



USAID | DELIVER PROJECT

Technical Brief

Liberia: Continuous Distribution of Long-Lasting Insecticide-Treated Nets through Antenatal Care and Institutional Delivery Services



A team in Liberia loads a shipment of bed nets onto a truck to take them from a warehouse to a service delivery point.

Routine distribution of LLINs through ANC/ID services is an effective channel for improving and sustaining ownership and use of nets, particularly among this vulnerable population.

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Introduction

In Liberia, malaria remains a major threat to public health, with pregnant women and children under five especially at risk. The Liberian National Malaria Control Program's (NMCP) strategic plan consists of three main interventions:

- intermittent preventive treatment in pregnancy (IPTp)
- use of long-lasting insecticidal nets (LLINs)
- effective case management of malaria and anemia among pregnant women.

The NMCP strategic plan uses a three-tiered integrated vector management (IVM) approach, which aims to increase mosquito net ownership in the population. IVM provides LLINs through mass distribution to all family units and targeted distribution to pregnant women and children under age five to achieve maximum results for prevention of malaria transmission. These women and children are targeted because they are at high risk of morbidity and mortality from malaria, and require special focus beyond regular mass net distribution.

Although provision of nets to expectant and mothers of young children has been included in various strategies, it has never been fully implemented.

While the NMCP's strategic plan aimed to increase ownership and use of LLINs among the population—especially pregnant women and children under five—to 85 percent by December 2010 and

sustain this usage up to 2015, this was not achieved. It is in this context that the President's Malaria Initiative (PMI) is now supporting the Government in developing a system for continuous, routine distribution of LLINs to reduce the malaria burden in this vulnerable population.

The Project

The NMCP with assistance from the USAID | DELIVER PROJECT (the project) developed the routine distribution plan and budget for LLINs designated for distribution to all facilities providing antenatal care (ANC) and/or institutional (vs. at home) delivery (ID) services in each of Liberia's 15 counties. This plan makes recommendations to improve the national strategy of continuous distribution through maternal malaria in pregnancy (MIP) services to ensure availability of nets to pregnant women and newborns between thrice-annual national campaign distributions.

Basic Principles of Routine LLIN Distribution through ANC/ID Services

Basic supply chain and logistics principals informed the development of a micro-plan for distribution and guidelines for routine distribution of LLINs through ANC/ID, which include:

- appropriate selection of the types
- timely procurement
- estimation of quantities across all levels (national, county, and health facility)
- development of effective supply plans for shipment and delivery
- adequate and safe storage and good inventory management at all levels
- effective distribution of LLINs from central level to health facility to end user
- provision of accurate logistics information and finance
- continuous monitoring of all activities.

Methodology

A rapid assessment of LLIN distribution through ANC services in various counties was conducted to evaluate the situation of routine distribution of nets through these channels. The assessment covered 11 facilities (three county hospitals, one health center, and seven health clinics) in five counties. Two teams comprising a member of the USAID | DELIVER PROJECT office in Monrovia and a member of the NMCP performed the assessment. One team visited Margibi, Bong, and Lofa counties and the other traveled to Bomi and Gbarpolu.

A post-assessment, three-day workshop was held in Monrovia to develop distribution micro-plans for each county as well as recommendations for the national strategy for distributing LLINs through ANC services.

Results

The assessment found significant gaps in the implementation of the national MIP LLIN strategy at both the county and facility levels. While the national strategy states that a woman should receive two LLINs (one during her first ANC/ID visit, and one when she delivers her baby at a registered health facility), findings indicated that nets were being distributed to:

- pregnant women at first ANC/ID visit
- pregnant women who stated they did not have a net at home
- pregnant women with malaria
- women who delivered at a facility and stated they did not have a net at home
- children under five who were diagnosed with malaria at the facility.



Participants at an LLIN distribution orientation in Margibi county.

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Development of Distribution Plan

Between June 15, 2014 and July 04, 2014, a distribution plan was developed by the NMCP with technical assistance from the USAID | DELIVER PROJECT and contributions from various stakeholders. The distribution plan is comprehensive, covering distribution from the central level to facilities, and includes a detailed budget costing all potential expenditures. The distribution plan and budget may be used as a template for future routine net distribution, and supports the routine, continuous distribution strategy for the country. The plan explains the major points of consideration for routine net distribution in Liberia, including procurement, quantification, storage and transportation, data recording and reporting, monitoring and supervision, roles and responsibilities, and accountability. It also makes recommendations for continuous distribution of LLINs for ANC/ID so that Liberia can strengthen its strategy and ensure the sustainability of routine distribution.

Roll out of distribution plan

When the first tranche of nets arrived, the NMCP and the project decided to proceed with the first phase of the distribution to avoid distribution delays prior to the start of the rainy season in Liberia, the high malaria transmission period. Factors that contributed to the implementation's success included:

- **Combined orientation and distribution** were planned to occur simultaneously in counties, depending on the size of the county, the number of participants, and the size of the training and distribution teams.
- **County-level planning** occurred on the first working day after arrival in the county to orient the county health team (CHT) on distribution and orientation activities and to identify staff to participate in the distribution.

Data recording

While several options for data recording exist at facilities, LLINs for ANC/ID distributed to end users have typically been recorded sporadically, with little or no monitoring or cross-checking. Based on review of

existing guidelines, findings from the rapid assessment, and general elements of successful routine distribution, two options were adopted:

- **Option One:** Use the existing ANC register, the existing delivery register, the pregnant woman health card, and caesarean section record (where applicable) to record data on number of nets distributed.
- **Option Two:** Use the above-mentioned documents AND the recently developed ITN distribution record at ANC/ID form.

Data reporting

Data on commodities at the health facility-level is reported through two systems. The health management information systems (HMIS) which collects service data from facilities, and the logistics management information system (LMIS) Stock Balance Report and Request (SBRR) gathers logistics data. Reporting rates through the HMIS are fairly strong across counties, while the LMIS requires significant strengthening, especially regarding the initial recording of LLINs for ANC/ID by the facilities. Both the HMIS and LMIS systems are being used to report LLIN data to overcome challenges related to collecting data through the LMIS, which has lower reporting rates.

Storage and Transportation Options

A critical component of the micro-planning process was determining central-, county-, and facility-level options for net storage and transport. Requirements were considered for central-level storage of nets on arrival in-country and for maintaining a one-month buffer at county level for resupply to health facilities in case of stockout. Options for transportation from the central level to counties were discussed and options for distribution to all facilities providing ANC/ID services in a particular county determined. Table 1 shows the central- and county-level storage and transportation options adopted.

Table 1. Summary of Central-and County-Level Storage and Transportation Options

County	Storage option (county depot/container/other)	Transportation Option (public/private)
CENTRAL	NDS/NMCP storage space	NDS trucks
BOMI	County depot	Private only
BONG	20-ft container	Private only
GBARPOLU	County depot	Public/private combination
GRAND BASSA	20-ft container	Public/private combination
GR. CAPE MOUNT	20-ft container	Private only
GRAND GEDEH	20-ft container	Public/private combination
GRAND KRU	20-ft container	Public/private combination
LOFA	20-ft container	Private only
MARGIBI	County depot	Public only
MARYLAND	20-ft container	Public-private combination
MONTSEERRADO	NDS/NMCP storage space	Private only
NIMBA	County depot	Private only
RIVER CESS	20-ft container	Private only
RIVER GEE	County depot	Private only
SINOE	20-ft container	Public-private combination

Distribution

A total of 64 teams distributed LLINs to 593 facilities in 15 counties between April 15 and June 1 2015. The distribution teams faced extremely challenging terrain and long distances between facilities. In Nimba County, distribution teams had to load canoes with bales of LLINs and a motorbike to reach remote facilities.



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Distribution Team transporting LLINs to Facility in Gbelegeh district Nimba county.



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Deliver Supervisor & DHO from Nimba assisting with LLINs transport during Distribution in Gbelegeh District.

Discussion

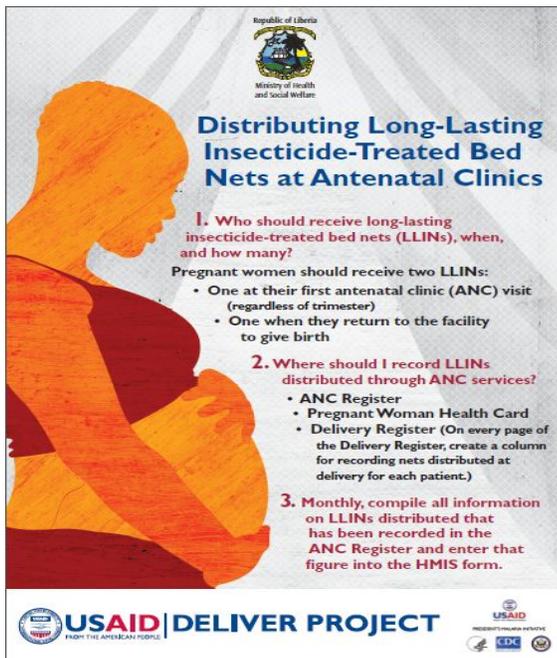
Roles and Responsibilities

Before the design of the LLIN distribution strategy, Liberia had not implemented a full-scale national routine distribution of LLINs for ANC/ID. Individuals and organizations involved in LLIN ANC/ID distribution at the central, county, and facility levels have not been determined, nor have their particular responsibilities. While existing routine guidelines mention certain governing or managerial bodies and titles, their particular role in LLIN ANC/ID distribution was unclear. In this LLIN distribution strategy, roles and responsibilities to ensure that nets reach end users as efficiently as possible, are secured and accounted for at each step, and reported accurately were defined at every level, have been clearly defined. Table 2 shows the roles and responsibilities for routine LLIN through ANC/ID distribution.

Table 2. Roles and Responsibilities for Routine LLIN through ANC/ID Distribution

Level	Organization	Responsibility
Central	NMCP/SCMU/ MOHSW	<ul style="list-style-type: none"> Quantify and procure LLINs Supervise and approve allocation of LLIN resupply quantities Aggregate and analyze HMIS and LMIS data Monitor and supervise counties and facilities
Central	NDS	<ul style="list-style-type: none"> Store and transport nets to counties
County	County health team	<ul style="list-style-type: none"> Store and distribute nets to facilities Supervise net distribution to facilities Aggregate HMIS/LMIS reports and transmit to central level Monitor and supervise facilities
Health facility	Officer in charge	<ul style="list-style-type: none"> Ensure strategy is followed Ensure nets distributed are recorded properly Gather data for submission to CHT through HMIS/LMIS

Fig. 1 LLIN through ANC/ID Job Aid



Data Management Challenges

Liberia’s facilities have significant data recording and reporting challenges because physical recording tools (ledgers, registers, forms) are often unavailable. This hinders the function of a continuous distribution system that is meant to resupply facilities based on consumption data. In the development of the distribution plan, the pregnant woman health (or ‘big belly’) card was identified to be the primary way for facility staff to verify that a woman had already received a net.

Presentation of vaccine card is a requirement for all pregnant women visiting Clinics for ANC services. Through this card, the facility staff is able to check and track pregnant women that received LLINs. While the card is patient-retained, all pregnant women are required to present it during ANC visit. This is meant to avoid giving one pregnant woman more LLINs than required.

Further, it was decided that in the absence of a pregnant woman health card, the vaccination card will be used to track LLINs given to a woman.

Conclusion

This distribution plan for routine delivery of LLINs for ANC/ID covered the breadth of distribution, from arrival of the 250,000 LLINs in two consignments (October and March) to storage and distribution at facility level. Routine distribution of LLINs through ANC/ID services is an effective channel for improving and sustaining ownership and use of nets, particularly among this vulnerable population.

Despite counties facing varying constraints like low budgets, poor logistics infrastructure, weak LMIS systems, and accountability and transparency gaps, an objective evidence-based and participatory context analysis provides opportunities to design effective logistic solutions that consistently and efficiently deliver products to end users in low-resource settings.

The authors' views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

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