



Continuous Long-lasting Insecticidal Net Distributions

A Guide to Concepts and Planning

Roll Back Malaria

**Vector Control Working Group
Continuous Distribution Systems Work Stream**

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Scaling Up Vector Control for Malaria Prevention

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FOREWORD

Sustained high coverage and use of insecticide-treated nets in malarious areas is a fundamental goal of most national malaria control programmes. Evidence is overwhelming that use of Long-Lasting Insecticidal Nets (LLINs) is a highly cost-effective strategy for malaria prevention and has been contributing to significant reductions in malaria morbidity and mortality in recent years.

Since Roll Back Malaria (RBM), partners began to champion Insecticide-Treated Nets (ITNs) as a core malaria intervention in 1998, there has been slow but steady growth in the production of ITNs, and now LLINs, and in LLIN coverage. LLIN use has grown due to scale-up strategies focused primarily on catch-up coverage (mostly through periodic mass distribution campaigns), sometimes followed by keep-up strategies (mostly through continuous distribution schemes employing social marketing, vouchers, and a variety of other approaches through a range of delivery channels). These strategies initially targeted only the highest risk populations of children under five and pregnant women. Recently, greatly increased resources available for malaria control have made more ambitious goals feasible. Control efforts now strive for Universal Coverage of the population in malarious areas, aiming to reduce transmission overall—something that was not possible with the targeting of vulnerable groups. Mathematical models of Universal Coverage over time show that continuous distribution systems are crucial to maintaining the high coverage levels achieved by campaigns.

Nevertheless, as countries struggle to achieve and to maintain Universal Coverage, they may not be aware of the variety of approaches being used to implement continuous LLIN distribution. Therefore, the RBM Vector Control Working Group's Continuous LLIN Distribution Systems Work Stream is preparing a series of products to share this information and experience, one of which is this document.

Here we provide a guide to aid planning of continuous distribution strategies. This document presents an overview of concepts and guides planners through the decision-making process to move towards a sound continuous distribution strategy. It reviews a wide array of mechanisms available for continuous distribution systems and introduces guidance for choosing mechanisms that best fit local contexts, as well as providing tools for the calculations and planning needed. It pulls these together in a simple step-wise strategy matrix to guide choices, decisions, and development of plans by the necessary stakeholders.

We hope this guidance will be timely and useful to countries, especially now that the WHO, GFATM, and other Global Health Initiatives are encouraging health system strengthening and integrated approaches to achieving Universal Coverage.

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GLOSSARY OF COMMONLY USED TERMS

Channel	The route through which the LLINs (or vouchers or coupons) flow to the end-user. Considering the final point at which the user will receive a LLIN is a good way to get a clear idea of the channel.
Civil society	Non-governmental, not-for-profit groups, including faith-based groups, community-based organisations, and other groups registered as charities or non-governmental organisations (NGOs) (local or international).
Commercial ITN/LLIN sector	The independent for-profit retail market for ITNs or LLINs, with independent import, distribution systems, and sales points; includes formal and informal outlets.
Conventionally treated net	A net that has been treated, by dipping within the past 12 months, with one of the six insecticides recommended by the World Health Organization (WHO). To ensure insecticidal effect, these nets should be re-treated after three washes or at least once a year.
Insecticide-treated net (ITN)	A net that repels, prevents blood feeding, and/or kills mosquitoes after contact due to the presence of insecticide on the netting material. Insecticide-treated nets are either conventionally treated nets or long-lasting insecticidal nets.
ITN access	A person is said to have access to an ITN if there is an ITN available for that person to sleep under every night. Whether or not the person <i>does</i> sleep under the ITN is an issue of use, <i>not</i> an issue of access.
ITN coverage	A term that can sometimes confuse the issues of 'ownership' and 'use'. In some literature it is used to describe levels of LLIN use (i.e. what proportion of the population are 'covered' by LLINs). In other literature it is used interchangeably with 'ownership'. In this document we avoid the term 'coverage' as far as possible and use 'ownership', which is the focus of this document.
ITN ownership	Having possession of an ITN, whether or not it is used.
ITN strategy	An overall plan for reaching and maintaining target LLIN levels in the country, which outlines, among other issues, all the mechanisms that will combine to achieve this.
ITN use	Sleeping under an ITN at night. As an indicator this is usually measured through surveys asking, for example, whether a specific person slept under an ITN 'the previous night'.

Long-lasting insecticidal net (LLIN)	A factory-treated mosquito net with insecticide incorporated into or bound around the fibres, or a mosquito net treated with a long-lasting insecticidal treatment kit, that retains its biological activity for at least 20 WHO standard washes under laboratory conditions and 3 years of recommended use under field conditions without re-treatment.
Mechanism	The whole delivery system that results in a household getting a net, a channel is part of the mechanism but the whole mechanism includes other aspects such as decisions on pricing, type of LLIN, and procurement.
Public sector	Government sector (e.g. Ministry of Health or Ministry of Education, often with support from international and bi-lateral donors, contractors, and NGOs).
Private sector	<i>Note: This document avoids referring to a 'private sector' but instead refers to public, commercial, and civil society sectors so as not to confuse 'private not-for-profit' (included in the civil society sector) and 'private for-profit' (the commercial sector).</i>
Pull mechanism	A mechanism that requires the future LLIN owner to take action to get the LLIN. This action must be specific to getting the LLIN (such as going to a retail outlet) rather than something the person may do anyway (such as attending an ANC clinic). Most but not all pull mechanisms would involve the LLIN having some cost to the user.
Push mechanism	A mechanism whereby only limited action is need from the future LLIN owner to receive a LLIN, and the LLIN is given at no cost.
Routine channels	Channels that already exist to provide other services and that may be adapted to include distributing LLINs, e.g. health facilities or schools.
Targeted	Intended for a specific group, with LLIN distribution designed only to address this group. The targeted group may be a specific biologically vulnerable group such as pregnant women, other groups that need particular attention to maintain ownership (e.g. the poor), or specific geographical areas (e.g. the most remote).
Universal Coverage	100% of the population sleep under an ITN each night. (See definitions of 'ownership' and 'coverage' on previous page.) In some cases a reference to the term 'Universal Coverage' may imply ownership or access rather than use. Some documents will specify which issue they are referring to when using the term; others will not.

ABBREVIATIONS

ANC	antenatal care
BCC	behaviour change communication
CBO	community-based organization
CDI	community-directed intervention
CSO	civil society organization
DHS	Demographic and Health Survey
EPI	Expanded Programme on Immunization
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HH	household
HSS	health system strengthening
IEC	information, education, and communication
ITN	Insecticide-Treated Net
LLIN	Long-Lasting Insecticidal Net
MCH	maternal and child health
MICS	Multiple Indicator Cluster Survey
MIS	management information system
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
NGO	non-governmental organization
NMCP	National Malaria Control Programme
NTD	Neglected tropical diseases
PFP	private for-profit
PNFP	private not-for-profit
RBM	Roll Back Malaria
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
VHT	village health team
WFP	World Food Programme
WHO	World Health Organization

1 BACKGROUND AND INTRODUCTION TO THE GUIDE

1.1 Background

1.1.1 Universal Coverage: global recommendations and national targets

Previous malaria prevention strategies aimed for high levels of ownership and use of insecticide-treated nets (ITNs) by vulnerable groups. More recently, the goal has shifted to ‘Universal Coverage’, whereby every person living in a malarious area sleeps under an ITN, preferably a Long-lasting Insecticidal Net (LLIN). It is hoped that this Universal Coverage, in addition to providing personal protection to members of the population covered, will lead to a decline in malaria transmission rates. The World Health Organization (WHO) recommends that countries aim for Universal Coverage¹.

In order to achieve Universal Coverage, the whole population must have access to an ITN every night. Factors such as prioritization and sleeping patterns within households will affect access, making true access extremely difficult to measure. The international consensus, however, is that universal access would be achieved if every household had at least one ITN for every two people². The assumption is that this will amount to universal access, as most ITNs will be shared by at least two people. Data from a range of countries show that this is usually the case³.

The term ‘Universal’ suggests a target of 100% of people sleeping under an ITN every night—the ideal goal. Most countries have set more realistic targets, a little lower than this, most commonly at 80% or 85% of the population sleeping under ITNs. Ideally, this level should be set no lower than the minimum coverage needed to have an impact on malaria transmission. In reality it is not possible to specify what this coverage level is, as it will be different in different settings. It is assumed that 80% to 85% of people sleeping under an ITN every night will be sufficient to achieve the objectives of Universal Coverage.

Two notes on terminology:

(i) In this document we use the terms ‘access’ and ‘ownership’, rather than ‘coverage’, to be clear that we are dealing with issues concerning ownership and access rather than use. While the level of use is crucial to achieving impact on malaria transmission, this document is dealing purely with the mechanics of LLIN distributions. Communication and other interventions such as hang-up campaigns to improve use should be considered separately.

(ii) Targets for reducing malaria are based on coverage with ITNs. When referring to targets and indicators, we often refer generally to ITNs rather than LLINs specifically. However, it is now

¹ World Health Organization (WHO) Global Malaria Programme. Insecticide-treated mosquito nets: a position statement.. Geneva, WHO, 2007. <http://www.who.int/malaria/publications/atoz/itnspaperfinal/en/index.html> (accessed March 11, 2011)

² Roll Back Malaria (RBM)/ RBM Partnership Monitoring and Evaluation Group (MERG), Survey Indicator Guidance Task Force. Meeting report, 5–6 April 2011, New York, USA.

³ Kilian A, Wijayanandana N, Ssekitoleeko J. (2009) Review of delivery strategies for insecticide-treated mosquito nets – are we ready for the next phase of malaria control efforts? <http://journal.tropika.net/pdf/tropika/v1n1/a04v1n1.pdf>

recommended internationally and in most countries that only LLINs be distributed. Therefore, when referring to distribution plans and activities, we use the term 'LLINs' rather than 'ITNs'.

1.1.2 Strategies to achieve and maintain access targets

Comprehensive national strategies for ITNs (now more commonly LLIN strategies) should include components both to achieve and then to maintain access targets. WHO recommends that countries develop an overarching LLIN strategy that combines mass campaign distribution and continuous LLIN distribution through a range of channels⁴.

1.1.2.1 The importance of continuing continuous distribution during campaigns

A large-scale community distribution campaign is the only delivery mechanism so far conceived and put into practice that has been able to achieve rapid, sizable, and equitable increases in LLIN ownership (access has not been measured in previous campaigns). There have been recent, particularly good successes with such campaigns (e.g. Senegal⁵ and Mali⁶). However, coverage gaps start to appear immediately after mass campaigns due to population growth and net loss. Recognizing this fact, WHO recommends that, "in order to maintain universal coverage, countries should apply a combination of mass free distributions and continuous distributions through multiple channels⁴".

Shortfalls in funding for mass campaigns has sometimes resulted in the re-allocation of nets from routine LLIN distribution to fill gaps in campaigns⁷, causing stock-outs and the suspension of ANC LLIN delivery. Although universal coverage campaigns can, in theory, benefit pregnant women and children, many campaigns can take many months or even years to be fully rolled out across all of the regions or districts in a country, and thus, many pregnant women and children who might otherwise be able to obtain a net through routine health services are unable to do so if they are waiting for a campaign to reach their area. Moreover, LLIN distribution has been observed to increase pregnant women's attendance at ANC clinics. It also sends a powerful message to mothers about the importance of using a net during pregnancy. As a result, it is vital to continue routine LLIN distribution during mass campaigns to ensure that pregnant women are benefiting from the whole range of antenatal services and to encourage them to use nets.

⁴ World Health Organization (WHO) Global Malaria Programme. WHO recommendations for achieving universal coverage with LLINs in malaria control. September 2013 (revised March 2014). Available from: http://www.who.int/malaria/publications/atoz/who_recommendations_universal_coverage_llins.pdf?ua=1. (Accessed: 5th October, 2016)

⁵ Thwing et al. (2011) Success of Senegal's first nationwide distribution of long-lasting insecticide-treated nets to children under five—contribution toward universal coverage. *Malaria Journal*. 10:86.

⁶ République du Mali, Ministère de la Santé. Eight in ten Malian households with children protected by life-saving mosquito nets, following Ministry of Health national child health campaign. Press release, [2008]. http://www.rollbackmalaria.org/worldmaliaday2008/docs/pr_wmdMali-en.pdf Accessed on May 30, 2011

⁷ Hill J, Hoyt J, van Eijk M, ter Kuile F, Webster J and Steketee R. Prioritizing Pregnant Women for Long-Lasting Insecticide-Treated Nets through Antenatal Care Clinics. *PLoS Med*, 11:9. 2014.

In response to this trend, WHO updated its guidance in 2013 to emphasize the importance of rolling out LLIN distribution through ANC and EPI services and in ensuring these channels are functional throughout the process of planning and implementing a campaign. Specifically, the document states that “in order to maintain universal coverage, countries should apply a combination of mass free distributions and continuous distributions through multiple channels, *in particular antenatal and immunisation services*” (emphasis added). Moreover, “continuous distribution channels should be functional before, during, and after the mass distribution campaigns to avoid any gap in universal access to LLINs⁸.”

To balance the need between universal coverage and prioritizing access for pregnant women and children, donors and countries alike need to plan their funding commitments at least 2 years in advance to ensure that there are enough nets for both routine distribution and mass campaigns. In situations where there is still a commodity gap, routine distribution should remain prioritized for many of the reasons outlined in section 2.3 above: pregnant women and children under five are biologically vulnerable to malaria, delivery of LLINs through antenatal care enables women to access nets as early as their first trimester, and promoting health facility-based distribution encourages pregnant women and caregivers to seek ANC and EPI services, ensuring their access to other life-saving services⁹.

1.1.2.2 Maintaining equitable ownership and access

A major advantage of campaign distributions is their equity; free mass campaign distribution is the only distribution mechanism repeatedly shown to reach all socio-economic groups equally. In contrast, the most commonly used continuous mechanisms have very rarely achieved very high equity, even when the LLINs are provided free. The equity of uptake of LLINs through these continuous mechanisms is linked to the equity of access to the chosen delivery channel. In the case of the most common channels—health facilities, commercial outlets, and schools—access is known to be, to varying degrees, inequitable.

This means that high and equitable access to and ownership of LLINs can be achieved through campaigns, but, as ownership begins to fall in the years following the campaign, replacement LLINs are provided through the less equitable continuous distribution mechanisms. As a result, ownership of, and access to, LLINs in the population may gradually become less equitable. A strategy mix that is able to maintain equitable ownership and access will need to include specific pro-poor distribution strategies aimed at those groups missed by the main continuous distribution mechanisms.

More information on considering equity in continuous distributions is included in Part 2 of this document.

⁸ World Health Organization. WHO recommendations for achieving universal coverage with long-lasting insecticidal nets in malaria control September 2013 (revised March 2014).

⁹ Hill J, Hoyt J, van Eijk M, ter Kuile F, Webster J and Steketee R. Prioritizing Pregnant Women for Long-Lasting Insecticide-Treated Nets through Antenatal Care Clinics. PLoS Med, 11:9. 2014.

1.1.2.3 The importance of a coherent continuous distribution strategy

It is important that no single continuous distribution channel is planned or operated in isolation. Before detailed design and planning of specific channels is carried out, a national planning process should be undertaken to design an overall continuous distribution strategy.

Designing an overall continuous distribution strategy before moving into the details of planning specific channels is important as there are many opportunities for leverage and co-ordination across different continuous distribution channels.

This issue is particularly pertinent when considering health facilities and the personnel involved; as the same supervisors and operational staff may well be involved in active implementation or support of other non-health facility based channels.

1.2 Objectives of This Guide

This document is designed as a tool to help national programmes plan a strategy to maintain high ownership and access of LLINs using continuous distribution mechanisms as a component of a broader national LLIN strategy. Although experience with a variety of continuous distribution mechanisms is not extensive, there are a large number of possible mechanisms that countries could consider. In many cases a combination of different mechanisms will be desirable. A range of contextual issues will drive the choice of the most appropriate mix.

This document provides guidance on the process of collecting and considering contextual information and data and on using this information to make appropriate decisions. The result for countries using this guide and the associated tools will be a clear strategy for continuous LLIN distribution.

Other documents are available to support countries in this planning and decision-making process and in implementing the chosen strategy:

- A set of case studies to give a picture of countries' practical experiences with different continuous distribution mechanisms, highlighting lessons learnt and recommendations.
- Best practices guidelines for implementing continuous distribution through routine antenatal care (ANC) and Expanded Programme on Immunization (EPI) services in health facilities. "Guide to LLIN distribution through Health Facilities"

A key tool that will be used alongside this guide is NetCALC. This is an Excel-based tool, developed by the USAID NetWorks project, that countries can use to help estimate their LLIN needs and examine options to maintain ownership and access targets. A brief description of this tool is useful here, as it is referred to frequently in this document (see Box 1).

Box 1. NetCalc 3.2: Important Partner to This Document

NetCALC 3.2 is a user-friendly Excel model that helps planners calculate the number of LLINs they need to reach and maintain ownership targets and then allows planners to try out different strategy mixes, selecting different continuous distribution mechanisms to determine which combination of approaches will deliver sufficient LLINs. A number of pieces of local information need to be entered into the tool to make it locally relevant, such as population numbers and current ITN coverage. NetCALC version 3.2 is available at <http://www.vector-works.org/resources/netcalc-planning-tool/>.

1.3 Structure of This Guide

Following this introductory section (Part 1), there are two main sections to this document:

- **Part 2: An Overview of Continuous LLIN Distribution Mechanisms**

This section describes the different choices available for continuous distribution mechanisms. Any one distribution mechanism can be described by explaining the options chosen for a set of criteria. These criteria include target group, delivery channel, and price, for example; combined, they can define any specific mechanism. After explaining these criteria and the range of options, this section gives examples of some common or innovative continuous distribution mechanisms, describing their structure and functionality.

The purpose of this section is to give planners a good understanding of the options available for continuous distribution as they move into the planning stage.

- **Part 3: Guidance on Developing a Continuous LLIN Distribution Strategy**

This section takes planners through the decision-making process necessary to plan an appropriate continuous distribution strategy. It guides planners through the steps of gathering the appropriate contextual information, defining targets and determining needs, and then moving from this ground work to decision-making on a strategy.

This section and the decision-making process are supported by the NetCALC tool mentioned above. This guide and NetCALC should be used in combination to complete the planning process.

1.4 How to Use This Guide

A suggested process for using this guide and its associated tools is given below. Depending on the stage of progress in-country and the stakeholder constituency, the NMCP may decide to hold a

stakeholder meeting to move through the steps together, enabling input into the discussions from a range of sectors. All or some of the stages below could be undertaken during such a meeting.

1.4.1 Stage 1. Background review and consideration of options

All main stakeholders involved in planning or decision-making should be provided with the materials on available options. Depending on the context, the decision may be to provide copies of the materials below to relevant stakeholders for their own reading or to give a presentation of the material during a wider meeting.

Key materials to be reviewed:

- Part 2 of this document, “Overview of continuous LLIN distribution mechanisms”
- Case studies of continuous LLIN distribution mechanisms.

Whilst the material is being reviewed, local experience with the different distribution mechanisms should be considered, thinking through the following general questions:

- What has been tried and what has not in this setting?
- What have been the experiences and lessons learnt?

1.4.2 Stage 2. Describing the situation, defining the targets, determining the needs

At this stage the country context is described at a level of detail sufficient to support the development of a continuous distribution strategy that is appropriate to the setting. The appropriate choice of mechanisms will also depend on what ownership or access targets the country is aiming for and what quantity of LLINs is needed. All of these points will be described, defined, and agreed at this stage.

Describing the setting and defining the targets requires data sources to be available. If this stage is taking place as part of a stakeholder meeting, then, as far as possible, documents should be prepared in advance. Appropriate documents (see Section 3.3 for information needed) can be gathered from national archives, the Health Management Information System (HMIS) department, and recent national surveys or from implementing partners.

Defining the targets is a step towards determining the LLIN needs for the country. The NetCALC tool can assist with these calculations. Sections 3.3–3.5 of this document provide guidance.

1.4.3 Stage 3. Planning an appropriate continuous distribution strategy

Section 3.6 of this document, used together with NetCALC, will guide the decision-making process. Different continuous distribution mechanisms, appropriate to the strengths and weaknesses of different settings, will be considered, taking into account a range of issues.

Once an appropriate set of mechanisms for a continuous LLIN distribution strategy has been agreed, this document gives further guidance on thinking through related aspects such as monitoring and evaluation, operational research needs, and support needs (see Sections 3.7 and 3.8).

2 AN OVERVIEW OF CONTINUOUS LLIN DISTRIBUTION APPROACHES

2.1 A Framework for Classifying and Describing Distribution Mechanisms

The different mechanisms that have been used or proposed for continuous LLIN distribution are numerous and varied. All distribution mechanisms have various components for which there are different options that may be chosen given the needs and context of the setting. The components that make up the framework of a complete mechanism and the options within these components are summarised in Figure 1 and described below, using a structure described by Kilian et al., 2009³.

Designing any one complete delivery mechanism, as part of an overall strategy, requires choosing an option for each of these components.

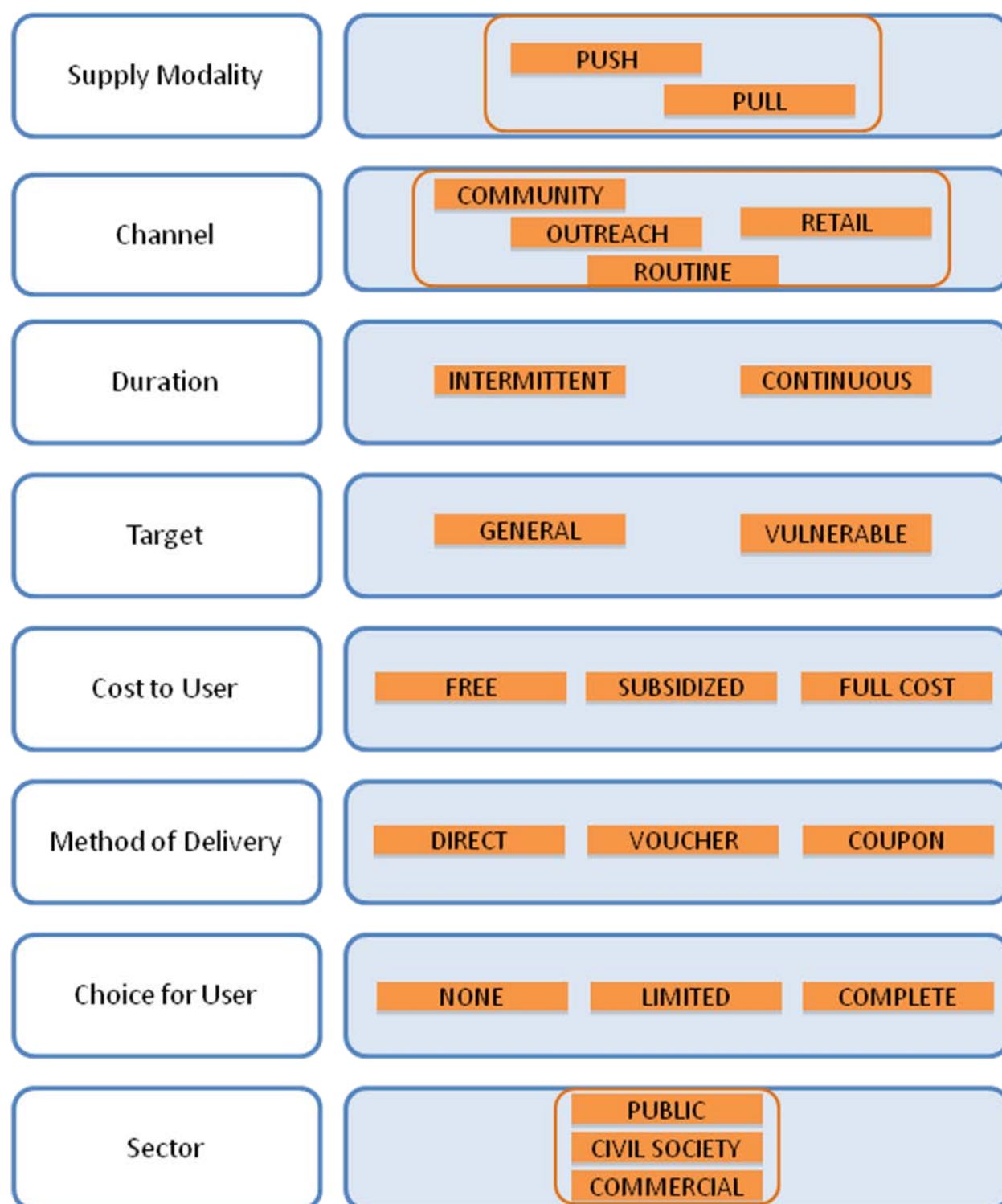


Figure 1. Framework for describing LLIN distribution mechanisms. For each criterion in the left column, the available options are shown in orange boxes in the right column. Note that, within the criteria of Supply Modality, Channel, and Sector, the options can co-exist. Taken (and adapted slightly) from Kilian et al., 2009³.

2.1.1 Supply modality

Options: Push or Pull

Commodity supply can be defined as either 'push' or 'pull'.

In push systems the LLIN is pushed to the individual, offered directly to them; here the beneficiary is passive, and no effort is required of them at this stage. An example of this is a free distribution of LLINs during outreach EPI activities, where caretakers bring their children for immunisation and are offered a free LLIN: They have merely to accept the LLIN.

In pull systems the LLIN is made available at a convenient location, the community is made aware of this availability, and the impetus is then on the individual to go and get a LLIN if they consider this something they need and want; here the beneficiary makes an active effort. An example of this is a normal commercial LLIN sales network, where LLINs are available in shops or other outlets and, if a family decides they need an LLIN, they can go to the shop, pay their money, and take home the LLIN. Each such 'pull' transaction means that all or some part of the cost of the LLIN is paid by the user.

Some systems can be considered combination push and pull systems, where LLINs are pushed part of the way. For example:

- A voucher system, whereby vouchers are given (pushed) to beneficiaries. These vouchers entitle beneficiaries to a reduced price when they go and buy an LLIN from a commercial outlet. Uptake of the LLIN thus requires effort and some payment from the individual (the pull component).
- A coupon system similar to the push-pull voucher system. A coupon is pushed to the beneficiary; the coupon can then be exchanged by the beneficiary for a *free* LLIN at a specified, likely non-commercial, outlet. Uptake of the LLIN requires effort from the beneficiary (the pull component). Note that the difference between this and a voucher system is the lack of cost to the user and, likely, the lack of choice of LLIN type.
- A community-directed top-up distribution, whereby a certain allocation of LLINs is pushed to a community group, and the nets then are available for households (perhaps only households meeting certain criteria set by the community group) to request if they want more LLINs.

2.1.2 Channel

Options: Community, Routine Services, Outreach, Retail

The delivery channel can be defined by where the end-points, or outlets, will be. This may include:

- Direct community delivery, where community groups make LLINs available directly to families, either taking them to their houses or making them available in a central location.
- Routine services, such as facility-based health services or schools. Common examples are ANC services, EPI services, and school distributions. Other options might include giving LLINs during curative care—for example, to all malaria-positive patients.

- Outreach activities of health services such as mobile clinics, health brigades, or routine ANC or EPI outreach activities.
- The retail sector, formal (shops, pharmacies, supermarkets) or informal (mobile vendors, markets).

2.1.3 Duration

Options: Intermittent or Continuous

This category refers to the time period for which LLINs are made available. In continuous distributions LLINs are intended to be always available (disregarding the fact that stock-outs may occur). Whilst this document is intended to provide guidance specifically on these continuous distributions rather than the more common time-limited option of campaign distribution, there is a middle ground that may be considered: intermittent distributions. For example, in some settings the costs and efforts involved in establishing and maintaining continuous school-based distribution may be more than those of an intermittent distribution approach, whereby a quick distribution would take place, perhaps once every year, to bring dropped coverage levels back up. Such an intermittent distribution might target students reaching a specific milestone, e.g. those starting the first year of school or those moving from primary level to secondary level.

2.1.4 Target

Options: General Population (either national or a limited geographical area) or Targeted to a Specific Group

Distribution mechanisms that make LLINs available to the general population most commonly make use of the retail sector by means of social marketing or commercial-sector sales. Distributions such as those through health facilities or schools would target certain groups, e.g. pregnant women, children receiving immunisation, patients with positive malaria test results, or school children of a certain age. Community groups may be formed to distribute either to the general population as the need arises or to specific groups, e.g. poor households.

2.1.5 Cost to user

Options: Free, Subsidized, or Full Cost

A strategy could combine mechanisms in all of these categories. It may even be possible to have LLINs available through the same mechanism at different cost levels for different target groups. For example, LLINs may be sold at a subsidized rate within communities, but those considered to be poor or vulnerable families, using locally appropriate criteria, may be exempt from payment.

When planning a strategy, it is important to consider how the strategy will ensure that even the poorest families are able to access LLINs. Many families may not be able to afford to pay anything for an LLIN. It is important to remember, though, that, even when LLINs are free, the lowest socio-economic groups still may not access the LLINs as much as the higher socio-economic groups.

Evidence has shown that even making LLINs available free in health facilities is not a completely equitable distribution mechanism. The equity of the distribution mechanism will always be linked to the equity of access to the chosen channel (for example, health facility services are, generally, used more by higher socio-economic groups than by lower) as well as to the price.

Providing LLINs that are free to the beneficiaries requires financing for the full cost of every LLIN delivered (in addition to the operational costs of delivery). Where target populations are able and willing to pay, then selling the LLINs at full cost or subsidized may be considered. It is worth noting that in most cases, when the model is designed as subsidized sales, the price paid for the LLIN stays with the merchant and does not feed back into the system; thus, it should not be assumed that subsidized sale of LLINs requires less programme funding per LLIN distributed than free distributions.

2.1.6 Mode of delivery

Options: Direct, Voucher, or Coupon

Free or subsidized LLINs may be made available directly (i.e. the LLIN itself is handed over to the beneficiary at the first contact point) or indirectly, through use of vouchers or coupons, which are given in place of the LLIN and then redeemed or exchanged later by the beneficiary.

A main benefit of handing over the LLIN directly is that the LLIN is now in the possession of the beneficiary, with no more action needed from the beneficiary other than using the LLIN. With indirect distribution the beneficiary will need to be willing, able, and motivated to go and redeem the coupon or voucher for an LLIN. Redemption rates vary. They can be high, but still not all beneficiaries will go and redeem the voucher or coupon.

In indirect distribution the beneficiary takes the voucher or coupon to a specific outlet to receive an LLIN. Vouchers systems and coupon systems are different. In a voucher system the beneficiary takes the voucher to a commercial outlet to redeem it for an approved LLIN of their choice; the voucher entitles the beneficiary to a reduced price or a free LLIN, depending on the value of the voucher and the type of LLIN chosen by the beneficiary). Vouchers of different values, i.e. giving different price reductions, can be given out to different target groups. In this system the commercial outlets collect all the vouchers and then provide these to the organization managing the system, which reimburses the commercial sellers for the money they have forgone by accepting the vouchers. The system requires careful management and planning to ensure that LLINs will be available to voucher recipients (i.e. that sufficient commercial partners are involved and that they have stock) as well as to ensure accountability for reporting and reimbursement.

With a voucher system specific groups can still be targeted and/or LLINs can be made more affordable, as with standard, direct public-sector deliveries, and yet the commercial sector also benefits, from increased sales as well from the technical and financial support provided by the managing organisation. The commercial sector is therefore supported to flourish and grow, potentially to become a more important independent distribution channel in the future.

A coupon system is different from a voucher system in that no financial transaction is ever required. Coupons are given in place of LLINs, and the LLIN is then collected in exchange for the coupon at a different, specified location. This approach is relatively common during mass campaign distributions

of LLINs but rarely used in continuous distribution mechanisms. A role for coupons could be envisaged in which multiple routine distribution channels are planned, but logistics or cost constraints mean that setting up LLIN supply channels to all of them is problematic or wasteful. For example, if school- and health facility-based distribution were both planned, and if health facility accessibility were sufficient, then coupons for LLINs could be given through the schools, with the LLINs accessible through the health facilities. LLINs would then be given directly to the targeted health facility clients and, in exchange for coupons, received by those reached through schools. This is an example of how coupons could be used in a continuous distribution system. Management needs (e.g. of possibly overworked health facility personnel) would need consideration.

2.1.7 Choice for user

Options: None, Limited, Complete

This option describes both the choice that the beneficiaries have over the type of LLIN that they obtain and their choice to obtain a LLIN when they feel they need one.

Often, free LLIN distributions provide just one type of LLIN, giving the user no choice of colour, size, shape, etc. In some cases a limited choice is given, e.g. circular or rectangular. A large selection is usually available only through the informal or formal retail sector, where customers are often able to choose colour, size, and shape, although the level of choice available will depend on how developed the commercial LLIN sector is and whether there is demand for choice. Offering a choice of LLIN type may lead to wider use, as users could choose the LLINs that best suit them; however, there are few data on whether choice makes a difference to use.

Another type of choice is *when* a family can access an LLIN. Continuous distribution mechanisms targeting the general population (provided the supply chain is functioning smoothly) should allow families access to an LLIN at any time. Such ‘general population’ mechanisms are most commonly the commercial or social marketing sector. Continuous distribution mechanisms that target specific groups offer a more limited choice; families will be able to obtain an LLIN when a family member qualifies as part of an appropriate target group. In contrast, time-limited distributions, such as community campaigns, give families no choice in when they can obtain the LLIN,

2.1.8 Sector

Options: Public, Civil Society, Commercial

The public sector refers to local or national government; civil society includes NGOs and faith- or community-based organizations; and the commercial sector includes for-profit health care providers, the ITN market, and other commercial markets and services.

Choices about which sectors are involved will be driven by the context. In some settings—for example, conflict or post-conflict—the public sector is weak and overstretched, and the civil sector may be better placed to play a major role. In some settings the commercial sector is weak or almost absent and will not have a role to play. In others it may play a major role through LLIN sales and possibly also by supporting distribution through public or civil society models in partnership—for example, taking on a distribution or supply chain management role.

2.2 Examples of Distribution Mechanisms

Table 1. Examples of distribution mechanisms

Mechanism	Summary	Criteria for success	Potential effect on ownership and access	Equity	Cost of LLIN to user and mode of delivery	Provider's cost	Country experience
Push Mechanisms¹⁰							
ANC	<p>The LLIN is given to pregnant women at their first ANC visit, with counselling and advice on LLIN use as part of the ANC session.</p> <p>LLIN supply chain management, data collation and reporting, management and supervision of the system may be separate or integrated with other health service activities.</p> <p>The relative role of different sectors can vary. In some settings the public sector and civil society work in partnership; in others a three-way partnership, including the commercial sector in a distribution and supply chain management role, has been developed (e.g. Mozambique).</p> <p>Some models have provided the LLIN directly to beneficiaries; others have used vouchers. Coupons could also be used.</p>	<p>Functioning health facility network offering ANC, run by any sector.</p> <p>Good distribution system and supply chain management to avoid stock-outs.</p> <p>High levels of ANC attendance.</p> <p>Good awareness of LLIN availability and belief in their benefits among pregnant women.</p>	<p>Slight to medium.</p> <p>Turnover is linked to the % of women pregnant at any time (~5%) and the % of these that attend ANC (generally good—60% or more in most countries).</p>	<p>Free LLINs will be more equitably accessed than those sold.</p> <p>Equity is linked to access to ANC, which may not be equitable.</p>	<p>Free or subsidized to a variable degree.</p> <p>Can be direct, voucher, or coupon.</p>	<p>Highly variable, based on setting and model used.</p> <p>Transport costs are often a major component of overall cost.</p>	<p>Many, including: DRC, Benin, Burkina Faso, Eritrea, Ghana, Kenya, Malawi, Mozambique, Somalia, Tanzania, Uganda, Zambia.</p>
EPI	<p>One LLIN is given to each child receiving a specific immunisation. Often, this has been measles (at 9 months), using the LLIN to help improve complete immunisation, or has been linked to the first immunisation to raise uptake or to</p>	<p>Functioning health facility network offering EPI, run by any sector.</p> <p>Good distribution system</p>	<p>Slight to medium (similar to ANC)</p>	<p>As with ANC free LLINs will be more</p>	<p>Free or subsidized to a variable degree.</p>	<p>Highly variable, based on setting and</p>	<p>UNICEF in some countries. Experience</p>

¹⁰ Table 1 presents mechanisms in push, pull, and combination categories to facilitate later discussion and planning.

Mechanism	Summary	Criteria for success	Potential effect on ownership and access	Equity	Cost of LLIN to user and mode of delivery	Provider's cost	Country experience
	<p>DPT3 to promote DPT completion. If EPI is combined with ANC distribution, then it is appropriate to link the LLIN to one of the later vaccinations, as theoretically the young infant will still benefit from the LLIN received by the mother during ANC. As with ANC distribution (see above), a range of options is available for sector involvement and LLIN supply chain management and data collation and reporting. Management and supervision of the system may be separate or integrated with other health service activities.</p> <p>The LLIN may be given directly to beneficiaries, or vouchers could be used that can be redeemed against the cost of LLINs in retail outlets.</p>	<p>and supply chain management to avoid stock-outs.</p> <p>High levels of EPI participation.</p> <p>Good public awareness of LLIN availability and belief in their benefits among caregivers.</p>	<p>system), given that EPI will primarily target <1s (~5% of population). EPI uptake is relatively good (>60%) in most countries.</p>	<p>equitably accessed than those sold, but the equity of the system will be linked to the equity of EPI access.</p>	<p>Can be direct, voucher, or coupon.</p>	<p>model used. Transport costs are often a major component of overall cost.</p>	<p>with intermittent distribution (e.g. child health weeks, for example) in Nigeria and Uganda.</p>
Schools	<p>Increasing experience. A range of different models can be considered, e.g. (i) continuous availability, with a stock managed by one assigned school staff member who provides LLINs according to specified criteria, which may be: anyone who asks for one (i.e. acts as a source for the general population in areas where the population cannot afford or has no access to a commercial sector distributor), those who have a new baby at home, new school registrants, etc. (ii) intermittent availability, with stock provided at the start of each school year for new intake, pupils entering a certain grade, etc.</p> <p>The supply chain and data collation and reporting may well need to be outside school system functions. An option could be to use the schools as a mechanism to deliver vouchers redeemable in the commercial sector or to deliver coupons redeemable at other nearby public-sector outlets (e.g. ANC services) for a free LLIN. This would avoid setting up a supply chain of LLINs within schools but would involve other</p>	<p>Good school enrolment. Even if attendance is low, as long as enrolment is high, there is a chance to use this delivery channel successfully.</p> <p>Ability to ensure supply to the schools, if LLINs are given directly.</p> <p>Ability to have a functional data reporting system on LLINs distributed.</p> <p>Strong links to the health system.</p>	<p>May be great or slight, depending on the model. Can be fairly easily tailored to need.</p>	<p>Linked to equity of access to schools; therefore, variable between countries. Linking to primary level will be more equitable than to secondary in most settings.</p>	<p>Free or subsidized to a variable degree. Could be direct, voucher, or coupon.</p>	<p>Limited experience; no data available. Likely more expensive than ANC/EPI channels, as the same costs plus greater transport and supervision costs.</p>	<p>Ghana, Nigeria, Senegal, Tanzania, Zimbabwe, Zambia, Sri Lanka, Yemen, Kenya.</p>

Mechanism	Summary	Criteria for success	Potential effect on ownership and access	Equity	Cost of LLIN to user and mode of delivery	Provider's cost	Country experience
	<p>management needs and costs.</p> <p>Inclusion of Koranic schools may expand access in some settings.</p> <p>Health facility personnel often play an important role in supporting the distribution – for training, support supervision and reverse logistics of surplus LLINs.</p>						
Pull Mechanisms							
Commercial sector	<p>Several options exist for using this channel as a delivery mechanism:</p> <ol style="list-style-type: none"> 1. No support to the sector. This may be appropriate if a flourishing LLIN sector is already in place. 2. Support <i>excluding</i> price subsidies; where the programme does not provide money to directly reduce the price of LLINs but rather provides technical support on such matters as bidding on contracts, government policy on products, sourcing products, and marketing and/or financial support, e.g. for the logistics of an expanded network or to cover marketing costs. This approach would be appropriate to expand the existing ITN and LLIN commercial sector's reach, for example, or the quality of its products. 3. Price subsidies (which may be combined with other technical and financial support), in which a component of the funding is specifically designed to reduce the price of the product to the user. Price subsidies may be appropriate where the existing commercial ITN/LLIN sector needs more substantive support, where there are commercial-sector players in similar industries (textiles, etc.) interested in expanding their business but in need of considerable support and encouragement, or where the population's ability and 	<p>Good existing net, ITN, or LLIN sector. If not, then a strong existing commercial sector for other goods that can be given intensive support (under a package including technical, financial, and price support) to move into LLINs.</p> <p>Reasonably functional distribution network (road system) within the country to allow expansion into new areas, if this is the aim.</p> <p>Spending power in the target population.</p> <p>Awareness of LLINs and belief in their desirability or benefits among the target</p>	<p>Can be great or slight depending on demand. Since it is a push mechanism it is likely to avoid oversupply; families will not buy a LLIN unless they need one.</p>	<p>Less equitable than any free LLIN distribution, but its equity level depends on the price of the product and the spending power of the population.</p>	<p>Will vary from setting to setting. Cost to user depends on price subsidy. Voucher schemes directly lower costs.</p> <p>Commercial outlets provide LLIN directly, although may be part of a voucher scheme, with the vouchers given</p>	<p>Variable, depending on support model used. None if no support given, or at a cost if technical or financial support given.</p>	<p>Many, including Ethiopia, Ghana, Mali, Mozambique, Nigeria, Senegal, Tanzania, Uganda.</p>

Mechanism	Summary	Criteria for success	Potential effect on ownership and access	Equity	Cost of LLIN to user and mode of delivery	Provider's cost	Country experience
	<p>willingness to pay is particularly low. The price subsidy can be applied at different points in the supply chain:</p> <p>Import subsidy. Importers are reimbursed a portion of the cost of a consignment. Simple to manage, but lacks clear assurance that the end price will be reflected the support.</p> <p>Supply subsidy. Distributors are reimbursed a portion of the cost of consignments of LLINs distributed down the supply chain within the country. It would be possible to target this subsidy to specific areas, such as more remote areas, to encourage commercial-sector expansion. This is harder to manage than an import subsidy, but the subsidy is closer to the outlet and therefore more likely to be reflected in the end price, although this still is not guaranteed.</p> <p>Point of sale subsidy. Sales points are asked to sell LLINs at a certain reduced rate and can then claim this back from the project. Vouchers could be used. The subsidy is more complex to manage than import or supply subsidies but puts the subsidy directly into the hands of the target population.</p>	<p>population.</p> <p>Low or no taxes and tariffs on LLIN imports.</p>			elsewhere.		

Mechanism	Summary	Criteria for success	Potential effect on ownership and access	Equity	Cost of LLIN to user and mode of delivery	Provider's cost	Country experience
Social marketing	<p>Conventional social marketing sees a specifically branded LLIN sold at a subsidized rate and distributed through the existing commercial sector, sometime supported with an independent supply chain. This network may use existing outlets, such as health facilities or shops, or have its own mobile sellers, but the supply chain, financing, and planning for the product is not integrated into the activities of those outlets. Strong marketing campaigns, usually carried out by the programme, are often able to raise the profile of the brand very successfully and achieve impressive sales. Costs can be set based on the spending power of the target group, which may be the general population or specific sub-groups.</p> <p>If a country aims to encourage a strong independent commercial LLIN sector, then social marketing will need to be carefully considered or well-designed to ensure that it allows concurrent growth of the natural commercial market and the sale of other approved LLIN brands.</p>	<p>Ability to set up and manage a system for supply and reporting on sales of the brand.</p> <p>Reasonably functional distribution network (road system) within the country.</p> <p>Some spending power in the target population.</p> <p>Awareness of LLINs and belief in their desirability or benefits among the target population.</p>	<p>Great or slight, depending on target group and success in creating demand.</p>	<p>Less equitable than any free LLIN distribution, but its equity level depends on the cost of the product and the spending power of the population.</p>	<p>Variable, depending on level of subsidy. Different LLIN products may be sold at different prices and targeted to different groups. LLINs sold directly.</p>	<p>High provider cost, but variable, depending on outlet system used.</p>	<p>Many, including Kenya, Pakistan, Nigeria.</p>

Push/Pull Combination							
Community based distribution	<p>A very flexible distribution mechanism, which can be further defined and designed in many ways. The benefit of using community groups is to have a channel for access to LLINs in communities where other channels may not be present. Community groups could distribute LLINs, or coupons for later redemption, based on nationally agreed criteria or set their own criteria locally. In the latter case, groups may be given a semi-annual allocation of LLINs and allowed to define their own criteria for distribution.</p> <p>The system may be a push mechanism if community members are allocated LLINs by the community group without their requests, but it is more likely to be a push-pull mechanism, where the national (or lower) level allocates the LLINs and delivers them to the community group, and community members are then able to request them. Nets may be given based on such criteria as ‘any family expressing a need’, ‘any family with a pregnant woman or new baby’, ‘poor families’, etc.</p> <p>Most pilots of this system have involved health facilities closely, with personnel from the health system involved in training, support supervision, data reporting, logistics and/or acting as the point where LLINs can be redeemed by community members, with only distributed in the communities.</p>	<p>Ability to distribute allocations of LLINs down to community groups. Understanding in the community groups of their role and the conditions for distribution. Acceptance within the community of the distribution criteria agreed by the community group.</p>	<p>Depends on the number of LLINs allocated. In practice, allocations may go to a few defined areas or groups with specific needs.</p>	<p>Depends on criteria chosen, but, assuming LLINs are provided free, likely to be highly equitable.</p>	<p>Most useful to reach remote groups or poorest families. Therefore, likely to be free, although may be sold at subsidized price. Likely direct, although could be coupon or voucher.</p>	<p>Only limited experience. Costs will likely be driven largely by training and by transport costs, as the model is likely to be applied in remote areas.</p>	<p>Madagascar, Nigeria, South Sudan, Zanzibar, Senegal, Zimbabwe, Ethiopia</p>
Vouchers	<p>Voucher systems provide paper vouchers to intended beneficiaries through one channel (often at ANC, although could be at EPI, in schools, or by other channels). Vouchers can then be redeemed for a free or reduced-price LLIN at another location. Normally, voucher systems are seen as a way to support the LLIN commercial sector while improving equity and access for specific groups and increasing users’ choice of LLIN type. Therefore, the places where vouchers are redeemed are usually commercial outlets. Commercial sellers can then</p>	<p>Functional channels for distributing vouchers and a functional commercial sector that will ensure voucher recipients can easily redeem vouchers for LLINs. Sufficient funding to</p>	<p>Linked to the size of the target group. Voucher redemption rate will vary; can be high, but not</p>	<p>Variable, depending on subsidy level and access to both the voucher delivery</p>	<p>Depends on level of subsidy. Possible to have vouchers of different values for different</p>	<p>Fairly high as a result of high costs of managing and supervising</p>	<p>Angola, DRC, Ethiopia, Ghana, Kenya, Madagascar, Mali, Nigeria, Rwanda, Uganda, Senegal,</p>

	redeem the vouchers for reimbursement from the project, entailing associated management tasks and costs.	cover the fairly high management costs.	always.	channel and the retail outlets.	groups.		Zambia, Zimbabwe.
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3 GUIDE TO DEVELOPING A CONTINUOUS DISTRIBUTION STRATEGY

3.1 Summary

A strategy for continuous LLIN distributions will always be part of a wider national LLIN strategy. The national goal, vision, and mission statement will inform the wider LLIN strategy; a separate goal and vision for the continuous distribution component is not appropriate. This document will guide programmes in the development of:

- Objectives of the continuous distribution strategy
- Implementation approaches
- Monitoring and evaluation needs
- Research needs
- Support needs.

3.2 Establishing a Coordination Group

LLIN distributions involve a wide range of stakeholders. Inputs from diverse players will enrich the description of the context and the consideration of possible approaches for LLIN distribution.

The strategizing process will and should be led by the MoH and the NMCP, as stewards of malaria control interventions in each country.

The NMCP will likely have a good understanding of the stakeholders involved in, and having an influence on, LLIN distributions in the country. The NMCP should consider involving representatives from all the groups below as well as other locally relevant stakeholders:

- Ministry of Finance
- Ministry of Education
- Other relevant departments within the Ministry of Health, such as maternal and child health and immunization
- Donors
- UN agencies
- NGOs
- Research institutions
- Private logistics companies
- Marketing firms
- Commercial distributors.

3.3 Describing the Context

A range of information is needed to guide selection of a set of LLIN distribution mechanisms that will be appropriate and provide sufficient LLINs to maintain target coverage.

Information and data that will be needed are described in Table 2, with guidance on possible sources of information. This list includes data needed to use NetCALC, which will assist in the planning process; some information is not specifically needed for NetCALC, but rather is descriptive contextual information that will help inform discussions and thinking concerning the most appropriate distribution channels for the context.

The information needed to describe the context falls into the following categories:

- **Demographic information**
- **Current LLIN situation**

Information in these first two categories guides calculation of the number of LLINs needed annually to reach and maintain targets and the number of LLINs that may be delivered through different mechanisms. For example, data on the proportion of the population that is pregnant at any one time will help determine how many LLINs may be turned over through an ANC-based distribution mechanism.

- **Channel information**

This category includes all information and data that will help to guide selection of efficient and cost-effective channels that can reach the intended groups. In this category consideration of geographical differences or differences between population groups (gender, socio-economic status, etc.) will be particularly important.

- **Operating environment**

This category includes a wide range of information that will help inform discussions and highlight areas where action could be taken to improve the efficiency and effectiveness of continuous LLIN distributions. An example is the cost of transportation, which can have a considerable impact on the overall cost of the mechanism.

Table 2. Contextual information required to guide planning of a continuous LLIN distribution strategy

Information	Type of data	Explanation	Possible sources
Demographic Information			
Population size	Number	<p>This information will be used along with that on current coverage to inform the calculation of annual LLIN needs.</p> <p>Country targets may refer to people (e.g. a Universal Coverage target of one LLIN per two people), in which case population size and growth rate are the key points of information. Alternatively, targets may refer to sleeping places, in which case information on sleeping places, or a proxy for this such as a factor of HH size, will be key.</p> <p>This demographic information will also be useful when considering the potential turnover of LLINs through different systems targeting specific population sub-groups.</p>	Most recent census
Annual growth rate	Percentage		Most recent census
Number of households (HH) or Average number of people per HH	Number		Census, LLIN campaign data
Proportion of population pregnant, <1y, <5y, <15y	Proportion		Most recent census
Proportion of population that is urban	Proportion	<p>In order to consider sub-groups as specific populations that may need specific distribution efforts, estimates of the population size of these sub-groups are needed. The sub-groups mentioned here are worth considering separately from the national average.</p> <p>Countries will likely have other groups that may need special consideration and for which data are available.</p> <p>For each of these sub-groups, values will need to be estimated for several pieces of information, as indicated below.</p>	Most recent census, Demographic and Health Survey (DHS)
Proportion of the population living >10km from a health facility or mobile service	Proportion		DHS, Annual Health Sector Performance Reports
Proportion of people living on <\$1.25 per day, or any other data on ability and willingness to pay for LLINs	Proportion or other		Most recent census, DHS
Current Coverage			
Proportion of HH that own any net	Proportion	<p>Along with demographic information, all this information will be used to calculate the number of LLINs needed per year to attain and then maintain target coverage.</p>	<p>DHS, Malaria Indicator Cluster Surveys (MICS), other national or local household surveys</p>
Proportion of HH that own any ITN	Proportion		
Average number of ITNs owned by ITN-owning HHs	Number	<p>The most recent survey data on coverage will not reflect the</p>	
Proportion of ITNs that are LLINs	Proportion		

Information	Type of data	Explanation	Possible sources
(Further to this, a broad estimate of the proportions of different LLIN types in use, which may have different average life-spans, will help NetCALC produce an even more accurate prediction of replacement need.)		current situation, as, unless the survey is extremely recent, more nets will have entered and will have been lost from households in the intervening period. NetCALC has a component to help estimate current coverage based on the most recent survey data and distributions since the survey.	
Estimated proportion of bundled nets that are treated	Proportion		
Number of all nets, ITNs, and LLINs sold or otherwise distributed since the date of the most recent coverage survey	Number		NMCP, Implementing partners, Donors, Commercial sector sales figures
Estimate in years of the durability of different types of nets in your setting (e.g. different types of LLINs or other nets)	Number	In NetCALC default estimates can be used, but local information will facilitate a more accurate calculation of the number of replacement LLINs needed in the country as others become old and unused.	Use default value in LLIN or local estimates from those with extensive local field experience
Channel Information			
Sources of currently owned ITNs	Category	This is not needed for NetCALC. Rather, it is useful information when considering the reach of existing channels.	Small-scale household net surveys, MIS, MICS, NetMark surveys (although will be pre-2009)
Current LLIN/ITN distribution mechanisms used in the country	Category	This gives information on current country experience and informs discussion of appropriate distribution mechanisms.	NMCP/stakeholder reports, most recent GFATM application, donor reports
Proportion of pregnant women who attend ANC at least once	Proportion	This is important to guide thinking on the appropriateness of ANC as a routine channel and the expected turnover if this channel is used. The information is used in NetCALC when entering an estimate of 'utilization' of ANC.	DHS, Annual Health Sector Performance Reports, MoH MCH department, WHO, UNICEF

Information	Type of data	Explanation	Possible sources
Functionality of the ANC system, e.g. outreach/mobile services?	Description	A short description of the functionality of the ANC system guides thinking about (i) appropriateness of ANC as a key channel; (ii) potential efficacy of this channel (e.g. supply chain may be known in advance to be a problem); a value representing this will be entered in NetCALC; and (iii) thinking concerning support needs.	Annual Health Sector Performance Reports, MoH MCH department, RH or HSS implementing partners
Proportion of infants fully vaccinated/receiving DPT3 or other specific vaccine	Proportion	This is important to guide thinking on the appropriateness of EPI as a routine channel and the expected turnover if this channel is used. The plans for distribution of LLINs through EPI will likely link the free LLIN to a specific vaccination—e.g. measles as the final infant vaccine or DPT3, to promote DPT vaccine completion. The turnover to be expected through this channel will be linked to uptake of the specific vaccine chosen. This information will be used in NetCALC when entering an estimate of ‘utilization’ of EPI.	DHS, Annual Health Sector Performance Reports, MoH MCH department, MCH or HSS implementing partners, WHO, UNICEF
Functionality of the EPI system, e.g. plans for catch-up or extended routine	Description	A short description of the functionality of the EPI system guides thinking about (i) appropriateness of this as a key channel; (ii) potential efficacy of this channel (e.g. supply chain may be known in advance to be a problem); a value representing this will be entered in NetCALC; (iii) thinking through support needs.	Annual Health Sector Performance Reports, MoH MCH department, MCH or HSS implementing partners
School enrolment at primary, secondary levels	Proportion	This is important to guide thinking on the appropriateness of schools as a routine channel and the expected turnover if this channel is used.	DHS, MoE, implementing partners in education
Presence and functionality of community networks: <i>Health</i> (VHTs, CDI networks, e.g. those used for NTDs, home-based HIV care, etc.) <i>Non-health</i> (community groups for agriculture, women’s support groups, youth groups, religious groups, etc.)	Description/ category	This information is important to inform thinking concerning possible community-based distribution mechanisms. In some parts of the country, good community-based networks may already exist and can be leveraged for LLIN distributions. This situation will likely vary considerably across the country. It will also be important to consider the actual functionality of existing community networks rather than plans and policy. For example, a MoH may have plans for village health teams (VHT) nationwide, but using these nationwide may not be feasible until roll-out is completed—often a	MoH, implementing partners in health, MoA, Implementing partners in agriculture, World Food Programme (WFP), UNHCR, church leaders

Information	Type of data	Explanation	Possible sources
		lengthy process.	
Reach of the commercial net sector	Description	<p>This information is important to guide thinking about the role of the commercial sector as a component of an overall continuous distribution strategy. In most countries some households will access LLINs through this channel; this can be taken into account when planning needs for distribution through non-commercial channels.</p> <p>The information also will guide plans for use of the commercial sector in hybrid mechanisms such as voucher systems.</p> <p>The reach of non-net distributors can feed into discussions about possibilities to support expansion of the commercial net sector.</p>	Net surveys, NMCP, LLIN manufacturers and distributors
Reach of other commercial networks such as Coca-Cola/soda/ bottled water distributors; plastics distributors (e.g. of jerry cans).	Description		LLIN manufacturers and distributors, representative product distributors, social marketing groups
Availability of LLINs, ITNs in the commercial sector	Description		Commercial-sector representatives, NetMark reports (although will be pre-2009)
Existing methods for identification of the poorest of the poor or most vulnerable (e.g. food distribution programmes, non-food item distribution programmes, community-led groups)	Description	This information will inform thinking about distribution mechanisms to reach the poorest groups.	MoH, UNHCR, WFP, implementing partners
Operating Environment			
Status of the transport network. Accessibility of different parts of the country at different times of year.	Description	To help guide plans for more remote areas—for example, systems requiring monthly or quarterly supply may not be possible if transport access is not good.	Stakeholder consultation
Status of taxes and tariffs on nets/ ITNs/LLINs	Category	This information will guide thinking on other steps that may be needed to create an enabling environment for continuous LLIN distributions in the country.	National ITN guidelines and standards, NMCP, MoF

3.3.1 Considering specific sub-groups

An important part of describing the context will be to consider differences within the country. Many contextual factors vary somewhat within a country or between population sub-groups. For example, there may be important variations in such factors as current ITN coverage, household size, and access to possible distribution channels. Differences may be related to geographical area, urban/rural setting, gender, socio-economic status, or other characteristics specific to the country.

In planning, a balance is needed between use of overly generalized national averages and overly detailed consideration of every possible variation.

Box 2 gives the example of Uganda, showing a selection of population sub-groups that might be considered for planning purposes. This example represents a good balance between a high level of detail and a feasible amount of information to guide planning.

Wherever possible, the contextual information described in Table 2 should be collected for the different sub-groups considered important for planning purposes.

As your planning moves forward, the strategy mix developed will include mechanisms that ensure all groups can access LLINs.

Box 2. Selecting sub-groups for special consideration during planning: the example of Uganda in 2010

Sub-group	Rationale
Northern post-conflict districts	Higher than average ITN ownership, given the focus of donor money in this area Known to have higher than average coverage of trained and functioning community-based health networks (Village Health Teams)
Urban populations	Higher than average numbers of nets per net-owning household Higher than average access to commercial outlets and routine channels
North Eastern, Karamoja region	Lower than average ITN ownership Lower than average access to routine channels; almost no access to the commercial sector
Living >10km from a health facility	Lower than average access to routine channels In the Ugandan setting these populations are also known to have lower than average access to commercial outlets.

3.4 Defining the Targets

Part of the context is the targets for LLIN coverage that the country aims to achieve and maintain.

The targets of interest here are for ownership of LLINs only. Use of LLINs is, of course, the ultimate behaviour essential to preventing malaria. The task here, however, is to design a LLIN *delivery* strategy that meets the country's LLIN turnover needs and reaches all population groups. Therefore, the strategy must work towards *ownership* targets. Targets for LLIN use will be addressed through concomitant communication and behaviour change strategies that, whilst deserving of as much attention as the delivery strategies, are not the subject of this document.

To allow planning, the national targets must be stated clearly as an indicator and a percentage or proportion. For example:

85% of households own at least 1 LLIN for every 2 people

3.5 Determining the Needs

The NetCALC tool will help you to calculate annual LLIN needs to reach and then maintain stated LLIN ownership targets. You will need to enter into the tool your target and your current status against your target indicator (see Table 2 for guidance on estimations).

Box 3. How NetCALC calculates annual LLIN need

As well as calculating how many LLINs are required to move from current levels to target levels, NetCALC will calculate the number of LLINs needed annually to maintain LLIN ownership targets. It does this using a mathematical formula based on a model (tested against an increasing amount of real-life data) on the loss of LLINs over the years after families receive or buy LLINs.

Some LLINs will remain in families' possession for many years; others will be given away or become torn, develop holes, and be discarded more quickly. Also, the population will continue to grow, with new household members being born and new households forming. The result is that even when LLIN ownership targets are reached, ownership levels start to fall off immediately, gradually at first and then with increasingly speed. A constant flow of LLINs into households is needed to maintain ownership levels.

The tool takes into account this gradual and slowly increasing 'loss' of LLINs and calculates the number of new LLINs that are needed each year to maintain the targeted ownership level.

3.6 Choosing the Best Mix of Distribution Mechanisms

The best mix of distribution mechanisms depends on the priority objectives in the country. Whilst meeting and maintaining ownership targets is key, most countries also have other important objectives, which may include one or more of those listed below:

- High turnover to close the gap between campaign achievements and target ownership
- Low cost
- Cost-effectiveness
- Potential for cost-sharing
- Potential for public/civil/commercial-sector partnerships.

The country's priorities will be considered in the decision-making process described below.

This section will help you decide which mix of distribution mechanisms is most appropriate to your setting. You will move through four steps, completing a strategy matrix, the blank version of which is shown over the page. You may like to replicate this on paper or in a PowerPoint slide for completion during the stakeholder discussion. Each of the four steps in the decision-making process requires some modification to the matrix.

Step 1: Listing the important population sub-groups or areas that may need particular consideration.

Step 2: Identifying distribution channels and other mechanism criteria (channel, cost, targeting, etc.) that are appropriate for your context, taking into account the possible need for different mechanisms in different parts of the country or to reach different sub-groups.

Step 3: Determining which of the distribution channels will best combine to meet total LLIN needs to maintain target ownership levels, without letting levels drop too low and yet without oversupplying LLINs. Also, determining whether the distributions should be continuous or intermittent.

Step 4: Review stage. Considering whether the chosen mix will allow reasonably equitable access across all geographical, economic, and other population sub-groups.

Strategy matrix: for modification as appropriate and completion

STEP 1:
See text on page 35. Add to list of groups as appropriate.

STEP 2:
See text on page 35. Whilst working through Table 3, make tick marks for each delivery channel that is appropriate for your country. Put the tick marks against the rows for population groups that the channel might feasibly or appropriately serve.

STEP 2:
This will also be completed whilst working through Table 3. For each sub-group write in the best option from each column heading. You may want to note here options for different channels.

Country, area or population sub-group
Urban
Remote/rural
Poorest
XX region
XX region
XX region

APPROPRIATE DELIVERY CHANNELS							
A	B	C	D	E	F	G	H
ANC	EPI	Outreach	Schools	Retail	Social marketing	Community groups	Other

CHOICES FOR DELIVERY MECHANISM DESIGN			
I	J	K	L
Free or sold <i>(Sold can be either subsidized or full price)</i>	Direct, voucher, or coupon	Targeted or general	Intermittent or continuous

STEP 3.
After using the NetCALC tool to consider the best mix of distribution approaches, cross out the delivery channels that you do not plan to use in any area.

STEP 4.
Review the mix you have now. If any sub-groups will not be reached using this mix, then consider reinserting small targeted distribution approaches to reach these groups.

The end-product will be a matrix showing which delivery channels you plan to use in which areas and some of the choices for more detailed design of the delivery mechanisms. You can use this completed chart when documenting your strategy mix and as a reference when designing the implementation plans for the delivery mechanisms.

3.6.1 Step 1: Which population sub-groups or geographical areas should have special consideration

Refer to section 3.1.1 of this document. Discuss which groups you will need to consider separately when you are planning a strategy that will be accessible to all. The strategy matrix already includes some groups for consideration. Add any not yet on the list to your version of the strategy matrix.

3.6.2 Step 2: Which distribution channels are appropriate for your context?

Table 3 is a decision table to help you list all the possible channels that will be appropriate in your context and to make decisions about the options for delivery through these channels. As you move through the table, you can complete the Strategy Matrix as indicated.

Table 3. Question table to guide choice of distribution options

No.	Question	Answer	Guidance
1	Is health facility access fair to good in some or most areas of the country?	YES	Consider including a health facility-based channel in the strategy. ➤ Go to Question 2
		NO	Consider omitting health facility-based distribution from the strategy. ➤ Go to Question 4
2	Is ANC uptake fair or good in some areas of the country? Or, if not, might uptake increase with the availability of free LLINs?	YES	Consider including ANC distribution in the strategy. Check “ANC” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 3
		NO	Consider omitting ANC distribution from the strategy. ➤ Go to Question 3
3	Is EPI uptake fair or good in some areas of the country? Or, if not, might uptake increase with the availability of free LLINs?	YES	Consider EPI linked distribution as an option for inclusion in the strategy. Check “EPI” in the strategy matrix against the country areas or population sub-groups that you think will be able to access this channel. ➤ Go to Question 4
		NO	➤ Go to Question 5
4	Would it be practical for health facilities or community groups to conduct LLIN distribution as outreach activities? (Consider logistics and experience with running outreaches: Has it been possible to maintain outreach activities previously?)	YES	Consider including outreach distribution in the strategy. Check “Outreach” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 5
		NO	Consider omitting outreach activities from the strategy. ➤ Go to Question 5
5	Is primary school <i>attendance</i> fair to good in some areas of the country?	YES	Consider including school-based distribution in the strategy. Check “Schools” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 7
		NO	➤ Go to Question 6

No.	Question	Answer	Guidance
6	Even if attendance is not high, is primary school <i>enrolment</i> fair to good in some areas of the country?	YES	Consider including school-based distribution in the strategy. Even if attendance is poor, the attraction of LLINs may increase attendance, and the enrolment suggests that access to schools is still reasonably good. Check “Schools” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 7
		NO	Consider omitting school-based distribution from the strategy. ➤ Go to Question 7
7	In the opinion of the stakeholder group, will some of the population be willing and able to pay for LLINs?	YES	Consider subsidized sales or support to full-price sales. Write “Sold” in the strategy matrix against the country areas or population sub-groups that you think will be able to pay for LLINs. Write “Free” against the other groups. ➤ Go to Question 8
		NO	Write “Free” in the strategy matrix against all country areas and population sub-groups. ➤ Go to Question 12
8	Is there an existing retail net market that could be supported to expand and sell good-quality LLINs?	YES	Consider including commercial-sector support in the strategy. Check “Retail” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. You may want to focus on this sector rather than to introduce social marketing to compete with it; social marketing may have a role, however, for defined groups, and therefore you will now be guided to consider that channel as well. ➤ Go to Question 10
		NO	➤ Go to Question 9
9	Is there an existing retail market for other goods that has potential to be supported and primed to distribute LLINs?	YES	Consider including commercial-sector support (a package including deal brokering, import support, technical assistance to marketing, and price subsidies) in the strategy. Check “Retail” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 10
		NO	➤ Go to Question 10
10	Is social marketing of products (i.e. outside standard commercial channels) known in the country?	YES	Consider including social marketing in the strategy. Check “Social marketing” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 12
		NO	➤ Go to Question 11
11	Would it be possible to fund setting up and sustaining (for at least the medium term) a stand-alone social marketing distribution network, at least to specific areas?	YES	Consider including social marketing in the strategy. Check “Social marketing” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 12
		NO	Consider omitting social marketing from the strategy. ➤ Go to Question 12
12	Are there any functioning community-based networks that could be modified to oversee	YES	Consider including community-group distribution in the strategy. Check “Community groups” in the strategy matrix against the country areas or population sub-groups that would be able to access this channel. ➤ Go to Question 13

No.	Question	Answer	Guidance
	LLIN distributions?	NO	As a stakeholder group, consider alternatives for reaching hard-to-reach areas. Write “new channels for hard-to-reach areas needed” in column H. ➤ Go to Question 13
13	Can you say yes to <u>all</u> three of the following questions?: <i>Do you want to provide intensive support to the commercial sector?</i> <i>(i) Can you ensure good availability of LLINs in the retail sector at least in some areas?</i> and <i>(ii) Is access to retail outlets good in these areas?</i> and <i>(iii) Will people be able and willing to pay at least something for an LLIN?</i>	YES	Consider a voucher system as an option. Write “Voucher” in the strategy matrix against the appropriate areas. However, even in these areas you could consider a strong commercial-sector support package that does not include a voucher scheme. ➤ Go to Question 14
		NO	➤ Go to Question 14
14	Do you have serious concerns about the feasibility or cost of ensuring a supply chain through any of the specific channels?	YES	You <u>may</u> be able to use a coupon approach for these channels, but this would be useful only if you would be able to ensure a supply chain of coupons <i>and</i> there are other channels you plan to use in the same area that would have a good LLIN supply chain. If this may be an option, write “Coupon” in the strategy matrix against these areas. ➤ Go to Question 15
		NO	➤ Go to Question 15
15	As well as working towards Universal Coverage, do you want to maintain a focus on key vulnerable groups, e.g. the poor?	YES	Consider including targeted distribution mechanisms for these groups or areas. Write “Targeted” in the Strategy Matrix for these groups or areas. ➤ Go to Question 16
		NO	Targeted distribution channels may still be useful as part of the strategy but are not a priority. ➤ Go to Question 16
16	Do you need to increase current ownership levels (as opposed to maintaining current levels)? <i>Note: Whilst large-scale campaigns are the only way to rapidly and sizably increase ownership, some continuous (or intermittent) mechanisms may be needed to reach target ownership levels.</i>	YES	Consider higher turnover mechanisms as priority interventions when you move to Step 3. These include: <ul style="list-style-type: none"> • School-based or community distribution to a wide age group (if appropriate in your setting) • Health facility-based distribution to children with an age range wider than under 1s (if appropriate in your setting)—e.g. through EPI or for every child under five treated for malaria. During Step 3 you can examine whether you need to maintain such mechanisms or use them intermittently. Circle the channels that will reach a large audience in your Strategy Matrix in columns A–H. ➤ Go to Question 17
		NO	➤ Go to Question 17

No.	Question	Answer	Guidance
17	Are funding constraints (immediately or in the medium term) a concern?	YES	<p>Consider choosing just one or two main delivery channels that will reach most of the country as the backbone of the strategy. Choosing channels that work through existing product delivery systems (e.g. health facilities rather than schools) will help lower costs. Choosing mechanisms for which there is most experience locally (or internationally), such as ANC, should help lower planning and design costs. Consider avoiding mechanisms that require large budgets to establish new channels, as these may become cost-effective only after several years, once many LLINs have been delivered (e.g. pure social marketing or voucher schemes).</p> <p>Along with your main backbone of one or two channels, consider small deliveries to specifically target those who will not otherwise be reached.</p> <p>As you move into Step 3 and work with the NetCALC tool, try this kind of strategy first.</p> <p>➤ END; move to Step 3</p>
		NO	<p>➤ END; move to Step 3</p>

3.6.3 Step 3: Which mix of distribution mechanisms will best meet your national annual LLIN needs?

Note that in Step 2 you have listed in your matrix all possible mechanisms that may be feasible in your setting. It is not important that you include all of these approaches in your overall strategy. Rather, in many cases one or two main approaches may be the most practical strategy, with perhaps one additional mechanism targeting groups with poor access. It may be worth considering what mix of approaches will turn over sufficient LLINs and provide good access to the most people in the simplest strategy mix.

Use NetCALC to help you work through Step 3. One of the features of the tool allows you to “Test different continuous distribution approaches”. The output of this feature tells you how many LLINs your chosen strategy is likely to turn over (based on parameters you will enter; see below) and whether this is too few, sufficient, or too many LLINs, based on your country’s annual need.

In this part of the tool you can select the distribution channels that you plan to use in the country, and you can input parameters to guide the estimate of the number of LLINs you expect to turn over through each mechanism. The tool contains instructions on how to use it and how best to estimate some of the parameters, such as utilization and effectiveness.

Refer to your Strategy Matrix and the answers to questions 16 and 17 in Table 3. Use NetCALC to determine how many LLINs your chosen approaches will deliver each year through your chosen delivery mechanism. To do this, you will need to enter information concerning the target groups.

You may want to consider a staggered roll-out of different mechanisms—for example, starting one main push distribution mechanism initially and then adding another when ownership levels start to drop further and need higher LLIN turnover to maintain them. NetCALC will indicate in which years

your proposed strategy will turn over sufficient LLINs and in which years you may need additional distributions. You can try out different mixes and start dates to explore the different options.

It will be important to consider the issue of possible oversupply when looking at the numbers. It is worth reiterating the usefulness of combining push and pull mechanisms as a way to avoid oversupply. It may be worth selecting push mechanisms that will provide a LLIN turnover that falls slightly short of the annual need and then closing the gap through supporting pull mechanisms, such as social marketing or a strong commercial sector (subsidized or otherwise) through which the remaining LLINs needed will be accessed. Oversupply, overlap of target groups, and other implications of different combined approaches are discussed further in Step 4.

Once you have decided on the most appropriate mix of channels based on these numbers, refer back to the Strategy Matrix and cross out the channels that you do not plan to use.

3.6.4 Step 4: Will the chosen strategy ensure all population sub-groups are able to access LLINs?

Review your Strategy Matrix. Are all the population sub-groups and geographical areas going to be able to access LLINs through your chosen strategy mix? Is the strategy mix cost-effective, and does it avoid unnecessary overlap of LLIN availability among the population sub-groups? If yes, then you have arrived at an appropriate mix of continuous LLIN distribution channels for your country.

If not, then, even though NetCALC shows that no additional channels would be needed to maintain the required ownership targets, you will need to consider adding additional channels on a small scale to target specific groups. Referring back to the descriptions of the main options for delivery channels in section 2 will help with discussion of who may be reached or excluded by your strategy and what options you may want to consider.

3.6.4.1 Issues of overlap, oversupply, and other implications

It is likely that your strategy will include a mix of different supply mechanisms that make LLINs available to the same people through different mechanisms. For example, you may have LLINs available at EPI in all health facilities but also include a school-based or community-based distribution in certain target areas. Some overlap of different mechanisms reaching a target group will occur. Measures can be taken to ensure that LLINs are distributed appropriately (e.g. community groups may set their own criteria to identify families who really need LLINs), but this overlap, if not excessive, should not cause major concern.

The idea of continuous distribution is to ensure that LLINs reach families. The nets are not intended for specific individuals within the family. Intra-family (including extended family) redistribution of LLINs is expected and, indeed, is known to take place. There is also a hope, although no evidence so far, that some inter-family redistribution of LLINs will take place. As a practical matter, maintaining Universal Coverage evenly throughout the population will probably require this; it is unlikely that any strategy will be able to reach every family.

Experience from countries as Universal Coverage is achieved and maintenance begins in earnest will be important to inform planning elsewhere. It will be particularly important to investigate such issues as how best to target LLINs to those who need replacements and how to keep costs as low as possible.

3.7 Considering Monitoring and Evaluation Needs

3.7.1 Monitoring

3.7.1.1 Indicators

As with any intervention aiming to achieve specific targets, sound monitoring is important, both to maintain the quality of implementation in all components of the mechanism and to measure progress towards the objectives of the system.

Monitoring indicators will be specific to LLINs, as monitoring activities will be measuring progress of the interventions delivering LLINs. (In line with national malaria targets, evaluation indicators may refer to ITNs rather than LLINs.)

Recommended output monitoring areas¹¹ include:

- Does the programme deliver adequate numbers of LLINs to the end-users on time?
- Are the LLINs delivered retained by the recipients?
- Is the distribution in the population equitable?
- Is the supply chain effective at maintaining continuous availability?

Recommended process monitoring areas include:

- **Delivery:** How many LLINs are being delivered to recipients, including a comparison between the number delivered and the total number of potential beneficiaries seen at the delivery point (to allow monitoring of what proportion did not receive an LLIN for some reason).
- **Stock management:** This includes both tracking commodities and monitoring stock-outs. Tracking commodities is particularly important given the high commodity cost involved. An important monitoring task is reviewing tracking and supply management documentation during supervision visits. Some countries and programmes include internal audits within the programmes to keep a close watch on the movement of commodities through the system.

3.7.1.2 Activities

Monitoring activities will depend on the type of distribution mechanism being monitored. In some cases monitoring can be integrated with other monitoring activities (e.g. where health facility channels are being used, it is often important to integrate monitoring with the national HMIS). In other cases specific monitoring activities will need to be initiated, e.g. where schools or community groups are delivering LLINs. Activities may include:

¹¹ World Health Organization. (2007) A manual for malaria programme managers. Trial edition.

- Monthly reports on potential recipient contacts and LLINs delivered (e.g. number of ANC attendances and number of LLINs delivered)
- Supervision visits using checklists to record specific indicators
- Internal commodity audits.

3.7.2 Evaluation

3.7.2.1 Indicators

Indicators for the overall malaria strategy should be guided by the international recommendations provided by the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG). The list below includes the currently recommended indicators to measure progress towards Universal Coverage¹² as well as an indicator (number 6) that will specifically inform delivery strategy design.

Core indicators:

1. Proportion of households with at least one ITN
2. Proportion of households with at least one ITN for every two people
3. Proportion of the population that slept under an ITN the previous night

Note: Where appropriate these indicators can be modified to look at target groups.

Supplemental indicators:

4. Proportion of existing ITNs used the previous night
 Note: An ITN is defined as used if anyone slept under it the previous night, be that a permanent household member or a visitor.
5. Proportion of the population with access to an ITN in their household
6. Proportions of ITNs and LLINs in households coming from different sources. This information will allow programmes to assess the proportion of overall ITN/LLIN ownership attributable to each delivery mechanism and will show which mechanisms are reaching which households.

Other useful information can be collected that will help inform programme planning. For example, collecting information about use of nets, by whom, etc., will help inform the communication approaches as well as aid understanding of how ownership and access indicators can best be interpreted as predictors of use.

¹² Roll Back Malaria (RBM), RBM Partnership Monitoring and Evaluation Group (MERG), Survey Indicator Guidance Task Force. Meeting report, 5–6 April 2011, New York, USA.

3.7.2.2 Activities

To measure overall progress towards Universal Coverage or access, large-scale community surveys will be needed. Usually, it will not be necessary to initiate independent surveys purely to measure ITN indicators; most countries will plan national surveys (MICS surveys, Malaria Indicator Surveys, DHS surveys, etc.) that either already include questions that measure ITN indicators or can be easily modified to do so.

Programme-specific evaluations may also be planned to answer questions about specific delivery systems. For example, measuring rates of uptake or retention of LLINs distributed through a specific system may be useful to examine whether some design modification is needed. Here some overlap between evaluation and research is likely.

3.8 Identifying Research Needs

During consideration of the context and discussion of appropriate distribution mechanisms, it is likely that you will have noted areas where information or experience is lacking in the country. If any of this missing information would be valuable to planning and to ensuring that the most cost-effective interventions are undertaken, you may consider some investigative or operational research activities.

Monitoring or evaluation activities may also highlight areas where research might provide useful information for future strategizing and planning. For example, it may be that LLIN uptake is far lower than had been expected despite good potential for access; you may then consider qualitative and exploratory research to determine the barriers to uptake.

A particularly useful research activity may be costing of the different delivery mechanisms as they are rolled out and get up and running. This will be extremely useful for future budgeting as well as to inform potential strategy revisions.

3.9 Identifying Support Needs

You may feel that a particular distribution mechanism could play an important role in your setting but that support, outside of the standard training needs during roll-out, will be needed to make it a success. Some examples of possible support needs are given below to guide and stimulate discussion about local needs:

1. Central support in the detailed development of the implementation plans for the chosen delivery mechanisms
2. Supply chain management strengthening within the chosen delivery mechanisms
3. Improvements to the HMIS system, if LLINs will be delivered through health facilities and reporting integrated into this system
4. Support for the integration of monitoring and evaluation (M&E) activities into national M&E plans or for the planning for additional M&E activities.

3.9.1 Possible sources of support

The Ministry of Health or other government/national bodies may be best placed to provide support where it is available within the system but lacking at lower levels.

The RBM sub-regional networks (SRN) are a good first point of contact for technical assistance in the African region. Many international groups and in-country partners have representation in these networks. The Web sites for the SRNs are shown below:

East Africa SRN: www.rbm.who.int/mechanisms/earn.html

West Africa SRN: www.rbm.who.int/mechanisms/warn.html

Southern Africa SRN: www.rbm.who.int/mechanisms/sarn.html

Central Africa SRN: www.rbm.who.int/mechanisms/carn.html

At the international level the RBM Vector Control Working Group (VCWG) has a work stream that focuses specifically on continuous LLIN distribution systems. Advice on appropriate sources of support can be sought from these groups. The Web sites are shown below:

RBM VCWG: www.rbm.who.int/mechanisms/vcwg.html

RBM VCWG Continuous LLIN Distribution Systems Work Stream:
www.rbm.who.int/mechanisms/vcwgWorkstream3.html

Other sources of support include:

Resource	Website
VectorWorks	http://www.vector-works.org/
VectorWorks Online toolkit for continuous distribution	www.cdtoolkit.org
WHO recommendations for achieving universal coverage with long-lasting insecticidal nets in malaria control September 2013	http://www.who.int/malaria/publications/atoz/who_recommendations_universal_coverage_llins.pdf
School-based distribution of LLINs: a short guide based on recent country experience. NetWorks, 2014; updated by VectorWorks 2016.	http://www.vector-works.org/resources/school-based-distribution-of-llins-a-short-guide-based-on-recent-country-experience/
Community-based distribution of ITNs: a short guide based on recent experience. VectorWorks 2016.	http://www.vector-works.org/resources/community-based-insecticide-treated-nets-distribution-guide/
Guide to continuous distribution of LLINs through health facilities	http://www.vector-works.org/resources/anc-epi-distribution-country-to-country-guide-for-llin-keep-up/
Preventing, identifying and mitigating fraud, theft and diversion of insecticide treated nets. VectorWorks, 2016.	
NetCALC 3.2	http://www.vector-works.org/resources/netcalc-planning-tool/
USAID Development Experience Clearinghouse	https://dec.usaid.gov/dec/home/Default.aspx



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