under a net[a, b].

On the basis of five randomized control trials, a Cochrane review concluded that, when full coverage is achieved, ITNs reduce all-cause child mortality by between 14 and 29 per cent in sub-Saharan Africa[c]. The general implication of this is that 5.5 lives could be saved per year for every 1,000 children under five years of age protected. It was also concluded that ITNs reduce clinical episodes of malaria caused by *Plasmodium falciparum* and *P. vivax* infections by between 39 and 62 per cent, as well as reducing the prevalence of high-density parasitaemia. A recent review of evidence of the impact of ITNs under routine (non-clinical trial) conditions has been published, which supports the findings of the randomized control trials. The analysis of data from Malaria Indicator Surveys (MIS) and Demographic and Health Surveys (DHS) showed a reduction in parasitaemia prevalence in ITN-owning households, as well as a reduction in child mortality. The authors conclude that "the recent scale-up in ITN coverage has likely been accompanied by significant reductions in child mortality and… additional health gains could be achieved with further increases in ITN coverage in populations at risk of malaria"[d].

Traditional ITNs need to be retreated with an insecticide regularly to maintain their chemical barrier. Long-lasting ITNs (LLINs) maintain their chemical barrier for up to three years without retreatment. LLINs are a vital tool in the achievement of universal coverage for malaria prevention. Maintaining LLIN coverage levels is not, however, just a matter of implementing periodic campaigns, even if funding were available to undertake such large-scale campaigns on a regular basis. While net coverage is expected to be very high immediately following a campaign, surveys show that it often quickly drops off in the months following a campaign. The two key variables with the greatest influence on net use are the number of nets in a household, and the size of a household. LLIN use increases with the number of nets in a household, but decreases as the size of the household increases. Early evidence suggests three main reasons for the rapid decline of coverage:

1. **Wear and tear**. Wear and tear is estimated to be between 10 and 25 per cent per year especially in populations receiving and using LLINs for the first time, and is assumed to be associated with how well educated the population is on proper maintenance and use of the nets. After three years, at least 50 per cent of nets are no longer in use.
2. **Population increase**. Newborn children increase the existing population each year by four to five per cent, and population movements add new members to communities.
3. **Non-achievement of universal coverage** in the first place. Coverage may not have been complete for a number of reasons. The real population base is often larger than official government estimates, leading to insufficient nets being procured. Households may be missed through lack of access or incomplete registration, or the average number of people

per sleeping place in some areas may not match up with the universal coverage estimate of one LLIN for every 1.8 persons (which is itself a broad average), due to higher concentrations of people sleeping alone, such as adolescents, single men and women and migrant workers. This may be particularly prevalent in urban areas, for example.

Other factors which influence net use include ambient temperature (too hot to sleep under the net), presence of nuisance biting mosquitoes (the net is used for better sleep due to high density of mosquitoes), knowledge of malaria risk and knowledge of how to hang a net.

The decline of coverage varies widely between populations and locations, but it is generally accepted that mass distribution campaigns should take place every three years to take account of net deterioration and population changes in areas without strong systems for continuous distribution of LLINs to ensure the population has regular access to nets. Access to LLINs is vital, particularly to cover the most vulnerable groups in the population. For this reason, more options for obtaining nets in the intervals between mass distribution campaigns must be part of the strategic planning of malaria control programmes. Continuous delivery of nets via different channels should be systematically introduced, complementary to mass distribution campaigns, and strengthened to ensure full access to LLINs for all populations at risk of malaria. See Resources R10-1 for the Roll Back Malaria consensus statement on continuous distribution systems[e].

Continuous distribution channels might include:

- public sector (distribution through antenatal clinics, immunization clinics, schools, health facility services, etc.)
- community-based organizations (distribution as part of ongoing health promotion activities)
- private sector (commercial sector networks)
- combination (public subsidies for private distribution)

Most countries have some experience with public sector routine distribution of nets to pregnant women and children under five years of age via antenatal (ANC) and immunization (EPI) clinics. This public sector distribution mechanism has the greatest capacity to increase and sustain coverage, particularly among the highest risk populations. Routine delivery can increase coverage rates dramatically especially among young children and pregnant women (a rise from 8 per cent to 55 per cent coverage of children under the age of five years in Malawi from 2000 to 2005), but in its current form is insufficient to maintain universal coverage with LLINs as it does not target all households. Ideally, countries will adopt a strategy of pairing various methods of continuous delivery and mass distribution delivery in order to provide a complete catch-up and keep-up service.

ANC/EPI distribution can be an excellent way of maintaining coverage for targeted groups, but will be an insufficient mechanism for ensuring that the population as a whole has access to new nets in between mass distribution campaigns. The full potential of LLINs as a vector control mechanism can only be realized with full population coverage. Therefore additional channels are required in order to reach older children, adults, including men and non-pregnant women, the elderly and those with single sleeping arrangements (e.g. those in religious orders, hospitals, military facilities, boarding schools, etc.).

10.1 Continuous public sector delivery via health facilities

The continuous delivery of LLINs through health facilities is a cost-efficient, relatively straightforward method of targeting the highest risk population groups, that is children under the age of five years and pregnant women, by using existing infrastructure. Ensuring that this system works effectively, continuously and in all areas

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of a country where malaria is a priority does, however, require a significant enhancement of existing health systems, particularly supply chains and health management information systems, and should be planned carefully and allocated a dedicated budget.

There are many advantages of continuous delivery through health facilities. These include:

- **Access**. LLIN delivery through routine services provides direct access to those most at risk of malaria where the population has access to health facilities.
- **Attendance**. Antenatal attendance, at least once during pregnancy, is above 70 per cent in almost all sub-Saharan African countries, and over 80 per cent in many. UNICEF estimates that diphtheria, pertussis, tetanus (DPT) coverage is 82 per cent globally among children under one year of age, with high variability between developing and developed countries, as well as within countries. There is anecdotal evidence that LLIN distribution through clinics is an incentive for attendance and uptake of services.
- **Distribution points**. Health facilities are located throughout many rural areas and are generally capable of storing small quantities of nets securely.
- **Promotion**. Consultation at the clinic provides a one-to-one opportunity for the health care provider to reinforce key messages regarding malaria prevention and treatment.
- **Accountability**. The pre-existing management and supervision structure of public health facilities can be used to ensure reconciliation between stocks of LLINs and records. In cases where LLINs are sold through subsidy programmes, stock and revenue can be reconciled at any time.
- **Efficiency of scale**. As the scale of the programme increases, with all public health facilities taking part, the economic cost of each LLIN delivered decreases.
- **Sustainability**. Continuous delivery through a government-led health programme creates structures that can sustain delivery of nets in the longer term.
- **Supply chain strengthening**. Ensuring continuous availability of nets in health facilities is one way of monitoring the strength of the supply chain and the health management information system. The continuous availability of promised nets can help build community confidence in public facilities and their staff.

Elements that facilitate the establishment of an effective continuous LLIN delivery programme through health facilities include the existence of a functional public health sector covering a large proportion of the population. The sector must have excellent supervisory practices, a good records system to ensure the systematic recording of distribution of nets to individuals, a reliable transport network and system to ensure supplies of nets to health facilities, an efficient tracking system to monitor stocks and avoid stock-outs, and adequate and secure central/regional warehousing to store nets.

Nets distributed through routine antenatal care services and immunization programmes are generally free or highly subsidized. Whether

LLINs are free of charge to recipients or are sold at a subsidized price is a matter of national policy. LLINs that are supplied free of charge provide a more equitable access. Even a nominal cost will make LLINs inaccessible to the poorest people, who are often the most at risk for malaria. Subsidized LLINs, however, can help to improve health facilities and renew net stocks by generating some revenue, although there is a requirement for "seed nets" to generate initial capital so that the scheme can continue. Commission on sales may also help to motivate care providers in health centres, and may encourage them to promote the benefits of LLINs actively during one-to-one consultations. Since detailed records must be kept of stock and revenue taken, it is easier to monitor the uptake of nets by consumers and the stock remaining at the facility. A nominal cost, together with a strengthened net culture, may also, in time, encourage households to allocate some income to LLIN ownership, promoting sustainability in the future.

COUNTRY CASE STUDY

In Kenya, LLINs were initially sold to the facility at 30 Kenyan Shillings (KES) each. The facility then sold the LLINs to the target group at the standard 50 KES price. Twenty of those 50 Shillings were reinvested in the facility for improvements and/or for staff incentives, and 30 were put aside to purchase more LLINs.

While there are a number of public sector continuous distribution models, it is important that all NMCPs ensure that the protection of the most vulnerable risk groups (pregnant women and children under the age of one year) is a priority, through the systematic integration of mechanisms for continuous LLIN distribution into national malaria control strategies, including the use of routine antenatal and EPI services.

Delivery of LLINs through antenatal care or EPI clinics can be carried out in two ways:

1. giving a free LLIN directly to the caregiver or pregnant woman attending the clinic
2. giving a voucher that can be exchanged for a LLIN (with or without a top-up payment) at a distribution point, such as a commercial outlet

Delivery of LLINs through antenatal care

In most malarious countries, it is NMCP policy that pregnant women are eligible for a new net at each pregnancy, and they should be given a LLIN or a voucher at their first antenatal visit. Withholding a net until the second or third visit in order to encourage subsequent visits is not recommended as the woman would be at risk for malaria in the meantime. Health facility staff should be trained to give messages regarding the proper use and maintenance of LLINs during ANC visits, as well as messages about malaria in pregnancy and the importance of intermittent preventative treatment (IPT) and when it should be received. In many countries, pregnant women are provided with LLINs during their consultation and the airing and correct hanging of the net is explained.

In other countries, systems have been established where a pregnant woman will receive a voucher during a health facility visit that can be exchanged for a net at a nearby commercial outlet. Depending on the system, the voucher may be exchanged for a standard, free net or the voucher may represent an amount of money which will require a top-up depending on the LLIN selected. Distributing vouchers can serve to stimulate local trade by building and maintaining a countrywide network of outlets. Commercial demand and the commercial market are strengthened, while the burden on the public health system of the management and logistics of net distribution is reduced. However, a potential disadvantage is that private sector retail outlets may be rare or absent in rural areas. Voucher distribution should only be considered if there is a viable commercial market, and if funding to monitor and support that network (e.g. printing and tracking of vouchers) is available.

Free-of-charge net distribution to pregnant women at their first ANC visit is the recommended mechanism to ensure equitable access by all sectors of the community. This requires a sustainable funding source (either national or international) to ensure a continuous supply of nets.

Delivery of LLINs through immunization programmes and other interventions

The highest malaria mortality rate is among children under the age of five years. Infants can receive their LLIN either as a new-born infant at their delivery in a health facility, at the first EPI visit (6 weeks), after completion of the first routine vaccination series (three doses of vaccine against diphtheria, pertussis and tetanus (DPT3) at 14 weeks) or finally at the moment of measles routine immunization (9—12 months). If the mother of the baby has already received a LLIN during her pregnancy through antenatal care, it is most likely that the baby will sleep with her under the same net, and it is permissible to withhold the new net until at least week 14 to encourage the child and mother to complete the DPT3 vaccination series (if the net can be stored under secure conditions).

Where health facilities and systems are strong, continuous delivery of LLINs to children (especially those under one year) can be managed at routine immunization visits. Distribution of LLINs can also easily be integrated into the package of services delivered through child health days/weeks, which target children under the age of five with interventions such as supplemental immunization (particularly polio and measles), and nutritional services such as vitamin A supplementation and deworming. Where outreach systems are in place for communities with limited health facility access, LLINs can be included within the package of services being provided.

Kenya. © Sarah Hoibak/UNHCR

In an effort to ensure sustained universal coverage, countries may consider providing LLINs (or vouchers) to older children who attend facilities and test positive for malaria infection. Visits to outpatient departments for childhood or adult episodes of illness provide opportunities for distribution of LLINs and for following up on net use among individuals to monitor population ownership and utilization.

10.2 LLIN distribution through community channels

Within the continuous distribution framework, there is a need to identify and develop possible community channel pull systems that can be used to replace LLINs as they expire or become physically degraded to the point of no longer providing effective prevention. Community channels for LLIN distribution have been explored on a small-scale basis but have not yet been taken to the level of regional or country coverage.

Community-based distribution of LLINs can be implemented through a number of different channels. For example, community-based organizations can be contracted to deliver nets to households that need them. Household need may be assessed through ongoing door-to-door or community health promotion activities, with malaria as one component in a broader programme. They might sell subsidized nets and keep a portion of the profits for their own activities or to purchase additional nets as a revolving fund.

COUNTRY CASE STUDY

In Senegal, community groups received 100 nets at a time to distribute to members of their community, prioritizing pregnant women and children under five. The groups sold the nets for a small fee of 100 West African CFA franc (around US$0.25), which they kept and used for transport costs and other activities.

Alternatively, nets may be provided to the organization by the NMCP to be distributed free of charge according to need. It is important with community-based distribution that the criteria for assessing net condition and viability and for allocating new LLINs in the case of need are clear during training to ensure rational use of limited resources.

Community-based distribution is often an attractive initial option for many countries, since it relies on the community to identify those households without nets (or with an insufficient number of nets), and to ensure they then receive nets. Empowering community groups also helps promote the activities of women's groups, youth groups, or other local groups already active in health promotion interventions.

COUNTRY CASE STUDY

In Madagascar, itinerant saleswomen sell a variety of health products from village to village; the sales of subsidized LLINs made it worthwhile for the women to expand their sales areas, resulting in an uptake of other health products such as family planning items.

Periodic community distributions could also be organized, although there is less experience with this type of channel. These mini-campaigns would require a similar level of effort as larger-scale campaigns in planning and logistics, but stocks of nets could be delivered continuously into the country and delivered to district level, and distributed to families on a quarterly or six-monthly basis. The main problem with this mechanism is making sure that families who need new nets are properly identified, and that the distribution does not become an opportunity for households to obtain more nets than they need. One way of ensuring this is to allow households to redeem only an old, torn net for a new net. This may, however, encourage poor care and repair of LLINs, and rewards households who do not take

good care of their nets. In addition, if households are asked to exchange old and torn nets for new nets there must be a way of managing the nets that are exchanged. If there are no means for disposing of unusable nets, collecting them can become problematic.

School-based distribution of nets can target older children, who are often the group not sleeping under nets following mass LLIN distributions due to sleeping arrangements in households. School-based distribution may target only the student, or multiple nets can be provided to a student that will be used to protect other members of their family living in the same house. School-based distribution is being piloted in some countries but has not yet been undertaken nationally or even at a regional scale.

School-based distribution has not been implemented on a wide basis, but offers a potentially effective way of reaching households on a continuous basis as their children age and progress through their education. The mechanism does not work well in places where school enrolment and attendance are low. However, in countries with high rates of enrolment, school-based distribution of nets to different age-groups each year has the potential to deliver enough nets to maintain universal coverage, when combined with ANC/EPI distribution.

COUNTRY CASE STUDY

In Tanzania and Nigeria, pilot schemes will be conducted to assess the effectiveness of delivering one net per child in selected age groups at primary school as a means of getting new nets into households. This mechanism assumes that nets brought home by the child will be distributed among the household members.

Other combinations of age groups, for example, giving to new pupils and leavers in primary school each year, will contribute fewer nets, but

COUNTRY CASE STUDY

In Tanzania, 71 per cent of households (equalling 84 per cent of the population) had either a pregnant woman or a current student, making a combination strategy of distribution via ANC, EPI and schools a potentially effective mechanism for maintaining universal coverage post-campaign.

depending on enrolment and completion rates, could significantly contribute to maintaining universal coverage. School-based distribution has the drawback that it will not reach households who do not have children of school age, such as young couples, single adults or the elderly. It will also not reach parents whose children are out of school or who cannot/do not send their children to school. Depending on the demographics of the particular country, these households may make up a smaller or larger percentage of the population.

Other possible channels for community-based distribution of LLINs include projects focused on providing support to HIV/AIDS affected families, patients undertaking directly-observed therapy for tuberculosis, or neglected tropical diseases. In these projects, community-health workers or volunteers regularly visit households and can assess net condition and need as part of their ongoing tasks. Requirements for LLINs can be communicated to the NMCP or to the responsible project partner to trigger delivery to the community and distribution to households.

When looking at possible community channels for continuous distribution, it is important to undertake an assessment of the population structure and demographics (such as percentage of households with pregnant women, children under one, children under five, school-attending children, etc.). It is also important to undertake mapping of civil society and faith-based organizations, as well as other possible community or youth structures, that could contribute to continuous distribution

of LLINs for sustained universal coverage. It is unlikely that a single channel for continuous LLIN distribution will be sufficient to sustain universal coverage so using as many channels as is practical is important to reach all population groups. Establishing community channels for continuous LLIN distribution in areas with poor health facility access should be a priority.

10.3 LLIN distribution through the private sector

The private sector has a role to play in ensuring sustained access to LLINs. The private sector offers enormous opportunities for increasing availability of products given that the majority of people living in malaria-affected countries already rely on the commercial market for a majority of their household and personal needs. The private sector is able to increase availability to those who are able to afford products, allowing public sector delivery to focus on the most vulnerable with its available and often limited resources. The public sector in most cases does not have the capacity to scale up and sustain coverage with malaria prevention without donor and commercial partnerships.

The private sector offers a number of opportunities and private sector partners should be engaged early in discussions about establishing or expanding continuous distribution channels. The private sector is demand-driven and for this reason, companies work to create and sustain demand through marketing campaigns to increase product uptake and appropriate use. Private sector marketing campaigns will reach even those who cannot afford the products, generating demand for other continuous distribution channels, such as free delivery to pregnant women and children through routine health services.

Commercial markets are valuable sources of nets. Untreated locally produced or imported nets are often available through the commercial sector and in markets. While these nets can contribute to prevention of malaria for the individual

Tchad. © MENTOR Initiative

user, they will have little impact on malaria transmission intensity. In addition, in most countries LLINs are sold in pharmacies or local shops or in markets, though in many cases, the prices are prohibitively expensive for a majority of the population.

Where strong commercial markets exist or are developing, they should be encouraged. NMCP should communicate malaria control plans to the commercial sector to allow them to anticipate market growth. A strong, competitive commercial market leads to higher quality, greater variety, lower prices and wider availability. Also, while free distribution of LLINs is often done using a standard net with a low price, commercial distribution increases choice and convenience once a sufficient number of vendors and outlets are involved.

10.4 LLIN distribution through social marketing

A social marketing approach uses public funds to support market-based systems for delivery of nets. The strategy of using accessible commercial outlets makes LLINs available to any potential user at any time of the year. However, legislation must ensure that nets available through this

channel conform to the WHOPES-approved guidelines and are of high quality. Centralizing procurement at the national level before distributing to wholesalers and retailers would ensure the lowest procurement price. Highly subsidized sales through the private sector may be the only option for populations not otherwise reached through public sector health facilities, for example in post-conflict settings where the public health systems are either non-existent or do not have the capacity for rapid delivery of effective malaria control interventions. In these situations, using public sector funds to subsidize LLINs can result in the lowest possible consumer prices, while still allowing a profit margin for the retail outlets. Private sector outlets such as kiosks, markets and shops, as well as community-based organizations can be used as delivery channels.

Unlike delivery through antenatal and immunization clinics which target pregnant women and children under the age of one year, social marketing delivery makes LLINs available to any subset of the target population in a country aiming for universal coverage. This availability might ensure that families allocate some income to the acquisition of LLINs. Over time, the subsidized price could increase as households consider LLINs essential items and are willing to pay more to own them.

There are, however, disadvantages. Price, however well subsidized, may still be a barrier to the poorest people. In addition, commercial density drops off in rural areas where the risk for malaria is often highest. A lack of capital in rural areas results in a tendency to trade only in proven fast-moving consumer goods. In order for small-scale retailers to buy, transport and stock slow-moving consumer goods such as LLINs on their own initiative, there must be a demonstrated demand for the product by the consumers. Most communities are informed and have some knowledge of the protective effect of nets, having been exposed to messages through the various channels mentioned above. To ensure a sustainable market community, however, demand must be continuously stimulated. Households should therefore be encouraged to purchase nets as their income levels permit.

10.5 The introduction of continuous distribution mechanisms

The introduction of continuous LLIN delivery requires the enhancement and strengthening of the structures and activities for mass distribution campaigns described in this toolkit. These include:

- coordination of malaria partners at central, regional and community level
- short- and long-term planning
- procurement
- storage
- transport and accountability of LLINs
- communication for advocacy, social mobilization and behaviour change

Additional activities also include training and re-training of personnel at different levels, accurate record-keeping, data management and transmission, and ongoing supervision, monitoring and evaluation of all aspects of the delivery programme. The MoH must provide leadership, policy formulation and supervision, but may opt to subcontract the logistics, training, communication and/or monitoring and evaluation to a third party to ensure accountability, transparency and the comparative advantage of using a specialized agency or partner.

Some recommended steps to introduce health facility distribution include:

Coordination

As described in Chapter 2, good coordination between all partners at all levels involved in the country's malaria programme is critical to its success. Developing an appropriate continuous distribution policy and strategy for LLINs is a primary responsibility of the MoH, often in conjunction with the department of

reproductive health or EPI, so that it ensures ownership and accountability at all levels of the public health system. Other ministries will be involved in ensuring the success of the system selected, ranging from the finance ministry, often responsible for providing or overseeing funding, to the agriculture ministry who will monitor the effectiveness of the insecticide used, to the education ministry who will need to be engaged in the case of school-based distribution of nets. Close coordination between the NMCP and district health offices ensures that LLIN distribution activities are routinely integrated into ongoing health services. Health providers should perceive LLIN distribution and promotion as an integral part of their job. National and district health officers and health facility staff must be committed to, and participate fully in, the approach adopted.

At the district level, a LLIN committee should be set up to coordinate activities locally. A coordinator should be employed to oversee implementation. The district LLIN committee could be made up of district health management team (DHMT) members, the district LLIN programme coordinator, representatives from partners at district level (e.g. NGOs, private sector), and representatives from subcontractors (e.g. transport provider) where relevant.

Planning

Macro-planning and macro-quantification are an aggregate responsibility as they require information from all levels, from the top down to health facility or community level, to ensure that numbers are as accurate as possible. The following steps are recommended:

- definition of epidemiological coverage in terms of whether the continuous distribution strategy will cover endemic areas only, endemic plus epidemic, or epidemic plus low transmission
- definition of geographical coverage of the programme based on epidemiology
- calculation of population size in that geographical area
- definition of targets (women through antenatal clinics, children under the age of one year and/or under the age of five years through EPI clinics, school-age children, general population or all these)
- definition of channels for LLIN distribution (health facilities, civil society organizations, commercial outlets, etc.)
- quantification of targets based on demographic data, including population access to and use of the various channels being used for LLIN distribution
- estimate of staffing needs for all aspects of the programme, including monitoring and evaluation

An example of macro-quantification to define annual need for a programme targeting children under five

Population = 28 million
Children under five = 16%

28 million x 0.16 = 4,480,000 in year one

Birth rate = 3.7%

28 million x 0.037 = 1,036,000 in year two, three, four, depending on length of programme and birth rate rise, etc.

Plus an additional 10—15% per year to account for nets that are wearing out.

Micro-planning activities need to establish the criteria for health facility eligibility in the programme and identify health facility (public, private, faith-based) infrastructure within the geographical area. The facilities to be used as distribution points should be determined by the regional health management team (RHMT), in conjunction with the district health management teams (DHMT) under their responsibility. The ideal scenario, depending on reliability of reporting by the facilities, should be one where all public and faith-based facilities offering routine services like immunization and antenatal care are included and distribute LLINs to the target population free of charge. All facilities should

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be given a unique identification for reporting purposes to ensure proper targeting of nets, and monitoring of stocks. A code that assists in identifying the facility by province/region, district and type of activity is ideal.

Private health facilities can also be included as continuous distribution channels. In these cases, given that patients are paying to receive services, subsidized or full cost sales may be an appropriate method for increasing population access to and ownership of LLINs. Engaging private health facilities may be difficult if they are not grouped under a single coordination structure as it will involve a facility-by-facility process of information provision and start up of activities.

Plans should be made to ensure that all supervision and monitoring structures are in place before the programme begins, and that training manuals, materials for communication of all kinds, and data collection tools for reporting and monitoring are available and harmonized. If implementation of the programme is staggered, plans for training and communication must reflect the exact situation in terms of planning and implementation of activities. For example, until nets are available for distribution in each district, country-wide messages are not appropriate, although start-up dates can be announced publicly for each district.

Micro-quantification requires the quantification of target populations at the lowest level possible. This should be at least health facility level and if possible community level to ensure the availability of sufficient nets. All available data should be used, including recent census data (e.g. for electoral purposes), and EPI data which will give an indication of the number of children. If a recent universal coverage campaign took place and good quality data were collected, collated and synthesized during the household registration, these data can also be used to guide quantification.

Facility need is determined by each district through the Annual Operating Plan. If National Bureau of Statistics population numbers by districts do not match with facility data on population, based on consultation rates, the disparity should be investigated to discover the cause. It may be that figures are out of date or overestimated. In cases where this is not so, there might be other explanations. For example, some populations, such as those in extremely remote communities, will be counted by the Bureau, but may not have been previously served by any of the identified health facilities. It should be noted, however, that free LLIN distribution may have an effect on facility attendance by attracting these under-served populations, and provision should be made accordingly.

Populations should only be left out of programme quantification for health facility delivery when provision for increasing their access to nets has been determined by other means. For example, some populations may derive greater benefit by being the recipient of other specifically targeted mechanisms such as distribution of LLINs by community health workers, social marketing of LLINs or other outreach activities. This will require

expansion of the health facility delivery programme or engagement of additional partners as other continuous distribution channels. In some areas, active distribution and replacement of LLINs may be occurring through civil society or faith-based organizations or as part of ongoing programmes, such as for neglected tropical diseases.

A further example of how the population figures might not match is the double or triple counting of population by different types of facilities (public, private, faith-based) in the same catchment area. This could lead to population figures of the collective facilities being larger than the National Bureau of Statistics figures. There should be triangulation of figures to eliminate overlaps and knowledgeable local authorities such as the DHMT should be consulted to verify and validate numbers.

Procurement and logistics

The steps outlined in Chapter 4 of this toolkit should be followed to ensure timely delivery of a sufficient number of LLINs to cover demand for a specified period.

The NMCP should give guidelines on the minimum net specifications, such as net size, shape, chemical to be used and colour. The colour, label and packaging of the net may be important elements when the issued nets are free to distinguish them from nets distributed by other channels if it is Ministry of Health policy to track which channels are most used for LLIN acquisition. In some cases, the Ministry of Health is interested in a clear distinction of free versus commercial or campaign nets to facilitate net tracking by distribution channel and avoid leakage, as well as to make identification easier during surveys. Where possible, net specifications should be based on known population preferences and should take into consideration potential barriers to uptake and use. The shape will also affect the logistics operation (e.g. conical nets take up twice as much room as rectangular nets). Warehousing capacity in different areas should be taken into account to minimize risk of loss (theft, improper conditions, etc.). To minimize warehouse costs, and if feasible, deliveries of LLINs should be staggered.

Tchad. © MENTOR Initiative

Only WHOPES-approved nets should be procured and must conform to the country-specific Pesticide Regulatory Authority's guidelines. Net suppliers meeting all requirements should be invited to tender in an open tender process. Before nets are issued out, previously planned quality control measures should be implemented to ensure consistency with product specifications.

The supply chain infrastructure within geographical areas to be served needs to be mapped out, taking into consideration the transportation means available (road, water, rail, etc.), and seasonal variations in accessibility of different areas. As described in Chapter 5, the inventory management system may be centralized or decentralized. In the case of centralized, secure storage facilities, able to store at least two months' supply of LLINs should be found within regions/provinces, plus a larger warehouse at central level from which the regional storage facilities will be stocked. Based on the country's epidemiology and geographical outlay, regional warehouses should be situated in areas with the highest malaria transmission to reduce the possibility of stock-outs.

COUNTRY CASE STUDY

In Kenya, where the continuous distribution of nets via health facilities has been in place since 2001, one central and three regional warehouses are needed to distribute 2.1 million LLINs per year.

Health facility quantities delivered should be based on both their yearly net needs and also the frequency that they will re-stock or be re-supplied. It is important to forecast LLIN needs and delivery carefully, and to develop a schedule for the supply chain circuit, to avoid either under-stocking or overstocking health facilities. Overstocking is an inconvenience for health facilities that have limited storage space, sometimes leading to substandard storage of LLINs. Under-stocking results in breaks in the continuity of the supply, which is vital to the reliability of the programme. Once needs are quantified, a small buffer stock should be added (5 per cent) in case demand is greater than expected, particularly initially, as in many cases, there will be a spike in demand for LLINs in the first year. In subsequent years, the demand should stabilize, with only new pregnancies and new-born babies eligible for receipt of a LLIN, depending on the MoH policy.

Professional full-time security is required for LLINs in all central and regional warehouses. All goods should be insured when in transit and storage at all levels of the supply chain. As need arises, a fleet of trucks will transport nets from the central warehouse to the regional storage. From there, transportation to health facilities using the most appropriate and available method (e.g. small truck, boat, motorbike) will be required. Coordinators in each district should oversee the movement of the LLINs, which need to be in bales rather than individual nets in order to simplify paperwork and reduce loss. As was emphasized in Chapter 5, stock control tools must be used at every movement of stock to keep an accurate inventory and to ensure nets are tracked up to and including their receipt by beneficiaries. Tools are required to keep systematic records of movement between central, regional and health facility levels, as well as for forecasting need to avoid stock-outs. For example:

- at central level a system and stock management tools to handle reception of LLINs and requisitions from regional level
- at regional level tools to request LLINs from the central warehouse, and to record stock when received and sent, plus delivery notes for health facilities
- at health facility level, stock sheets, record of issue to individuals, both in a central register and on the clinic card of each person receiving a net, secure method of storing cash (if nets are sold)

Permanent registers which are used for immunization, growth monitoring or antenatal

information should be used to record nets distributed to avoid having multiple tools for reporting different health indicators. Each net issued should be ticked off against the recipient's name where other services are being rendered. To avoid any duplication, clinic cards belonging to recipients should be stamped indicating that a net has been received. The particulars of the recipient will be noted in the permanent register, making it easy to track net issue to the end user and follow up on net ownership, hanging and use.

Communication

Coordinated and targeted promotional and advocacy activities are crucial to ensure that gains made following a mass distribution of LLINs are sustained through continuous delivery of LLINs. The promotion of continuous distribution and utilization of LLINs requires commitment from a large number of different organizations – government, public, private, NGO, faith-based, academic – to work in partnership. It is critical following a mass distribution, where interest has been generated in LLINs and their use, to ensure that the population knows where additional nets can be accessed and any costs associated with their acquisition.

Materials will need to be developed for information, education and communication (IEC) and for behaviour change communication (BCC), and the communication plan should contain information on how these supports will be disseminated. In the case of public health facility delivery of LLINs, key messages for malaria prevention and treatment and LLIN utilization and care can be reinforced at one-to-one consultations between mothers/caregivers and health providers at routine clinic visits, as well as through group talks while mothers are waiting to be seen. Good support materials, such as drawings or having a net properly hung in the waiting area, facilitate discussion. Key messages can also be disseminated through mass media channels. In the case of community-based or commercial outlet sales, it is important that the NMCP is involved in the development of key messages, that job aids are provided to ensure clear and correct messages are disseminated to beneficiaries and that these activities are coordinated with and complementary to ongoing NMCP communication activities.

BCC is extremely important after beneficiaries have received nets to ensure that they are hung properly, cared for and used on a nightly basis. BCC messages can be disseminated through mass media channels which have the potential to reach large numbers of beneficiaries at a low to moderate cost. A number of approaches should be combined to reach the maximum number of people. BCC must be culturally and contextually relevant and should endorse simple-to-do behaviours. Mass communication channels, such as radio, television, newspapers, posters and other visual materials can be used all year round to promote acquisition and utilization of LLINs, and can be intensified around the high transmission season. As well as in the health facilities, useful channels for BCC can be found within the community, for example using volunteers to give talks to women's groups, faith-based groups, schoolchildren, etc.

Tchad. © MENTOR Initiative

Information given at school is often shared with the family, thus disseminating messages to a broader audience in the home setting. Repetition of the key messages to children early strengthens the culture of LLIN use over a longer period.

Communication materials of all kinds and messages should be clear, simple, easy to understand and consistent. The guidance given in Chapter 6 for developing key materials for mass distribution campaigns is equally relevant for continuous LLIN delivery.

Training

At the start of the programme, it is important to hold targeted training and induction for different stakeholders, focusing on the skills they will need to ensure that the continuous distribution channel(s) functions effectively. At the managerial level, including NMCP personnel, regional and district health teams, training is required on forecasting, data and supply chain management and supervision. Regional and district health teams should have the responsibility of monitoring the health facility and its staff and should receive training to do so. Activities to be carried out during a routine supervisory visit might include:

- reconciling commodity stocks with records
- verifying record-keeping by health facility staff and provision of guidance where necessary
- restocking LLINs, where appropriate
- checking availability of job aids and communication materials
- observing how health workers communicate with patients about nets and how to hang and use them
- conducting refresher training on technical or operational issues
- recognition of exemplary practice

Training for supervisory and implementation staff should cover both technical and operational issues. Technical training includes basic information about malaria prevention, treatment and the correct use of LLINs. Operational training includes supply chain management, record-keeping and reporting.

Standard training guidelines can be developed at the national level and adapted to suit the local context. Job aids should be developed that remind health workers about the procedures for recording nets and keeping other records. These could be in the form of a simple flowchart to be hung on the health facility wall.

Topics of training at the health facility level might include:

- the need to deliver LLINs as a means of preventing malaria among the target group
- the advantages of personal protection to the individual and the cumulative effect on the community (emphasizing the need for use among a large number of individuals each and every night)
- net need forecasting based on population and supply chain management
- procedures for issuing LLINs
- procedures for reordering LLINs
- proper data management and recording
- use of job aids
- behaviour change communication and counselling on hanging, using and maintaining LLINs
- use of communication materials around malaria

COUNTRY CASE STUDY

In Kenya, the regional programme coordinator performed ad hoc troubleshooting training as necessary when visiting health facilities to top up net supply. Additionally, he would often join monthly DHMT meetings to review the procedures of the net delivery programme and encourage facilities to share challenges and lessons learned with one another.

During implementation, refresher training is essential, particularly if there is a high turnover of staff. The focus of refresher training should be on proper record-keeping and appropriate LLIN issuing procedures. It should also be an opportunity to find out and address any

Sierra Leone. © United Methodist Church

difficulties or challenges that have occurred during implementation to date.

Monitoring and evaluation

Periodic surveys on net coverage, use and durability should be used to monitor whether targeted beneficiaries are in fact receiving nets, and to check on the effectiveness and efficiency of the continuous distribution programme, as well as the behavioural factors contributing to high or low use and net maintenance. Health facility data should be monitored on a regular basis to check on routine delivery via ANC and EPI interventions. As net coverage increases through the various continuous distribution channels, malaria prevalence throughout each community should be evaluated to assess whether malaria transmission is being interrupted and to determine whether a new strategy is needed to maintain achievements.

The Roll Back Malaria consensus statement on continuous distribution systems states that currently "evidence on the effectiveness of alternative continuous distribution systems is scant and a high priority should be given to the monitoring and evaluation activities needed to collect such evidence" (see Resources R10-1). The collection and sharing of such evidence within the malaria community will be key to the achievement and maintenance of universal coverage targets.

10.6 Key recommendations for sustaining gains

- Integration into existing health systems, especially antenatal and immunization clinics, offers a practical channel for continuous LLIN distribution. In countries with low net coverage, scaling up should be achieved by means of a mass distribution campaign and then sustained through free or highly subsidized delivery of LLINs through public services. Significant management and health system challenges are involved, but the approach makes rapid scaling up simpler than alternatives. Until the foreseeable future, a combination of LLIN mass distribution campaigns and continuous distribution will be required in many countries with limited options for ensuring access to LLINs. Funding applications should include both.
- Countries that have already achieved relatively high coverage should assess their achievements, especially in terms of coverage, equity and potential for reaching those who have not yet been covered. Systems and mechanisms that work well in the context of a public sector led national plan should be maintained, while scaling up other continuous distribution channels to ensure high population access to LLINs.
- Greater international coordination in campaign and continuous distribution support could increase cost efficiency and improve and stabilize gains.
- Countries must look closely at their specific context in order to make decisions about which channels may work best for sustaining gains made with universal coverage campaigns. ANC and EPI attendance, school enrolment, and the reach of community organizations

are not always high enough in all countries to make use of these channels effectively.

- What works well in one country may not be best for another. Countries should plan to dedicate resources to assess different options, and for pilots where new mechanisms can be tested and evaluated. No single continuous distribution channel will be sufficient for maintaining universal coverage.
- Continued communication around net hanging, use, care and repair is an integral part of maintaining universal coverage. As people get more used to LLINs, the culture of net use can grow until owning and using a net is as important as having a cooking pot or pair of shoes. Building this net culture happens over time, and can be accelerated and facilitated by broad-based BCC efforts at national and community level. Over the long term it may be possible to build a net culture strong enough to support full price net sales in certain areas.
- Improved longevity of LLINs, especially against wear and tear, would greatly facilitate sustaining coverage. Efforts should be made to develop effective care and repair interventions at country level to promote good maintenance of nets. While there is not yet sufficient evidence to tell whether improved care and repair can significantly affect the lifespan of LLINs, and how many extra months or years could be gained, promotion of care and repair should be included in BCC strategies for LLIN use.

Endnotes

a. Killeen GF et al, *Preventing childhood malaria in Africa by protecting adults from mosquitoes with insecticide-treated nets.* PLoS Medicine, 2007, 4(7):e229. See: www.plosmedicine.org/article/infor:doi/10.1371/journal.pmed/0040229

b. Hawley WA et al. *Community-wide effects of permethrin-treated bed nets on child mortality and malaria morbidity in western Kenya.* Am J Trop Med Hyg 2003, 68:121-127. See www.ncbi.nlm.nih.gov/pubmed/12749495

c. Lengeler C, *Insecticide-treated bed nets and curtains for preventing malaria.* Cochrane Database of Systematic Reviews, 2000, (2):CD00363 (update 2004). See: www2.cochrane.org/reviews/en/ab000363.html

d. Lim SS, Fullman N et al. Net benefits: *A multicountry analysis of observational data examining associations between insecticide-treated mosquito nets and health outcomes.* PLOS Medicine. See: www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001091

e. The Continuous Distribution workstream of Roll Back Malaria Vector Control working group is in the process of developing a set of guidelines, tools and case studies on continuous distribution. See: www.rbm.who.int/mechanisms/vcwg.html

Nigeria. © Malaria Consortium and JHU•CCP

Resources

The following resources can be found on the CD accompanying this toolkit. There are many examples of tools, reports and useful information coming from a variety of organizations and countries. As far as possible, good practice examples have been included in both English and French. These may be adapted to suit the differing circumstances and needs of country LLIN mass distribution campaigns.

Chapter 1: Introduction

R1-1a	RBM consensus statement on continuous distribution systems
R1-1b	RBM declaration de consensus sur les methodes de distribution continue

Chapter 3: Planning

R3-1	Harmonization Working Group Recommendation on LLINs in Global Fund Round 11
R3-2a	Budget guidelines for LLIN scale-up - costing template (prepared by AMP)
R3-2b	Cameroun Budget Campagne 2011
R3-3a	WHO Policy Brief July 2011 (Global Fund proposals)
R3-3b	OMS Récapitulatif de la politique de l'OMS Juillet 2011 (Elaboration de proposition du Fonds mondial)
R3-4	Guidelines for monitoring durability of LLINs (WHO)
R3-5	Roll Back Malaria targets beyond 2011
R3-6	Sample timeline for LLIN stand-alone campaign (prepared by AMP)
R3-7	Sample timeline for LLIN integrated, targeted campaign (prepared by AMP)
R3-8a	Sierra Leone plan of action (integrated campaign 2010)
R3-8b	Sierra Leone timeline
R3-9a	Tchad plan d'action (distribution de masse 2011)
R3-9b	Tchad chronogramme
R3-10	Togo plan d'action (campagne intégrée 2011)
R3-11	Uganda implementation guideline (universal coverage rolling campaign 2010)
R3-12	Zimbabwe ITN implementation strategy 2010

Chapter 4: Procurement

R4-1	RBM overview of LLIN procurement and supply processes
R4-2	World Bank procurement timeline
R4-3	Global Fund procurement timeline
R4-4	PMI procurement timeline
R4-5	UNICEF procurement timeline
R4-6a	Procurement and supply management guidelines (Global Fund)
R4-6b	Gestion des achats et des stocks (Fonds Mondial)
R4-7a	Global Fund 10 Quick Facts about LLIN procurement
R4-7b	Fonds mondial Informations clés relatives à l'approvisionnement en MILD
R4-8	World Bank Procurement and Supply Management Toolkit
R4-9	UNICEF - Procurement of LLINs: Key Challenges and Sustaining Gains
R4-10	World Bank standard bidding document

R4-11a Pipeline monitoring tool example (Nigeria)
R4-11b Tableau de suivi du pipeline exemple (Burkina Faso)

Chapter 5: Logistics

R5-1a Liberia Macro logistics planning templates (example)
R5-1b Guinea-Bissau Tableaux planification macro logistique (exemple)
R5-2a Logistics chronogram (example)
R5-2b Madagascar Chronogramme logistique (exemple)
R5-3 Liberia Logistics chronogram (example)
R5-4a Uganda Master positioning plan (example)
R5-4b Madagascar Plan de positionnement (exemple)
R5-5 Ghana Master positioning plan (example)
R5-6a Request for quotation (RFQ) letter (example)
R5-6b Lettre de demande de devis (exemple)
R5-7a Transport comparative bid analysis (example)
R5-7b Analyse comparative des offres de transport (exemple)
R5-8a Warehouse stock sheet card
R5-8b Registre d'entrepot
R5-9a How to use and fill out the warehouse stock sheet
R5-9b Directives d'utilisation registre d'entrepot
R5-10a Waybill/delivery note
R5-10b Bon de livraison
R5-11a How to fill out and use the waybill
R5-11b Directives d'utilisation bon de livraison
R5-12a Tally sheet
R5-12b Fiche de distribution
R5-13a How to complete and use a tally sheet
R5-13b Comment utiliser la fiche de distribution
R5-14a Goods received note (GRN)
R5-14b Accuse de reception (GRN)
R5-15a How to complete and use a GRN
R5-15b Comment completer et utiliser l'accuse de reception
R5-16a Mali Transport planning table (example)
R5-16b Mali Tableau de planification transport (exemple)
R5-17a Logistics micro-planning questionnaire 1
R5-17b Questionnaire pour micro-planification logistique 1
R5-18a Logistics micro-planning questionnaire 2
R5-18b Questionnaire pour micro-planification logistique 2
R5-19a Logistics budget template
R5-19b Canevas budget logistique
R5-20a Liberia Logistics budget 2011
R5-20b Liberia Budget logistique 2011
R5-21a Training and distribution monitoring forms
R5-21b Formulaires de supervision de la formation et distribution

Chapter 6: Communication

R6-1	Sample communication budget and timeline (French and English)
R6-2a	Terms of reference for the communication sub-committee
R6-2b	Exemplaire des termes de reference pour la commission communication et mobilisation sociale (Côte d'Ivoire)
R6-3	Mali plan d'action campagne intégrée 2007(French)
R6-4	Mali communication plan (English)
R6-5a	Senegal macro plan 2010 (English)
R6-5b	Additional tables for Senegal macro plan (English)
R6-5c	Senegal macro plan (French)
R6-6a	Senegal micro plan 2010 (English)
R6-6b	Additional tables for Senegal micro plan (English)
R6-6c	Senegal microplan (French)
R6-7a	Job aid example, Uganda. How to use and maintain your LLIN
R6-7b	Cartes conseils pour la couverture universelle en MILDA. Senegal
R6-8	Uganda campaign training manual, 2009
R6-9	Formation manuel du relais, Senegal
R6-10	Sierra Leone volunteer duties
R6-11	Hang-up home guide (IFRC)
R6-12	Annotated creative agency contract
R6-13	Spot on Radio Guide for Malaria
R6-14a	BCC Working Group behavioural survey questions for net use
R6-14b	Questions pour les enquêtes sur la communication et l'utilisation des MILD

Chapter 7: Implementation

R7-1	Cameroon Micro-planning example
R7-2	Cameroun Micro plan 2011
R7-3	Canevas de microplan district Togo campagne intégrée
R7-4	Sierra Leone MCHW micro-planning tool
R7-5	Cameroun global synthese microplan
R7-6	Agenda formation superviseurs centraux
R7-7	Training agenda for central supervisors
R7-8	Household registration training agenda (French and English)
R7-9	Distribution training agenda (French and English)
R7-10	Volunteer training agenda (French and English)
R7-11a	Cameroon Training Guide 2011
R7-11b	Cameroun Guide de formation MILDA 2011
R7-12a	Principles of adult learning
R7-12b	Enseignement des adultes
R7-13	Uganda campaign training manual
R7-14	Household registration form instructions 2010
R7-15	Training Manual LLIN distribution Ghana
R7-16	MCHW Training Guide Sierra Leone
R7-17a	Module formation superviseurs campagne intégrée Togo 2011

R7-17b	Guide pratique pour les agents de santé communautaire Togo 2011
R7-18a	Guide de formation des volontaires (à l'usage des superviseurs) Togo 2011
R7-18b	Manual de formation des superviseurs sur l'accrochage des MILDA Togo 2011
R7-19	Module de formation des superviseurs regionaux et de districts
R7-20	Aide Memoire des organisations de base communautaire – Distribution
R7-21	Distribution communautaire - presentation Senegal
R7-22	Single day hang-up training manual
R7-23	Volunteer job aid household registration 2010
R7-24	Aide Memoire des organisations de base communautaire – denombrement
R7-25	Recensement des couchages et MILDA - presentation Senegal
R7-26	Pre-campaign volunteer job aid
R7-27	Volunteer job aid – hang-up
R7-28a	Guide accrochage volontaires Togo 2011
R7-28b	Guide accrochage et usage des MILDA Togo 2011
R7-29	Supervisors Training Post Test 2011
R7-30	Volunteers Training Post Test 2011
R7-31	Training report template English
R7-32	Synthese du rapport general formation region centre
R7-33	Cameroun Complete forms and tools for M&E (bilingual) 2011
R7-34a	Togo Guide suivi et evaluation campagne MILDA 2011
R7-34b	Togo Outils de collecte de données campagne 2011
R7-35	Supports campagne MILDE Congo Brazzaville 2011
R7-36	Cross River State Data collection tools non-pilot LGAs
R7-37	Sierra Leone MCHW Household registration form
R7-38	Senegal Maquette analyse des MILDA District
R7-39a	Registration data entry template
R7-39b	Data entry guidelines
R7-40a	Masque saisie denombrement
R7-40b	Guide saisie denombrement
R7-41a	Fiche de synthèse de recensement – centre de santé
R7-41b	Fiche de synthèse de recensement – district
R7-42	Sierra Leone Daily household LLIN voucher issued tally form
R7-43	Resultat national denombrement
R7-44	Household registration report template English
R7-45	Canevas de rapport de nombrement
R7-46	Tally sheet
R7-47	Fiches de suivi distribution
R7-48a	Senegal Maquette d'analyse MILDA District
R7-48b	Senegal Maquette d'analyse MILDA Region
R7-49a	District card distribution summary form
R7-49b	Distribution point daily summary form
R7-49c	Sierra Leone Distribution point daily LLIN collection tally
R7-50a	Cameroun Masque saisie indicateurs
R7-50b	Cameroun Guide saisie indicateurs
R7-51a	Cameroon Indicator data entry template
R7-51b	Cameroon Indicator data entry guide

R7-52 Cameroon Distribution report template English
R7-53 Cameroun Canevas de rapport de la distribution
R7-54 Fiche d'accrochage
R7-55 Hang-up form English
R7-56 Spotcheck hang-up form Français
R7-57 Spotcheck hang up forms
R7-58 Sierra Leone MCHW Nov 2010 monitoring checklist
R7-59 Team supervisers checklist for HH MCHW 1st phase
R7-60a Kenya Measles SIAs preparedness checklist 1st phase
R7-60b Kenya Measles SIAs preparedness checklist close to campaign
R7-61a Supervision checklist CSB
R7-61b Supervision checklist district
R7-62a Liberia Pre-implementation checklist
R7-62b Liberia Implementation supervisory checklist
R7-63a Senegal Fiche controle rapide distribution
R7-63b Senegal Fiche controle rapide recensement
R7-64a Senegal Grille de supervision distribution
R7-64b Senegal Grille de supervision recensement

Chapter 8: Monitoring and evaluation

R8-1 Plan general de suivi-evaluation campagne intégrée Niger
R8-2a Monitoring and evaluation plan Rwanda
R8-2b Rwanda campaign process indicators
R8-3 Sierra Leone plan of action
R8-4 Zambia measles SIAS evaluation plan of action
R8-5 Zimbabwe ITN implementation strategy
R8-6 Senegal questionnaire (English)
R8-7 Senegal questionnaire (French)
R8-8 Niger net tracking questionnaire
R8-9 Sierra Leone LLIN questionnaire
R8-10 LLIN campaign technical report template
R8-11 Campagne MILD rapport technique canevas
R8-12 Togo rapport technique campagne 2004
R8-13 Sierra Leone technical report
R8-14 Kenya technical report 2006
R8-15 Rwanda rapport synthese campagne intégrée
R8-16 Sierra Leone measles malaria campaign report
R8-17 Togo rapport campagne intégrée
R8-18 Maquette d'analyse MILDA universelle District
R8-19 Maquette d'analyse MILDA intégrée District
R8-20 Maquette d'analyse MILDA Region
R8-21 World Bank Nigeria household survey
R8-22 Angola Report LQAS
R8-23 LQAS presentation on LLIN coverage in Mozambique

Chapter 9: Reporting

R9-1 Ghana 2010 campaign process evaluation
R9-2 Evaluation de processus, Mali, 2011
R9-3 Modèle de rapport final Senegal District
R9-4 Preliminary transport plan
R9-5 Senegal Journal de la Campagne Universelle (deux exemplaires)

Chapter 10: Sustaining gains

R10-1a RBM consensus statement on continuous distribution systems
R10-1b RBM Modèle declaration de consensus sur les methodes de distribution continue
R10-2 LLINs for Continuous and Campaign Distribution in Sub-Saharan Africa: A collation of Global Funding commitments for 2011—2016
R10-3 Continuous long-lasting insectidical net distributions: A guide to concepts and planning
R10-4 Country-to-country guide for implementers of LLIN keep-up
R10-5a Lessons in brief: Making it work: the big picture (Kenya)
R10-5b Lessons in brief: Making it work: integrated supply and supervision (Kenya)
R10-5c Lessons in brief: Accountable partnership: singing from the same songbook and knowing the score (Malawi)
R10-5d Lessons in brief: Logistics, logistics, logistics (Malawi)

Partners of the Alliance for Malaria Prevention include:

Africa's Health in 2010
Against Malaria
American Red Cross
BASF
Bayer
Bestnet
Buy a Net
Canadian Red Cross
Canadian International Development Agency (CIDA)
Catholic Relief Services (CRS)
Center for Interfaith Action
Chemonics International
Clarke Mosquito Control
Deliver
Development Finance International, Inc.
Disease Control Technology
Exxon Mobil Corporation
Family Health International 360 (FHI360), formerly Academy for Educational Development (AED)
The Global Fund to Fight Aids, Tuberculosis and Malaria
Global Health Advocates
HIS Nets
International Federation of Red Cross and Red Crescent Societies (IFRC)
International Y Men's Clubs
Intelligent Insect Control
Johns Hopkins Bloomberg School of Public Health • Center for Communication Programs
Lutheran World Relief
MACEPA
Medical Care Development International (MCDI)
Malaria Consortium
Malaria No More
The MENTOR Initiative
Net Project
Nets for Life
Nothing but Nets
Population Services International (PSI)
The President's Malaria Initiative (PMI)
Rotarians Against Malaria
Sumitomo Chemical
Syngenta
Tana Netting
United Nations Children's Fund (UNICEF)
United Nations Foundation
US Centers for Disease Control and Prevention
The United Methodist Church
United States Agency for International Development (USAID)
Vestergaard Frandsen
The World Bank
The World Health Organization
World Vision
Yorkool International

Half of the world's population is at risk of contracting malaria – 3.3 billion people living in 109 countries. Malaria is a leading cause of death for children in Africa, and kills just under one million people a year worldwide. Sleeping under a mosquito net treated with insecticide provides protection from malaria-carrying mosquitoes.

Since 2002, mosquito net campaigns have distributed tens of millions of long-lasting insecticide-treated nets (LLINs) under the leadership of ministries of health. Universal coverage with LLINs for malaria prevention, combined with improved timely access to effective and affordable treatment, will reduce the burden of malaria, leading to improved population health and child survival.

The main goal of the Alliance for Malaria Prevention (AMP), a subgroup of the Roll Back Malaria partnership (RBM), is to expand the ownership and use of LLINs, which have been shown to reduce malaria incidence by 50 per cent and reduce all-cause child mortality by 20 per cent. AMP partners assist and advocate for support for countries in planning and implementing LLIN distribution campaigns. Based on requests from national malaria control programmes, AMP provides technical assistance by distance support or in-country missions.

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