Sierra Leone. © Melanie Caruso, IFRC

7: Implementation

Ensuring successful implementation of a mass LLIN distribution campaign requires a large number of complex and disparate activities to be undertaken over a lengthy period before, during and after the campaign itself. These activities are described in detail in the other chapters of this toolkit, including the setting up of central coordination structures and partnerships (Chapter 2), the procurement of LLINs (Chapter 4), the logistics of secure and timely storage and transportation of the LLINs to where they will be distributed (Chapter 5), the communication required for advocacy, social mobilization, and behaviour change communication (Chapter 6), the monitoring and evaluation of the process of the campaign and its results (Chapter 8), and the systematic reporting of all aspects (Chapter 9). Chapter 3 describes the planning process at the macro level, undertaken largely at the central level. The result of the process is a campaign plan of action, timeline and budget to guide the implementation. Before the campaign is implemented, regional, district, health facility and community actors must be engaged in the process.

7.1 Regional, district, health facility and community engagement

Engaging the operational levels of the health system is critical for a successful campaign. Once the macro-planning has been completed and the campaign plan of action and timeline have been validated, the vital next step is to ensure that regional and district health authorities are informed of the upcoming campaign in order to begin collecting data for micro-planning at the operational level. They should be informed in an official manner, such as by a letter from the Minister of Health, which will also contain information on the roles and responsibilities of the health teams at the various levels.

It is recommended that as soon as the plan of action has been validated at the central level, initial communication should begin with the operational levels and funding and resources, including templates, made available for micro-planning.

The micro-planning process must take place early enough for regions and districts to have time to form their own coordination structures and begin engaging local partners to support operational plans.

The official information letter to regions and districts should:

- provide an overview of critical activities and dates and a list of key national level partners, as well as a description of the campaign plan of action and the way LLINs will be allocated to beneficiaries (see Chapter 3)
- provide instructions on the most important next steps for the regions and districts, such as establishing coordination structures or engaging local authorities and partners
- explain how and when further engagement will take place, such as approximate dates for the micro-planning exercise (dates for central level support visit, date that plans must be finalized and submitted) and the household registration
- alert regions and districts to any significant differences from more recent EPI campaigns in terms of coordination, financial policies, flow and management or central level involvement

To aid the process, the letter can include any draft terms of reference for regional and district structures that have been developed, or the terms of reference for the central level committees to act as an example that might be copied.

COUNTRY CASE STUDY

For the universal coverage and hang-up campaign that took place in Northern Ghana in May 2010, an informative meeting was held between the National Planning Committee and the Regional Health Administration to engage them in the impending campaign and to give details of availability of nets, finance and technical support. Attendees also discussed criteria for selection of personnel, volunteers, supervisors, etc. to ensure the success of the campaign.

7.2 Micro-planning

Micro-planning is one of the most important elements for the success of the campaign. It is a bottom-up process to gather critical operational information from the lowest levels. Micro-planning results in two vital outcomes:

1. refining of the macro-plan at the operational level to reflect local context and ensure sufficient resources for implementation
2. refining, at central level, of the estimated global budget and district level resource allocation to address actual needs at the operational level

Each of these is critical to smooth implementation and success of the campaign. Refining of the macro plan helps to ensure that all levels, including the lowest, are engaged in the process, and that there are sufficient supplies and sufficient personnel to reach all areas, including any that are difficult to access. Refining and finalization of the overall campaign budget and district level resource allocation based on micro-planning information allows for timely advocacy to fill any gaps in costs for implementation of activities.

Micro-planning is necessary for all phases of the campaign: household registration, LLIN distribution and hang-up activities. Depending on the campaign timeline and the arrival of LLINs, it may be possible to combine the micro-planning for some or all of these phases.

The responsibility for micro-planning should be at the administrative level where the activities will actually take place, such as district level or health facility. For each health facility catchment area, plans should be based on local conditions, taking into consideration:

- geography and accessibility
- population density and population structure
- culture and normal working hours (to find people at home during household registration)
- local resources available (such as transport means)

Micro-planning should be done as early as possible. The ideal situation would be one single micro-planning exercise for all aspects of the campaign (communication, logistics, implementation, monitoring and evaluation) and for every phase of the campaign (household registration, LLIN distribution, hang-up activities). This may not, however, be feasible because of the timelines for arrival of nets and the state of preparedness of the in-country team to begin implementation at the operational level. For this reason, there are often two micro-planning exercises, one specifically related to the logistics of the transport, storage and security of the nets, and the other related to the broader campaign elements (identification of personnel for each phase of activities, training, communication, monitoring and evaluation, etc.).

Micro-planning for logistics (see Chapter 5) needs to be completed before the arrival of the LLINs in the country. Micro-planning for the broader campaign elements should be completed between four and six months before the planned LLIN distribution dates. When developing timelines, it is important that adequate time is allocated to micro-planning for the collection, cleaning and synthesis of data.

Micro-planning takes place at the operational level, but planning for the exercise begins centrally. The process for micro-planning preparation at the central level begins with the development of the micro-planning template (see the next section in this chapter, and Resources R7-1 to R7-4 on the CD for examples) for data collection and a system for management of the data at each level. Once the templates are ready, the preparation at central level also includes communicating with regions and districts to provide them with:

- dates for the micro-planning exercise, including a deadline for receipt of final plans and budgets
- budget for the micro-planning exercise, if applicable
- names and responsibilities of supporting central level personnel who will be arriving in the district
- templates and instruction documents for the exercise

By sharing the templates and providing a comprehensive overview of the things to be included and quantified, the districts can begin immediately contacting health facility coordinators to collect information, ensuring completion of the micro-planning within the specified timelines.

Preparation at central level also includes the training of central level personnel to ensure clear understanding of the micro-planning activity. Training should include all the elements that are required and how the provided templates should be used.

Given their extensive experience, central level personnel may not feel the need to be trained, but to ensure clear understanding and consistency in approach, a minimum of a one-day briefing session should be organized to work step-by-step through each of the worksheets in the micro-planning templates.

The central level teams supporting micro-planning should consist of Ministry of Health (MoH) and partner organization staff. In preference, each team should be multidisciplinary, consisting of logisticians, programme staff and communication experts. The number of central level teams should be sufficient to support and complete the micro-planning. Where micro-planning is at regional level with district representatives grouped together, at least one team from central level should work with each region. At the regional/district level, participants in the micro-planning exercise might include health facility staff, non-governmental, faith-based and community-based organization representatives and any other stakeholders identified as key to the implementation of the campaign activities. The number of team members should, however, be limited to ensure that planning is done effectively and in a timely manner. Larger groups tend to take longer for discussion to reach consensus.

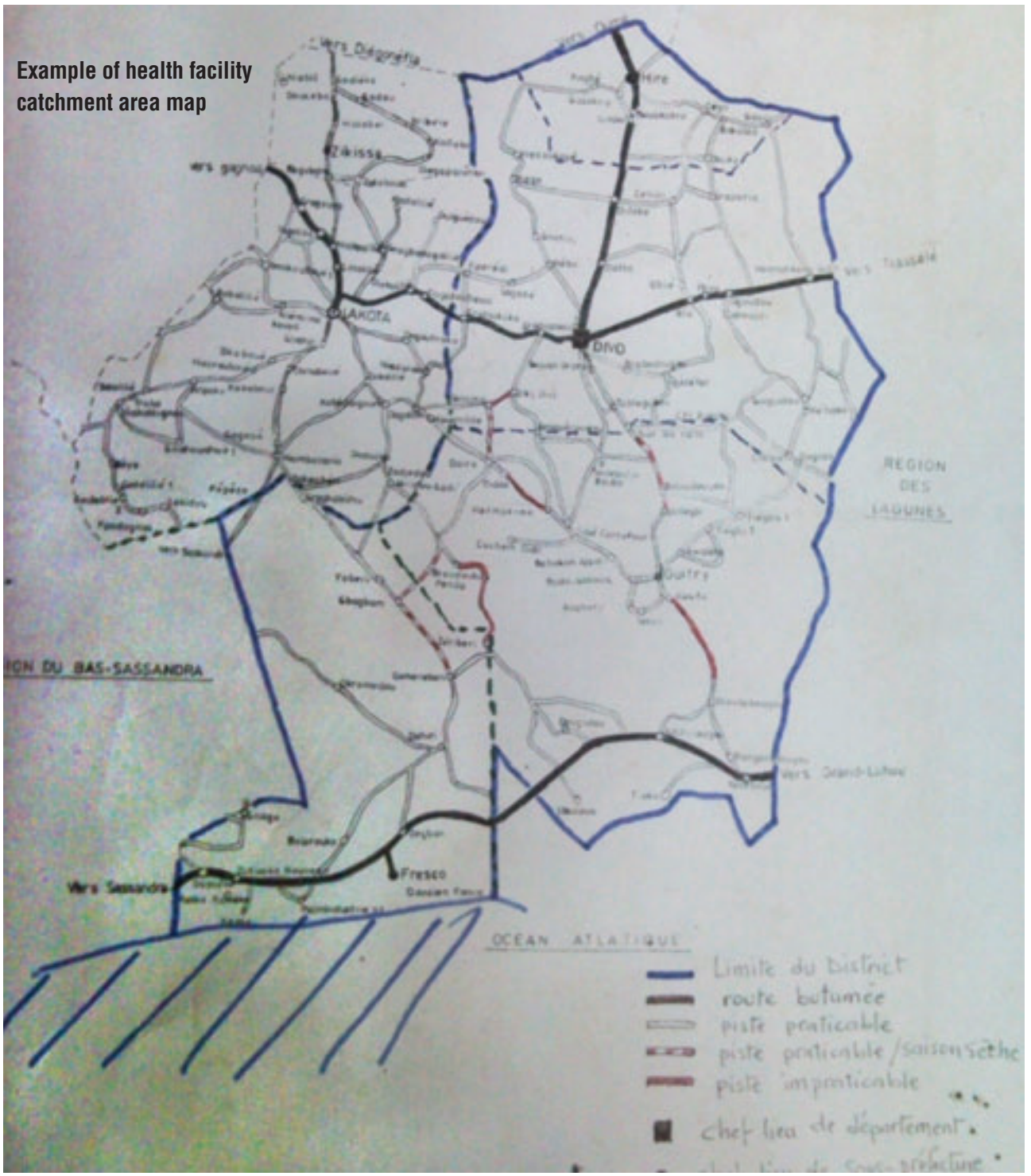
The number of personnel, and therefore the number of training sessions, supports, data collection materials, and so on, will vary for each phase of the campaign (household registration, LLIN distribution and hang-up activities), so it is important that the planning for each phase is meticulous and the budget adjusted accordingly. Early micro-planning allows the necessary structures to be in place for implementation, but also represents an opportunity to engage and advocate with local authorities and influential members of the community through the dissemination of information about the campaign.

The preparation of a map of the health facility catchment area is important. It should illustrate the key landmarks, such as health outposts, private dispensaries, other buildings where LLIN distribution could take place, such as schools, community centres or religious institutions, areas that are difficult to access, such as riverine or mountainous areas, and any population groups that have specific known barriers to uptake of health services. It should include roads and paths and distances between landmarks. The map will

facilitate the understanding of the central and regional teams supporting the micro-planning process.

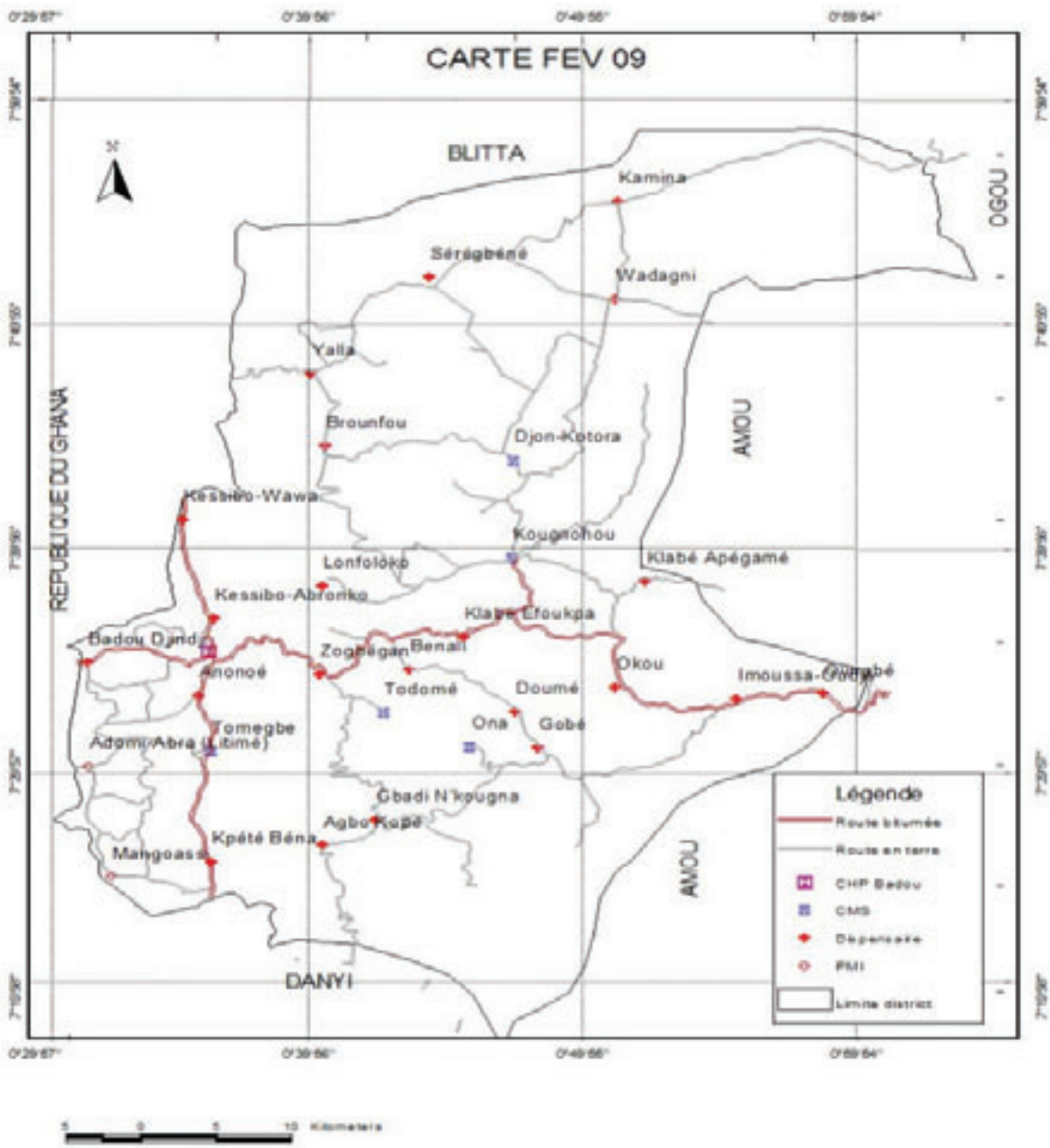
An example of the starting-point of such a map can be seen below from Côte d'Ivoire[a]. It is hand-drawn and shows paved and dirt roads, major centres and location of villages. With information added as above, including whether areas are difficult to access, and the reason why, the situation can be seen in a graphic manner which helps to support the same information on paper.

Example of health facility catchment area map



A further example from Togo shows paved and dirt roads, difficult access areas, hospitals, health centres and dispensaries.

Map of the health district of Wawa, North West Togo[b]



Note: difficult access to villages between:

- Sérgbéné and Kamina
- Brounfou and Djon kotora
- Kougnohou and Amou
- Yalla and Wadagni
- Todomé and Ona
- Adomi Abra and Kpétébéna
- Agbokopé and Danyi
- Kessibi Wawa and Brounfou
- Southern part of Wadagni

Micro-planning templates

Micro-planning templates will vary by country and by type of campaign, but many elements remain consistent. The micro-planning template is normally developed in a spreadsheet program, such as Excel, and consists of a series of worksheets. See Resources R7-1 to R7-4 on the CD for examples. A summary sheet provides parameters or guidelines for planning that have been established at national level, and will include a number of the following:

- average household size (where possible, by region or district and urban or rural, noting that in general the average size of a rural household will be larger than an urban household)
- number of households (urban and rural) that can be reached per day for household registration and for hang-up where the strategy for hang-up is door-to-door
- number of vouchers per booklet (e.g. 50 or 100) to allow calculation of the number of booklets needed to reach the population in the area
- number of volunteers needed per household registration or hang-up activity (urban and rural) where the strategy for hang-up is door-to-door
- number of days allotted for household registration and hang-up to allow standardized planning for personnel and budgeting
- number of household registration or hang-up teams per supervisor (urban and rural)
- daily incentive for household registration and hang-up personnel
- daily incentive for team and district supervisors
- calculation to determine the number of distribution points according to population estimates or according to number of LLINs to be distributed per day (urban, rural, difficult access)
- number of volunteers needed per distribution point team (urban, rural, difficult access) and roles (since the criteria for selection vary by role)
- number of days allotted for LLIN distribution
- number of distribution teams per supervisor (urban, rural)
- daily incentive for distribution site personnel
- daily incentive for site and district supervisors
- number of people per training (facilitators, supervisors, household registration, distribution site and hang-up personnel)
- number of people per net for quantification (e.g. 1.8)
- size and weight of one bale of nets to facilitate calculations for storage and transport
- estimated fuel needs and costs per 100 kilometres for vehicles, motorcycles, boats, etc., and maintenance of vehicles

While the information provided in the summary sheet will vary from country to country, it should be comprehensive enough to allow for standardized planning throughout the targeted implementation area.

The templates should include formulae that automatically calculate according to the centrally-determined parameters. These might include number of households/number of days the household registration will last/number of households that each volunteer can visit in one day. Health facilities will input the estimated number of households in their catchment area, and the template automatically generates the number of household registration volunteers needed. The cells where the information will be generated automatically should be differentiated in some way (e.g. colour) from the cells requiring information from regions, districts and health facilities. It may be necessary to put some information in manually where areas represent exceptions to the norm, such as hard-to-access areas.

The worksheets in the micro-planning template serve to collect detailed information about different elements, as follows:

Worksheets in the micro-planning template

Worksheet	Variables	Notes
Demographic	• Population (urban, rural, hard-to-reach)	The demographic worksheet will give a total population by village for the catchment area of each health facility. Where a campaign is targeted, rather than universal coverage, information specific to the target group should be collected.
Pre-positioning of LLINs	• Pre-positioning locations and distribution sites served from each location (if not the same) • Number of LLINs needed	The worksheet will provide the name of each pre-positioning location together with the number of LLINs needed (an estimated number based on available information for macro-planning prior to the household registration), and name and contact number of the person responsible for receiving the LLINs. Depending on the size of each health facility catchment area, it is possible that there will be one or multiple sites for the pre-positioning of LLINs. For example, for door-to-door distribution, nets must move to village level to facilitate access by the volunteers and reduce time and costs of transportation. There may also be a number of distribution sites served by one pre-positioning location.
Human resources	• Calculation of personnel required for each phase of activities: household registration, LLIN distribution and hang-up (broken down into urban, rural and difficult to access areas)	Calculations should be based on the information provided in Chapter 3 of this toolkit. Human resource requirements estimated from the macro-planning will be modified during the micro-planning to ensure that there are sufficient people (community volunteers and supervisors) to reach all areas, including those that are difficult to access. For the household registration, the number of personnel will be based on the number of households to be reached daily, the number of days needed to reach all households and how the personnel are organized. Note that in general, households are smaller and closer together in urban areas, so personnel can register more households per day. For the LLIN distribution, the number of personnel will be based on the roles identified in urban and rural sites and the number of people needed to staff the site (see Chapter 3 and section 7.6). For hang-up, the number of personnel required will be based on the strategy adopted (see Chapter 3).
Tools and supports required for household registration	• Number of books of vouchers or number of bracelets • Number of household registration books • Number of key messages/talking points sheets • Number of daily synthesis sheets • Number of supervision checklists and rapid evaluation forms • Number of pens • Amount of chalk • Number of badges, t-shirts, aprons or other means of identification for volunteers • Amount of phone credit for supervisors and volunteers (this must be in line with the data management needs and data transmission protocol) • Number of plastic folders to keep documents dry and safe	The required supports will vary depending on the method adopted for registering and identifying beneficiaries, but generally the total needs for the activity will be dependent on the number of personnel (volunteers and supervisors) required, the number of households to be registered and the number of days of household registration.
Tools and supports required for LLIN distribution	• Scissors (normally one pair per site, two if cutting both LLIN packaging and vouchers) • Tool for cutting bale strapping • Pens • Plastic folders • Stock sheets • Boxes for voucher or bracelet collection • Tally sheets • Daily summary sheets • Supervision checklists • Rapid evaluation forms • Waste management • Phone credit	The required supports will depend on what the country has identified as necessary for equipping the distribution site.

WORKSHEETS IN THE MICRO-PLANNING TEMPLATE (continued)

Worksheet	Variables	Notes
Tools and supports required for hang-up activities	• Household visit forms • Daily summary sheets • Supervision checklists • Rapid evaluation forms • Hammers, string, nails, chalk, etc.	The required supports will depend on the hang-up strategy identified by the country and on the tools included in the net packaging by the supplier, e.g. string. Where hang-up is door-to-door, items to assist households with proper hanging of nets may be required.
LLIN distribution sites	• Distribution points within each health facility catchment area • Total population • Number of households expected • Number of LLINs required • Distance from health facility to the distribution site • Name of storage point (if other than the distribution point) • Constraints and opportunities related to selection of sites	Sites for LLIN distribution are often modelled on sites used by the Expanded Programme on Immunization (EPI), and sometimes on sites used for national elections, although LLIN distributions do not always use mobile sites because of the difficulty of transporting bulky LLINs to the most inaccessible areas. The benefit of adopting fixed and advanced sites used during EPI vaccination campaigns is that they are familiar to the population. For very remote populations with small LLIN needs, a single distribution team may be able to cover two different distribution sites during the campaign, by spending 2—3 days in each.
Transport needs	• Number of different types of transport (all-terrain vehicles, motorcycles, boats, etc.) • Constraints and opportunities related to requirements	The number of supervision teams required will have been established following identification of total number of personnel needed. Transport allows supervisors to be effective in accomplishing their tasks. For each type of transport, the total requirement should be identified, and the number already existing subtracted to calculate need. Recognizing and noting constraints and opportunities will allow identification of local partners to assist with transport needs. It may also flag situations requiring attention from the district or regional level.
Supervision circuit planning	• Name of health facility (at district level) • Number of teams to supervise (all phases) • Distances to be covered each day relative to the health facility	For each team of supervisors, a plan should be made for supervision for each phase of activities. Ideally, the same supervision team will be responsible for a health facility for the entire duration of the campaign, including hang-up activities, to allow linkages to be made and maintained in terms of problem-solving. Where possible, the worksheet should contain the planned times that the supervision team will visit specific teams, but the micro-planning period may be too early to define this.
Communication needs and local partners	• Names of village chiefs, opinion leaders, schools, religious facilities, non-governmental and community-based organizations, private sector partners • For each structure listed, a contact person should be identified with a number where he or she can be reached • Number of local radio stations	This information should be collected for each village in the health facility catchment area. The information will depend on the local situation in the country (e.g. presence of women's groups or village development committees). If local radio stations (e.g. community radio) are available, this should be noted in the micro-plan so that budgeting and dissemination of talking points can be done on a per radio station basis.
Problem analysis and proposed solutions	• Summary	The spreadsheet should contain a summary worksheet where micro-planning team members can identify problems and solutions related to the broad micro-planning areas (logistics, personnel, communication, etc.)

See Resources R7-5 for an example of a summary of micro-plans from Cameroon.

Once all the needs have been quantified for all phases of activity, the micro-planning team should use the worksheets to calculate the budget. The budget template will be based on the key activities and should be calculated in line with the national guidelines for campaign planning and implementation. Budget headings often included are:

- workshops for briefing and micro-planning
- training of supervisors for household registration, LLIN distribution and hang-up (depending on number of training sessions planned for the entire campaign and strategies adopted)
- training of volunteers responsible for household registration

- training of LLIN distribution site personnel
- training of volunteers responsible for hang-up activities
- household registration, supervision and monitoring
- LLIN distribution, supervision and monitoring
- hang-up activities, supervision and monitoring
- communication (advocacy, social mobilization and behaviour change communication)
- logistics (if not already included in a separate micro-plan and budget)

During the micro-planning process, attention must be given to how data collected will be managed. In countries where there are staff working on health management information systems (HMIS) down to the district or lower levels, an allocation should be made in the budget for their time to assist with collating and analysing data from the household registration, LLIN distribution and hang-up. In countries where the mobile telephone network has reach throughout the country, including in remote areas, it may be possible to implement a mobile phone-based data transmission system. If this is possible, budget allocation should be made for airtime/phone cards to ensure that there is no interruption in data transmission due to lack of money for sending text (SMS) messages.

The early timing of micro-planning is important, not just to collect all the required information, but with sufficient time to collate and review, so that the overall plan of action and budget can be adjusted and finalized.

Once finalized and validated at central or regional level, the approved micro-plan and budget must be sent back to the districts and health facilities to ensure that all are working from the same micro-plan at the time of implementation.

A weakness observed in some campaigns is that micro-plans are finalized at the central level, but are then not sent back to the operational level.

If, as may happen, available resources were insufficient to support the micro-plan developed at the operational level, and it had therefore to be amended, the planning team at the operational level needs to know this and to make adjustments to comply with the amended version.

7.3 Identification of personnel

Following the engagement of the regional, district, health facility and community levels and once the micro-planning exercise has been completed, there is normally a period of weeks or months in which the teams at the operational level should begin to prepare for the implementation of activities while those at central level should finalize all the necessary materials (e.g. data collection tools, training materials, etc.).

Once the micro-planning is complete and validated and the final micro-plans have been returned to the operational level, the number of personnel required for household registration, distribution and follow-up activities is known, and identification of personnel can begin. For the household registration activity, the number of people required is important, but it is equally important to ensure that personnel are positioned so that the population in all areas, including those that are difficult to access, can be reached and registered to benefit from the LLIN distribution. See Chapter 3, Section 3.5 Quantification of personnel, for calculations of numbers required.

For the household registration, it is advantageous to identify personnel who live in the communities where they will be working. As well as reducing transport costs from the need to move household registration personnel from one area

to another, household members may be familiar with the person doing the registration (or vice versa), which may help to limit inflated figures during the registration for the purpose of receiving more nets.

Where possible, countries may want to plan to have additional volunteers available to assist at sites or, alternatively, undertake household follow-up visits to ensure that the targeted beneficiaries have come to the distribution sites to receive nets and other interventions in the case of integrated campaigns. Additional volunteers can also undertake household visits during the campaign to follow up on airing, hanging and use of the distributed nets. See Chapter 3 for further information on personnel requirements.

It is important to establish the criteria for selection of personnel (household registration, distribution, social mobilization, supervision, etc.) and to include these in the summary or as an annex to the micro-planning tool and instructions.

Criteria for selection might include, for example:

- ability to read and write
- good interpersonal and communication skills
- knowledge of local language
- resident in the community in which he/she will work
- enthusiasm, commitment and motivation
- trust and respect of the community, high moral character
- familiarity with the local population and its culture
- experience of training and supervising others (for supervisors)
- full-time availability for the duration of the activity
- ability to participate in the training for the activity
- experience with past public health campaigns

The criteria established should be specific to the activity for which people are being identified. At the distribution point, the team will consist of a number of members with different roles and responsibilities, for which the criteria may differ. Literacy may be an essential criterion for the person who is collecting vouchers and marking tally sheets, while it may not be important for individuals responsible for crowd control or health education. In some countries, there has been pressure (political, social) to select certain people given that there is often a monetary value attached to participation. Unfortunately, in situations where personnel are identified who do not meet the criteria, there are problems with the implementation of the activity itself. For example, with household registration, if personnel are identified who do not know how to read, write or undertake simple calculations, there will be data quality problems from the initial point of collection. This will only lead to more significant problems later on in terms of summarizing and synthesizing data which will have a negative impact on the overall campaign results.

The criteria for selection of personnel should be established at the national level and shared with the regions, districts and health facilities early in the planning period. During the micro-planning exercise and district level coordination meetings, non-governmental, faith-based or community-based organizations who are already working with community volunteers, especially in remote areas, should be identified and invited to participate in terms of "contributing" volunteers to the campaign. The involvement of these organizations from the outset will allow for coordination of activities during the implementation period, and will reduce the possibility of duplication of activities. In addition, volunteers who are already working in the community are most likely to have the trust and respect of community members. Using the same people for household registration, distribution and follow-up activities should help to minimize the scope of the training required.

Senegal. © Maggie Hallahan /Sumitomo Chemical

7.4 Training

Good quality training is critical to ensure a well-run and successful campaign. In most countries, training is done through a cascade system, where personnel from the central level train those at regional or district level, who then pass the training down to staff at the health facilities. Health facility personnel will then train the people that have been identified for the implementation of activities.

With each level of the cascade, it can happen that information is lost or misrepresented, often owing to inadequate training or lack of comprehension at the level above. If the participants at each level are not totally clear on the content of the training, or if misunderstandings are not clarified, any weaknesses are carried over to the next level, with a corresponding impact on implementation of activities. It is also important to include in the training some system of post-testing, both to check the knowledge and comprehension of the participants and to evaluate the quality of the training itself.

Cascade training is helpful and saves time, but care must be taken to maintain high-quality training throughout the levels. Wherever possible, countries should try to limit the number of cascades to improve the quality of the training.

At all levels of the cascade, training should be supervised to ensure its quality and to check that information is being retained. At the central level, once trained, supervisors will oversee the next levels of the cascade training, with supervisors from each level (regional, district) supervising the next cascade following their own training. Supervision should allow for immediate remedial action if it is found that incorrect or incomplete information is being passed on. In addition, supervision acts as a further method of evaluating the quality of the training at the cascade level above, and of providing corrective action if necessary.

Training is important at all levels, beginning with the central level which represents the first level of the cascade. In many countries, it is believed that the central level personnel do not need any training as they are familiar with the activities taking place.

With universal coverage campaigns, and the additional activity of the household registration, however, there are aspects that may be completely new to central level personnel. From the outset, they must understand these aspects so that they may pass on the important points correctly to the personnel at the next level of the cascade.

Central level trainers must be qualified to deliver the content of the training using the principles of adult learning, that is they must be equipped with appropriate teaching techniques and practical activities for each key learning objective. They must practise with the data collection tools to ensure that they are familiar with the tools themselves and can explain the importance of each piece of data to be collected and how data should be summarized and transmitted.

For training to be effective, it needs to be planned well in advance and standards should be set for the number of training sessions needed, the number of participants per session, the duration of each training session, the venue, and the materials and content required. In most universal coverage campaigns, there are four key phases of activity at the operational level[c]:

1. micro-planning (discussed above)
2. household registration for beneficiary identification and LLIN allocation
3. LLIN distribution
4. post-distribution hang up-activities

COUNTRY CASE STUDY

For the universal coverage and hang-up campaign in Northern Ghana, there were three levels of training. The central team was sensitized through planning meetings, development and review of training materials and other awareness-raising interactions. This team then undertook training of district officials at the regional level. Participants, three from each district, were mainly disease control officers, public health nurses, those responsible for the management of drug supplies, and in some cases the directors of health. They received a training manual covering the different aspects of the campaign: volunteer selection and training, basics of malaria and LLINs, logistics, behaviour change communication (BCC), household registration, validation of registration data, monitoring and supervision and follow-up. Once trained, the district trainers cascaded the training to community-level volunteers, training on both household registration and hang-up activities. With a maximum of 60 participants at each training session, it took between one and two weeks for all volunteers to be trained.

Volunteers trained for household registration practised with the household registration forms during their training. They were also taught how to interact with household members in order to be allowed to view their sleeping spaces.

Twice as many volunteers were trained for the hang-up activities. These volunteers took nets around to households and showed occupants how to hang them. Their training consisted of the basics of malaria and LLINs, key BCC messages to give to each household, and how to hang a net. They were also trained on interpersonal communication so that the household head would allow them to view or count sleeping places where nets were to be hung. Training included use of tally sheets and what to do if a registered beneficiary was not at home.

Ideally, each phase of activity will have a separate training to ensure high quality implementation. However, depending on the campaign strategy and timeline, if hang-up activities are beginning immediately following the LLIN distribution, there may not be time for a separate training and therefore one training will cover these two phases of activity. At a minimum, there should be three training sessions: one for micro-planning, one for the household registration and one for the LLIN distribution and hang-up. Often the micro-planning training is more "on the job" where the central-level supervisors and regional and district-level authorities actually fill in the micro-planning templates together, rather than a formal training session followed by the micro-planning exercise (aside from at central level, described above).

It is recommended that the number of participants in each training session is limited to ensure that the training environment is suitable for question and answer, plenary discussion and practical exercises. Encouraging participants to engage in discussion, ask questions and undertake practical activities such as simulating a household visit, helps their knowledge and understanding. Role plays can be essential to practise the delivery of key messages and the calculation of the number of nets needed per household. Where there are too many people in a training session, it is difficult for the facilitators to ensure full participation in an interactive manner by all trainees. As a general guideline, the number of participants in a training session should not exceed 30—35, but often budget constraints lead to larger training sessions which may be less effective.

The development of training manuals and guidelines, as well as training agendas, needs to be undertaken at central level to ensure consistency in implementation of the various activities. Their reproduction may take place centrally or at regional or district level, according to calculated needs during the micro-planning. Contents of the manuals and guidelines will depend on the campaign strategy or hang-up strategy chosen, and on the level of the cascade. Those passing on training to the next cascade level will need additional guidelines on interactive training methodology. These guidelines could be brief suggestions on the most effective use of question and answer, simulation, role play, group work, etc. At the volunteer level, it would be more appropriate to train with the help of a job aid that will then be handed out to the volunteers to refer to during implementation. See the Resources R7-6 to R7-32 for examples of training agendas, guidelines on interactive training, training manuals, job aids for volunteers, training post-tests and templates for reporting on training sessions.

COUNTRY CASE STUDY

In Mali, a health facility nurse was responsible for the household registration training of 60 volunteers. To keep the training size manageable and to ensure the training was effective, he trained half the volunteers on the first day. These volunteers then went out to start registration while the second half were trained, and were then only a day late starting their own registration activities.

Job aids help to reinforce training and to reduce mixed messages and misinformation during implementation. It should be noted, however, that distribution of training manuals and job aids does not substitute for face-to-face training.

7.5 LLIN allocation strategy and beneficiary identification

For all campaigns, whether targeted or universal coverage, stand-alone or integrated, it is necessary to define the strategy detailing how LLINs will be allocated to beneficiaries, and how

beneficiaries will be identified at distribution points where the implementation strategy is not door-to-door.

The LLIN allocation strategy and the method for beneficiary identification are normally defined in the campaign plan of action and are based on the number of nets available and on the campaign implementation strategy (targeted, universal coverage, integrated, stand-alone, fixed point, door-to-door). For universal coverage campaigns, while the method for beneficiary identification will remain aligned with the campaign plan of action at the operational level (e.g. vouchers, bracelets, etc.), the LLIN allocation strategy may change based on the results of the registration exercise if insufficient nets are available when the actual LLIN needs to achieve the campaign target are calculated.

In campaigns targeting children under five, the LLIN allocation strategy is normally one LLIN for every child, but where there are LLIN shortages during the campaign the LLIN allocation strategy may change to one LLIN per mother or caregiver for example. In universal coverage campaigns, a number of methods for LLIN allocation have been used, each with its own challenges. The LLIN allocation strategy may be based on providing:

- one LLIN for every two persons in a household (rounding up or down in the case of odd numbers of household members[d])
- one LLIN per sleeping space (as defined in the campaign plan and training manuals). This requires some information about common sleeping patterns
- a fixed number of LLINs per a range of household occupants (such as one net for one to three persons, two nets for four to six persons)
- a fixed number of LLINs per household based on average household size. This method is not recommended as setting a fixed number of LLINs per household will over- or underestimate need in at least half of cases[e]. However, in many countries, this method may be used where LLINs available are insufficient to adopt a different allocation strategy or where the distribution strategy needs to be simplified for operational feasibility (e.g. urban distribution, population movement between household registration and LLIN distribution, etc.).

With the first three LLIN allocation strategies, a limit can be put on the number of LLINs distributed to any household. The limit is commonly based on average household size and the structure of households in terms of space for physically hanging nets.

For the purposes of macro-planning, the target population is normally calculated based on population census results projected for the year of the campaign, using the annual average growth rate. In the case of campaigns targeting children under five years of age, EPI often has the most accurate figures based on the last mass vaccination exercise (especially if the number of children served at the time was greater than the number of children estimated) which are projected for the year of the campaign. For all campaigns, the micro-planning exercise described above, as well as the household registration exercise, in the case of universal coverage campaigns, are crucial for refining the estimated population figures and aligning them with information from the operational level.

Once the LLIN allocation strategy has been determined, an activity to count the number of people, sleeping spaces or households (or any combination) must take place. It is critical to include in the communication plan the need to inform beneficiaries in good time about the registration activities and what will happen. With universal coverage campaigns, since the entire population is the target group and the LLIN allocation strategy is not one LLIN per person, it is not possible simply to disseminate messages that beneficiaries should come to the distribution point to collect a LLIN. It is necessary to determine a way to identify beneficiaries at the distribution point. This is commonly undertaken via a household registration exercise, but can also be done by means of

consulting with traditional leaders or using other community-based methods where the population is relatively well-known and where corruption is not a large problem. During the household registration, beneficiaries are provided with a means of identifying themselves (e.g. one voucher or bracelet per household representative) in order to retrieve their LLINs at the distribution points.

COUNTRY CASE STUDY

In a pilot project in Mozambique in 2009, a district with a population of about 33,600 people was selected for a universal coverage distribution. To identify beneficiaries, a mini census of the district was carried out through the local political system, training local chiefs who each have responsibility for about ten households to list the information required. Each chief was asked to check with the families in the ten households that the information was correct and that all people were included, listed by their age and gender. At the same time, they were asked to give out simple messages about malaria prevention and treatment, including using nets every night of the year. Once the lists were collated, the number of nets to be allocated to each family was calculated according to set criteria and based on typical sleeping arrangements in Mozambique.

In general, beneficiary identification is easier for targeted campaigns, whether stand-alone or integrated, where the target group is children under five. Children under five can be identified using their health cards or through methods such as asking them to reach over their head and touch their left ear with their right hand. Children who are able to touch their ear are most often over five years old. In campaigns targeting children under five where there is no independent means of beneficiary identification (e.g. voucher or bracelet), children's fingernails are often marked with indelible ink to prevent parents from returning to the same or different sites in order to acquire more LLINs and, with integrated campaigns, expose children to adverse effects from immunization (AEFI) through receiving multiple doses of vaccine. For implementation consistency, which fingernail and the type of marking (for all interventions if the campaign is integrated) should be specified in the training guidelines and job aids.

Household registration and beneficiary identification for universal coverage campaigns are more complex than for campaigns targeted at children under five. With universal coverage, the target is one LLIN for every two persons, so the most common way (so far) for identifying household needs is through a household registration process. The household representative receives a voucher or bracelet during the household registration and must then redeem it at the distribution site in exchange for LLIN(s). In order to prevent a household from returning to the same or a different site with the intention of acquiring more LLINs, the voucher or bracelet is normally cut and stored by the distribution team at the moment when the LLINs are handed over.

COUNTRY CASE STUDY

In Cross River State, Nigeria, trained community volunteers undertook a door-to-door household registration exercise. Over 2,800 volunteers worked over a ten-day period to reach every household in 16 out of 18 Local Government Areas. At the end of the exercise, a total of 2,727,489 people in 589,041 households had been registered. The total registered need for LLINs was 1,461,594, in line with the current quantification recommendations (one LLIN to every 1.86 people).

Following training, the household registration agents go to each household in their assigned area to collect the necessary information for the LLIN campaign. Social mobilization, an important activity to undertake prior to the household registration, should also give focused messages about the data collection exercise and how households will

benefit later on. At each household, the volunteers should introduce themselves and then explain the purpose of their visit and the reason they are collecting information from the household members. In some countries or in areas of countries, or in certain time periods, such as around elections, there may be sensitivities about data being collected and how they will be used. Prior to household registration, communication activities are vital to raise awareness among the target population of the household registration exercise and the overall campaign. Where specific barriers exist, it is important to address them in tailored messages to disseminate to the population. It is also important to ensure that the volunteers can be easily identified, by means of bibs, caps, t-shirts, badges, etc. as being part of the campaign.

After the introduction, the volunteer should collect the necessary information from the household members. The key information required for the household registration is:

- name of household head (in some countries, the name of a second person in the household is also recorded with instructions that only the listed people can come to the distribution point to retrieve nets)
- total number of people who regularly sleep in the household (visitors are typically not included)
- total number of LLINs the household should receive (based on the LLIN allocation strategy adopted)
- identification number of voucher(s) or bracelet handed to household

Additional information that may be collected includes:

- number of existing, viable LLINs in the household (when it is necessary to account for existing nets). The definition of "viable" must be clearly understood by all volunteers to avoid subjective assessment of net condition
- number of sleeping spaces (where LLIN allocation is based on this criterion)
- number of children under five (there must be a clear purpose for collecting this information. For example, the accuracy of the data collection can be cross-checked by calculating the percentage of children under five among the target population and comparing it to the national or district average)

Sierra Leone. © Melanie Caruso, IFRC

The household registration form (see Resources R7-33 to R7-37) should be simple and should include enough space in each line for the volunteers to write easily and legibly. It should have a heading area where the volunteer will record the name of the district, the health facility from which they are working, the name of the village, their own name, the name of their direct supervisor and the date. In some cases, registered beneficiaries are also asked to sign at the time of registration. Each household registration form or sheet in a household registration book should include space at the bottom for the volunteer to summarize the information collected.

In general, unless pregnant women are targeted specifically during the distribution, there is little need to collect information about them. It does not relate directly to the LLIN distribution and is unlikely to be used for other purposes given the volume of data that would need to be entered and analysed.

Overall, household registration data are generally quite flawed and should not be used for any other purpose unless an investment is made into training, analysis and synthesis of data collected into an electronic format that can be regularly updated. Otherwise, the data is a snapshot of time that does not reflect a monthly or annual picture of the real situation.

One of the key lessons learned from countries that have implemented universal coverage campaigns involving household registration is that any extra information collected (1) increases possible errors by volunteers, (2) increases complexity of data synthesis and (3) increases the amount of time that each household visit takes, thereby increasing the number of volunteers and/or days of registration needed, which in turn increases the budget. Although the household registration may be seen as an opportunity to collect extra data, it must be kept in mind that the data are time-specific, and unless they are going to be put in a database immediately for further use, they quickly become irrelevant as the population structure changes.

The summarized information is passed on to the supervisor, who is responsible for collating the data collected by the volunteers under his or her supervision. See Resources R7-38 to R7-42 for examples of household registration data collation sheets. Finally, the data will be transmitted to the central level where they will be synthesized and validated for the entire country. See Resource R7-43 for an example from Togo of a synthesis of household registration results. At the end of the household registration period, supervisors should complete a report regarding the roll out of the activities (see Resources R7-44 and R7-45).

After filling in the household registration form, normally the volunteer provides the household with some means of identifying itself as a registered beneficiary that should receive LLINs during the distribution. Some options for beneficiary identification were presented in Chapter 3, the most common of which is a voucher. The volunteer should be provided with a job aid (Resources R7-23, R7-24 and R7-26) to ensure that the key messages about the value and importance of the voucher and the timing of the distribution of LLINs are consistent and clear. Some countries may opt to use only the voucher stub (when using two-piece vouchers with one half of the voucher given to the beneficiary and the other half of the voucher remaining in the booklet) for record-keeping and not fill in an additional household registration form. This has the advantage of less paperwork, as each stub corresponds to a net. However, it is still necessary to have a summary form to compile daily data, and if vouchers are lost for any reason, there is no back-up system to ensure that beneficiaries receive nets.

Vouchers need to be designed and produced early to be ready to be distributed to volunteers during their training for the household registration activity. If in-country printing capacity is low (e.g. no facilities to print serial numbers or to print on the type of materials required), the contract will have to be outsourced, which will require additional time for the international tender and the shipping. If logos (for example, from donors) are included in the design it is important to get approval of the mock-up before printing takes place, as many organizations have policies regarding the use of their logo (for example, it must always be printed in colour, or be a specified size). Vouchers might also be an IEC opportunity to disseminate some key messages related to malaria or the campaign. In order to avoid copying of vouchers, some countries also opt to include a hologram or to print the vouchers on plastic material. A two-piece voucher, with one half of the voucher given to the beneficiary and the other half remaining in the booklet, would also help to deter copying.

Sierra Leone. © United Methodist Church

The voucher is exchanged for LLINs at the distribution point. The information provided on the voucher will vary by country but will typically include:

- region, district, village, health facility (as decided by technical sub-committee)
- name of the household head (and name of a second person if necessary)
- number of people in the household
- number of LLINs the household will receive (optional – see below for comments)
- date that the voucher is given out

Generally, the vouchers are compared to the household registration list, checking that the correct number and name of head of household are included, and nets are distributed accordingly.

In the event that a prolonged period of time elapses between the household registration and the distribution, with the risk of voucher loss therefore being higher, the country might decide to accept the national ID of the registered household head as a substitute for the voucher. The complication of this strategy is that without the serial number found on the voucher, it will be much more time-consuming to find the household head's name among the household registration sheets at the distribution site. In addition, using national ID of registered household heads will exclude any households that have not been registered in the national system.

There have been a number of lessons learned in countries using vouchers. Two of the most important are around the inclusion of the dates of the distribution (which often shift for a variety of reasons) and inclusion of the number of nets a household will receive. Household registration data often show a higher need than anticipated during the micro-planning, and therefore reductions in the numbers of LLINs given to each household are made to ensure each household receives at least some nets. In some cases, nets have been distributed on a first-come, first-served basis, but this may mean that families with easier access to the distribution site get priority, so it is a strategy that should be carefully considered.

Countries are urged to consider whether they wish to include dates or numbers of nets a household will receive. In terms of the dates of the campaign, these can be made known through social mobilization and other communication activities (see Chapter 6) once everything is in place for the distribution. In terms of the number of nets, often the LLIN allocation

COUNTRY CASE STUDY

In Senegal, during the first phase of the universal coverage distribution, the number of LLINs the household was to receive was written on their voucher, together with the name of the head of the household. The main reason for marking them in this way was to discourage resale. The registration data, however, meant that adjustments had to be made at local level, with the result that the number of nets a household received had to be capped or reduced. For the subsequent phases of the distribution, the voucher did not list the number of LLINs to be given out, so that any adjustments after household registration would not cause disappointment and confusion during the distribution.

Example of a net coupon from Senegal

COUPON DE GRATUITE

Nom du Bénéficiaire :.....

Nombre de MILDA :.....

Agent recenseur :.....

Date :.....

Village :.....

Signature Agent

Signature Bénéficiaire

World Vision Tostan malaria NO MORE

Date :.....

Suite à la constatation de l'existant, Monsieur/madame----------

chef de ménage dans le village de....a droit à ..... MILDA dans la cadre de la couverture universelle.

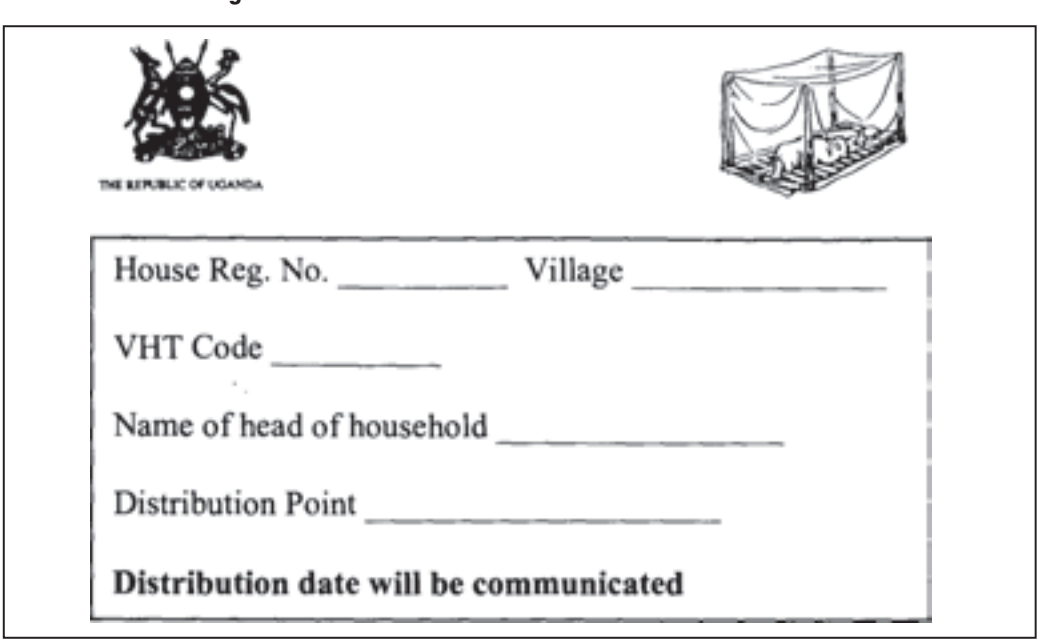
Signature Agent

Signature Bénéficiaire

strategy is changed based on the results of the household registration when it is determined that the number of LLINs in the macro-planning is insufficient to meet the registered need during implementation. If the number of people in the household (not the number of LLINs) is written on the voucher, it is possible to distribute nets according to a modified LLIN allocation strategy (e.g. if there are five people, two nets instead of three are provided) with few problems. Once the number of nets is written on the voucher, beneficiaries know what they are to receive and feel entitled to what is written on the voucher. In order to change the LLIN allocation strategy in these situations, communication is extremely important to prevent problems at the distribution site.

In other countries, the total number of people in the household is recorded during the registration and, following the analysis of the household registration data, the LLIN allocation strategy is determined at the operational level to take account of shortages of LLINs versus registered need. This was done in Senegal in the later phases of the universal coverage campaign.

Example of a voucher from Uganda



COUNTRY CASE STUDY

In Burkina Faso, the number of nets a household should receive was written on each voucher. During the data analysis of the household registration information, it became clear that there were insufficient LLINs to meet the registered need using the planned LLIN allocation strategy. The country needed to develop a communication strategy for explaining to households that, if the voucher gave a figure greater than three nets, they would receive one fewer than had been written. This worked in Burkina Faso to manage the gap existing following the household registration.

Similar solutions were developed at community level in Senegal and Mali. In some communities, nets were capped at 10 per household, while in others, the number of nets was reduced by an overall percentage in order to serve all households.

Many countries have to manage gaps following the household registration and must come up with a local solution. Most often, these solutions are not ideal in terms of the "universal coverage" objectives, but they do serve to meet the operational reality of the distribution at the time.

In countries distributing a fixed number of nets per household, either based on average household size or based on number of people in each visited household, vouchers can be printed to indicate the number of nets per household, either through differentiating by colour or by image.

In other countries with sufficient budget, two visits to each household are undertaken in advance of the distribution. The first visit is to register the household and collect population information. After that information is analysed and the LLIN allocation strategy is finalized, the second visit is to distribute a voucher listing

Example of a voucher from South Sudan

exactly how many nets each household should receive. Burundi did this for their 2010 and 2011 universal coverage campaigns. In between their first and second household visits, the LLIN allocation strategy was revised from one LLIN to two persons to a limit of six LLINs per household. Vouchers were colour-coded to show how many LLINs they represented.

In such cases, it may be possible for countries to know the gap in nets more accurately and to:

- redirect LLINs to areas with the highest malaria prevalence to ensure full coverage while leaving other areas to be covered when additional LLINs are mobilized
- divert routine nets to the campaign
- have a slightly different LLIN allocation strategy in different parts of the country depending on malaria prevalence or LLIN coverage rates

7.6 LLIN distribution

LLIN distribution is typically done through fixed site or door-to-door delivery. Both methods of distribution can be used for integrated or stand-alone, targeted or universal coverage campaigns. When distribution is through fixed site delivery, the organization of the site is a critical component for the success of the activity and safety of the site personnel. It is important to ensure that urban sites are staffed appropriately and that security measures for both commodities and site personnel are planned and budgeted. The number of beneficiaries that can realistically be served per day should be defined during planning (see Chapter 3) so that a sufficient number of sites are organized, which will help minimize overload problems during the LLIN distribution.

Communication activities are important for ensuring full participation in the LLIN distribution and for reminding beneficiaries of the process for receiving nets (e.g. bringing voucher, who should come to the site, etc.). Where dates for the LLIN distribution are not provided

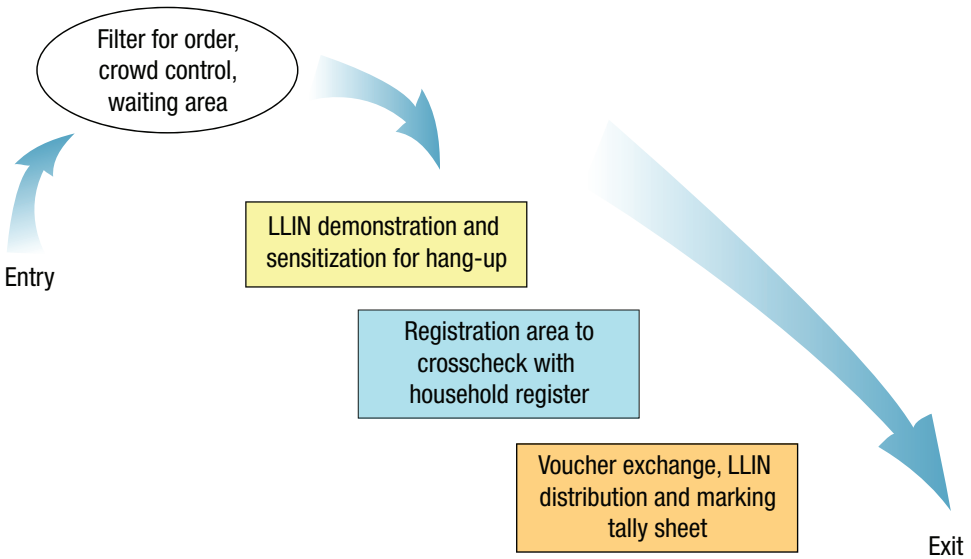
Tchad. © MENTOR Initiative

on the voucher, and even where they are, it is important to disseminate messages about the start and end dates, as well as the hours that the LLIN distribution site will be open. In Chapter 3 (Planning), the parameters for determining the number of LLIN distribution sites were outlined. While the ideal is to serve 150—250 beneficiaries per day, it is common that a higher number will attend sites over the first days with the corresponding need for a higher number of staff.

Where LLINs are integrated with a broader health activity, such as vaccination against measles or administration of vitamin A, fixed site distribution is most common. Door-to-door distribution of LLINs can be integrated with polio vaccination campaigns, but more often, owing to difficulties with transporting the nets, caregivers of children receiving the polio vaccine are provided with a voucher to exchange for a LLIN at fixed sites.

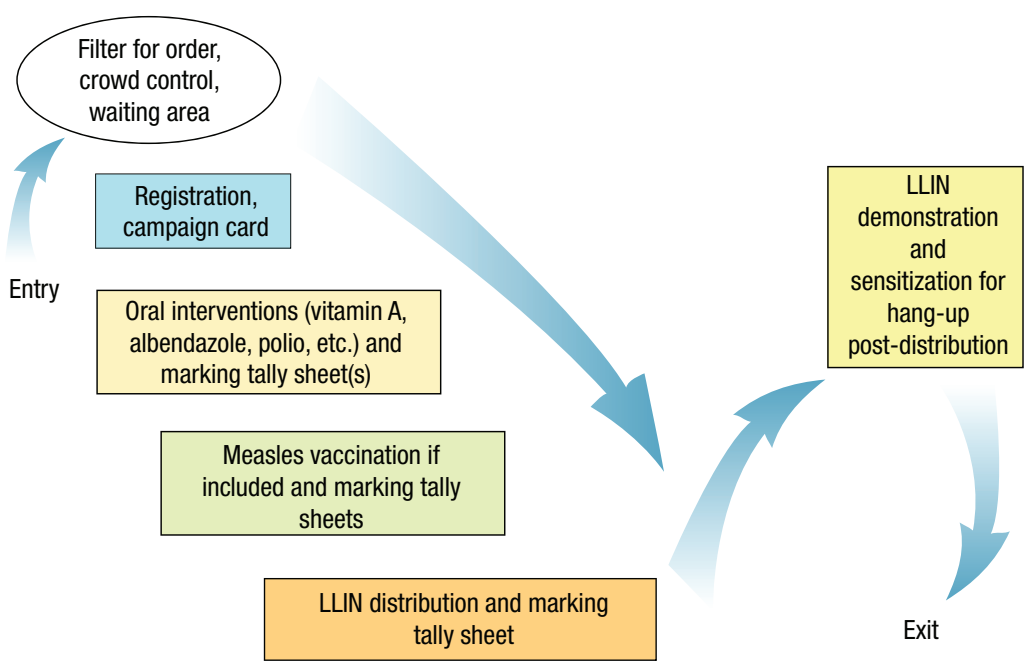
During integrated or stand-alone campaigns, sites should be organized in a way that ensures a systematic flow of the crowd through the

Stand-alone campaign site set-up



distribution site area, with a separate entrance and exit. Waste management during distribution should be planned, including the waste generated from the LLINs (bale strapping, bale wrapping, cut vouchers, LLIN packaging if beneficiaries are not taking packages home), as well as syringes or other medical waste from vaccinations and other interventions.

Integrated campaign site set-up



Sites selected as net distribution points should be familiar to beneficiaries and should be identified with posters, banners or other methods. Where possible, sites should be located in areas that offer some shade, have adequate sanitation facilities and are not in areas of major traffic. To secure LLINs, there should be a lockable storage area, or an area easily protected by security guards.

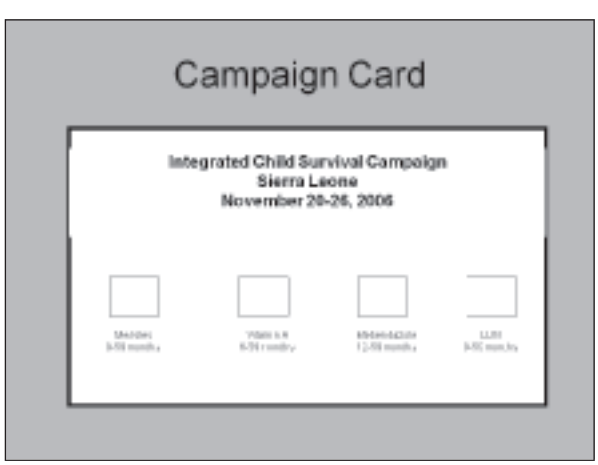
For integrated campaigns, it is important to make each station within the site clear and to make LLINs the last intervention so that beneficiaries receive all other interventions prior to receiving the LLIN. In integrated campaigns, the site structure and stations may include:

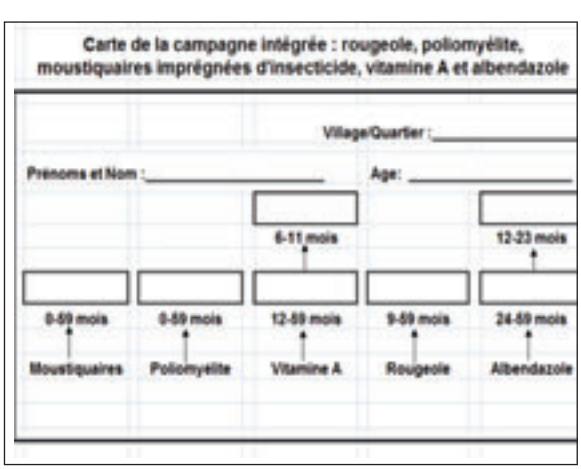
- **Waiting area:** especially for urban areas, it is important to have an area outside the actual distribution site where people can be organized for entry into the site according to the volume of beneficiaries coming in and departing the distribution site area.
- **Registration table:** often, integrated campaigns will have interventions that target specific age groups. The registration table is where mothers come to receive a campaign card for each of their children. The child's name and age is written on the campaign card, facilitating the work of the teams at each intervention station where the card is marked. In integrated campaigns that have used campaign cards, they have at times also served as vouchers in the case of stock-outs during the distribution: where a child did not receive a net, the card was left unmarked for redemption at a health facility after the campaign. Where the caregiver retains the campaign card, it can be used during post-campaign activities or surveys to verify the interventions a child has received.
- **Intervention stations:** each intervention should be separated from the others so that mothers can clearly see the various teams and do not miss any of the stations. At each station, the team will mark that the child has received the intervention, as well as fill out the tally sheets being used to account for commodities.
- **LLIN distribution:** LLINs are placed last in the campaign site and a net is given only when targeted children have received all other interventions.
- **Health education:** in many countries, plans are made for a health education area where messages are disseminated about the importance of routine health service (such as regular administration of vitamin A and completion of the routine vaccination series for children under one), hanging LLINs, and monitoring children for any adverse reactions to vaccines or other interventions.

For stand-alone LLIN distribution, the site structure and stations may include:

- **Waiting area:** as described above. This is a good place to site the health education area. While beneficiaries are waiting their turn, they are a captive audience to hear about how malaria can be prevented and treated and to see a demonstration of how LLINs should be hung and cared for. In some cases, vouchers are marked at the end of the education session so that distributors know beneficiaries have attended the session before LLINs are handed over.

Examples of campaign cards





- **Registration table:** where the implementation strategy includes cross-checking voucher numbers with household registration forms, a registration table may be necessary. Note that this method can cause backlog and crowding if it is not very well organized.
- **Voucher exchange and LLIN distribution:** the main station will be where beneficiaries exchange their vouchers for nets. A box should be used to collect the vouchers from the beneficiaries to allow for cross-checking of vouchers with numbers on tally sheets and stock sheets. Once the voucher has been received, the number of nets allocated to the beneficiary should be handed over and the tally sheet marked accordingly. The volunteer collecting vouchers and/or registering beneficiaries should not be the same person as the volunteer distributing LLINs and filling out the tally sheet. Vouchers should not be destroyed by site personnel, but should be kept and handed over to the site supervisor for safe keeping until the LLIN distribution campaign is complete and data from the campaign have been validated. LLIN packaging should be opened/cut before handover to beneficiaries in order to discourage resale.

All distribution site personnel must be trained to ensure that the site functions well and problems are avoided. Both site personnel and beneficiaries must be protected. It is more difficult to solve problems on the spot once the crowd is on site. Where problems do occur, it is important for the site supervisor to manage them quickly and appropriately. If a problem continues or increases, it may be necessary to close a site entirely in order to make modifications to the organization of the site prior to re-opening the following day. Problems with crowd control, notably in urban areas, can quickly escalate if they are not anticipated, planned for and managed when they occur.

Door-to-door distribution

In some countries, the LLIN distribution is done door-to-door. In these situations, trained personnel take LLINs from a storage point at village level and go to each household to distribute the number of nets required. During the visit, the nets are typically hung in households using the tools that have been provided to the volunteers (nails, string, hammers, hooks, etc.). The logistics micro-planning must be meticulous for door-to-door distribution as the nets need to be as close as possible to where the personnel are working since people cannot carry too many nets at once and will need to replenish nets over the course of the day.

COUNTRY CASE STUDY

In Northern Ghana, nets had been pre-positioned accurately following the earlier household registration activity. For hang-up, a team of two volunteers picked up nets from the sites, together with nails, hammer, nylon ropes, scissors and a stamp pad for fingerprints if beneficiaries could not sign their names. They identified beneficiary houses from the registration details, and marked tally sheets to track hung nets. Entering the household, they greeted household members and showed the necessary courtesies to be allowed into the sleeping places to hang nets. After showing them how to hang the nets, and giving them the BCC messages they had been taught, they folded the hanging nets, and informed households that they should not be unfolded and used until the next day in order to avoid any skin or eye irritation.

Door-to-door distribution has the advantages of ensuring immediate hanging of nets and allowing for interpersonal communication and question and answer between the trained personnel and the household. The possible disadvantages of door-to-door distribution of nets include the heavy workload for the personnel, the possibility of skin or eye irritation if nets are not aired for 24 hours before use and the complex logistics. If personnel are not well trained and well supervised, including those responsible for the lowest storage

sites, door-to-door distribution has the possibility of increasing LLIN "leakage" either through LLINs going missing with all the movement of the volunteers carrying small numbers of nets or through incorrect tracking of LLIN movement on the supply chain management tools.

As at the writing of this toolkit, there is limited evidence that door-to-door distribution is more effective for increasing hanging rates of LLINs.

Accounting for nets and managing stock-outs

A key supply chain management tool is the tally sheet. It is an important tool for both the programme and logistics aspects of the campaign in terms of ensuring accountability (see Chapter 5). Tally sheets can be cross-checked with the stock in and out forms at the storage point, as well as with the number of vouchers redeemed for LLINs. Tally sheets provide a means for assessing what has been distributed and what is remaining, allowing site supervisors to provide early communication to higher levels regarding possible stock-outs or surplus of LLINs.

In the past, tally sheets were typically designed such that one circle on the form was equal to one LLIN distributed to a beneficiary. These tally sheets remain the simplest, and therefore the most accurate, of the variety of tally sheets currently being used (see Resource R7-46). In recent campaigns focused on universal coverage, some countries have modified the tally sheet to a version where the number of LLINs received is noted (e.g. if a household receives four LLINs, one circle is filled in under a column headed "4"). As there is less inherent logic in these alternative methods (versus one circle equals one net), there is a greater likelihood of errors in filling them out. Where alternative versions of tally sheets are being used (see Resource R7-35), it is important for distribution site personnel to practise filling them in during their training sessions.

An important element to consider from the outset of planning is the management of LLIN stock-outs and repositioning of LLINs during the distribution period. Stock-outs are common and are typically related to poor pre-positioning of LLINs, possibly due to use of micro-planning data rather than the more accurate household registration data. However, stock-outs can also be related to the actions of distribution site personnel if the LLIN allocation strategy is not well understood or defined rules are not respected. In some cases, stock-outs can be avoided by anticipating which days will have the highest beneficiary traffic (e.g. weekends, market days, day one of the distribution) and ensuring that extra stocks are available. This is particularly relevant to sites that do not have enough secure storage space to store their allotment of LLINs for the entire distribution period, and instead require daily deliveries and top-ups.

A process should be established for communicating net stock-outs so that site supervisors are clear and consistent on how the situation can be managed. Normally, the daily summary data can be used to assess existing stocks and expected beneficiaries so that possible stock-outs can be flagged to the district team responsible for monitoring the situation at all health facilities. (See Resources R7-47 to R7-51). If this is done, LLINs can be moved in the evening to prevent stock-outs the following day during the actual distribution. Often, however, stock-outs are not foreseen in advance and occur randomly. Each site supervisor should know the person that they should call in the case of this kind of problem at the site.

Communication is very important in the case of stock-outs, whether they are real (there are no more nets available) or related to pre-positioning (more nets are available but not at that particular site at that time). Where beneficiaries have vouchers or other means of identifying them as beneficiaries, clear messages should be disseminated about the need for re-stocking and that they will be told when nets will be available so that they can come to redeem their voucher. If beneficiaries do not have a voucher or other means of identification (e.g. children

under five), it may be necessary to make a list for follow-up once the LLIN availability problem has been solved.

While supervision is important throughout the entire distribution period, it is particularly important in the first days when problems are most likely to occur. Site supervisors must be active and alert to possible issues arising, and supervisors from other levels (district, regional, central) must plan to ensure that sites with anticipated challenges are visited and assistance is provided to keep the distribution on track. A final distribution report should be completed by supervisors (see Resources R7-52 and R7-53).

Waste management

More detailed information on the guidelines for waste management can be found in Chapter 3[f]. For the safety and security of the beneficiaries and the site personnel, it is important that training covers waste management. The disposal of waste, particularly insecticide-treated non-biodegradable materials, such as LLIN plastic packaging, must be planned for in advance.

7.7 Data management

Data collection and data management are crucial in all phases of a campaign, from initial planning and training to implementation and follow-up, and can be problematic given the volume of data that needs to be collected. Countries consistently underestimate the amount of time, the training needed and the amount of work required to ensure both that the data are collected systematically and that they are managed well.

During training, for example, data collected will detail numbers of people trained, dates training took place, results of any participant learning assessments (e.g. post-tests), and so on. Analysis of data will give an indication of the effectiveness of the planning process and of the quality of the training, and should supply feedback for instant remedial action, if required, as well as lessons learned for the future.

With the shift from targeted to universal coverage, given the necessity to determine needs and provide beneficiary identification, the requirements for data collection and management increased significantly. To give an example, when collecting data during household registration activities in a country with a population of 10 million people, with an estimated 2,127,660 households and a planned household registration period of 10 days at 25 households per day, more than 8,500 volunteers would be required, each with a separate household registration sheet for each day (85,000 sheets of paper).

Household registration

The information collected during the household registration is critical to the LLIN distribution, as it is typically used for the pre-positioning of LLINs. Volunteers will collect information on a daily basis, and the sooner that the information can be summarized and sent to the level where it will first be collated (normally health facility), the more quickly the synthesis of the data can begin. Supervisors will need to collect summarized information from the volunteers under their responsibility each day and transmit it to the health facility staff responsible for data management. Data can be transferred through a telephone call or by sending a text message. Where it is possible and sufficient numbers of volunteers have mobile phones, a country may train volunteers to send the information directly by text, but this will depend on network coverage, among other factors.

Regardless of the means of data transmission and to which level the information is being sent, it is important to have a pre-established template and timeline for reporting developed for data management at each level (see Resources R7-38, R7-39, R7-40, R7-41 and R7-43). While health facilities may need to work from paper, in many countries, computers are available at the district or regional levels, and once it is possible to use electronic means for collating the data, this is the preferred option to speed up the process.

Tchad. © MENTOR Initiative

It is recommended that a minimum of two to three weeks is planned for the collation and synthesis of the data from the household registration. Where the household registration data are being used for pre-positioning of the LLINs, the time required to move the LLINs to the distribution points must be determined with the logistics subcommittee before setting the distribution dates.

LLIN distribution

The information collected during the LLIN distribution is important for generating administrative coverage information and allowing for modifications to LLIN (or other intervention) delivery for increasing reach of the campaign. The information from the tally sheets at the distribution sites should be summarized daily by site supervisors and transmitted to the health facility or district level staff responsible for data management. The health facility or district level staff should be able to compare the daily totals from the distribution sites with the expected number of beneficiaries to check progress of the distribution. The review might highlight the need to restock sites, including redistribution of supplies between sites. Where numbers are lower than expected in terms of beneficiaries served, it may be necessary to increase communication efforts or move the site to a different location in order to increase the coverage of the interventions being provided (see Resources R7-48 to R7-51 for examples of collated LLIN distribution data).

Hang-up

If the hang-up strategy involves door-to-door visits by volunteers or community health workers, often data are collected about each household and the hanging and use of their nets. Where volunteers are physically assisting beneficiaries with hanging (not just disseminating messages), it may be important to collect information about how many nets the volunteer helped to hang in order to assess the value-added of the activity. Hang-up data are often considered less important as they do not have a direct bearing on getting the LLINs distributed and campaign personnel are tired by the end of the activities. However, hang-up data can be very useful with targeting further interventions where needed to increase the hanging or utilization rates of the LLINs distributed.

Monitoring and evaluation

During each phase of activities, monitoring should be taking place in addition to supervision. Monitoring data will often take the form of results of rapid surveys undertaken to assess coverage of the activity. Monitoring data must be collected, analysed daily and discussed at the daily supervision meetings to determine actions. Monitoring data are important to direct changes in the implementation of the activity to improve quality, coverage or both. In most cases, monitoring data are not transmitted through the system. The greatest use of the information is for making day-to-day improvements to the implementation of the activity.

For more detailed information on monitoring and evaluation see Chapter 8.

7.8 Hang-up activities

Hang-up activities can take a number of forms, as discussed in Chapter 3. The hang-up strategy should be defined early in the planning period and should reflect the known situation around

LLIN hanging and use in households and the resources available to support this activity. Where use is high, door-to-door hang-up campaigns may not be necessary and mass media communication combined with messaging from community and traditional leaders during specific events may be sufficient. In many countries, LLIN hanging and use rates are low and other actions, such as door-to-door hang-up campaigns to assist beneficiaries with correct installation of the nets, are useful to increase net use.

Hang-up campaigns often involve door-to-door visits soon after a mass distribution campaign. Trained volunteers visit households to help hang their nets if this has not already been done. Volunteers will also inform household members about net use, care and repair. Many countries have run hang-up campaigns in the first week after a mass distribution, but they may also be planned later at an appropriate time (such as the start of the rainy season) to increase utilization rates. Some households will need physical assistance with hanging nets, so volunteers should be equipped with the necessary tools (e.g. hammer, nails, string and ideas for creative hanging strategies in inconvenient sleeping space set-ups). In some cases, nails and string may be included in the LLIN specifications at the time of procurement and will be already supplied in the LLIN packaging.

There must be a sufficient number of volunteers to reach all the households in the target group. Volunteers must be trained to give correct and consistent messages, and to fill in monitoring forms systematically. Supervision of the activities is essential. A job aid (see Resources R7-26 to R7-28) should be developed that will be used during training and by each volunteer while carrying out the tasks allotted. If possible, supervisors should observe volunteers visiting households, and should ensure that they fill hang-up forms in correctly. Hang-up household visit forms (see Resources R7-54 and R7-55) are important to increase understanding of the situation at the household level in terms of LLIN hanging and use. They are also important to show the value-added of the volunteer visits as the form should contain the number of nets hanging at the start of the visit and the number of nets the volunteers themselves hung in the households. Supervision of the volunteer activities during hang-up may include visiting households that have received a volunteer visit to ensure that the correct actions have been taken and messages disseminated. A monitoring form (see Resources R7-56 and R7-57) is useful for ensuring that the supervisors are assessing the same elements while undertaking their activities.

The hang-up activity is very largely a communication exercise, helping raise awareness of net utilization, care and repair, and often providing other health education information to households. See Chapter 6 for further suggestions on hang-up campaigns.

7.9 Supervision and monitoring

Supervisors and monitors at all levels will watch over a particular task or activity being carried out by others to ensure that it is being done correctly and adequately, and will take remedial action if necessary.

The systematic supervision and monitoring of all activities prior, during and post campaign, is an essential element in its success.

Supervision

To ensure consistency across the campaign, supervision checklists should be developed at central level for all activities taking place prior to, during and post campaign. Checklists to be used before the campaign should help confirm that preparations are adequate and supplies and supply chain elements are in place. Chapter 5 describes the steps necessary to ensure that preparations for transport and storage management have been put in place, and that LLINs will reach distribution sites in a timely manner.

Key campaign activity checklist

Checklists remind monitors and supervisors of key campaign activities to observe before, during and after the campaign. Supervision checklists normally focus on (but are not limited to):

Activities	Focus points
Micro-planning	Coordination Target population LLIN requirements Personnel requirements Logistics Communication Map
Training activities	Training materials (e.g. manuals, data forms for practice sessions) Coverage of the content Facilitation Knowledge and understanding of trainees
Communication	Timing for pre-campaign, during campaign and post-campaign activities Social mobilization activities IEC materials and their dissemination to and use by appropriate actors Radio/television spot dissemination Comprehension of messages by target audiences
Household registration	Information given to household members and understood Allocation algorithm correctly applied by volunteer Data collection Data transmission
Logistics	Warehousing of nets Security of nets Transport of nets Arrival of nets and other commodities at lower levels
Site set-up and management	Accessibility Identification Waiting area Shade Sanitation Registration table Intervention stations Waste management Health education/communication Supplies and equipment Transport for supervisors Security of personnel
LLIN distribution	Crowd control and flow Completion of tally sheets Stock control Communication activities Waste management
Hang-up	Information/assistance/communication to households Data collection Data transmission

See Resources R7-58 to R7-64 and R7-34 for examples of supervision checklists.

Example of a checklist from Ghana

Rapid monitoring surveys

A rapid monitoring survey is a non-scientific programmatic tool to help determine quickly whether the target population is being reached by the campaign and to identify any significant gaps in coverage. The Pan American Health Organization (PAHO) originally developed this supervisory assessment strategy for use in poliomyelitis and measles vaccination campaigns. Malaria programmes integrating LLIN distribution with child vaccination campaigns then adapted the methods to identify LLIN gaps as well. During or immediately after campaigns, supervisors identify areas that are at high risk of low coverage due to poor access, weak campaign team performance, inadequate social mobilization or other factors. They then conduct convenience surveys to identify 20 households that should have participated in the campaign. If two or more households were missed during the household registration, then teams can revisit the area to repeat communications activities and address missed households or individuals. If two or more households received insufficient quantities of nets, as compared to campaign guidelines, then the supervisors should discuss the findings with the local team to determine what actions to take, if any, to address the gap. The same can apply to hanging of LLINs in households. Rapid monitoring does not produce statistically valid coverage results. However, as a supervisory tool, it can be very useful to identify under-served areas and validate coverage.[g]

7.10 Key implementation recommendations

- In order to acquire sufficiently accurate and timely information at the operational level, it is recommended that as soon as the plan of action has been validated at the central level, initial communication should begin with the operational levels and funding made available for micro-planning.
- Once finalized and validated at central or regional level, the approved micro-plan and budget must be sent back to the districts and health facilities to ensure that all are working from the same micro-plan at the time of implementation.
- It is important to establish criteria for selection of personnel, and to ensure that they are followed consistently.
- When training, wherever possible, countries should try to limit the number of cascades and ensure standard content is passed down the chain to improve the quality of the training. It is also important to include in the training some system of post-testing, both to check the knowledge and comprehension of the participants and to evaluate the quality of the training itself.
- It is recommended that the number of participants in each training session is limited to ensure that the training environment is suitable for question and answer, plenary discussion and practical exercises such as role plays or simulations.
- The data collected during household registration should be limited to data relevant to the campaign. Any extra information collected increases possible errors by volunteers and complexity of data synthesis.
- Countries consistently underestimate the amount of time, the training needed and the volume of work required to ensure the data collected are managed well. It is recommended that a minimum of two to three weeks is planned for the collation and synthesis of the data from the household registration. Where the household registration

data are being used for pre-positioning of the LLINs, the time required to move the LLINs to the distribution points must be determined with the logistics sub-committee before setting the distribution dates.

Endnotes

a. Reproduced with permission from Programme National de lutte contre le Paludisme de Côte d'Ivoire.

b. Source: Ministère de la Santé du Togo.

c. Logistics and communication are also key activities throughout the campaign. Their training needs are covered in Chapters 5 and 6.

d. When rounding down, the intra-household coverage will be lower than when rounding up. See Kilian A, Boulay M, Koenker H, Lynch M, *How many mosquito nets are needed to achieve universal coverage? Recommendations for the quantification and allocation of long-lasting insecticidal treated nets for mass campaigns.* Malaria Journal 2010 9:330. See: www.malariaconsortium.org/userfiles/file/Malaria%20resources/Netscoverage_malariajournal.pdf

e. "When two nets are allocated to households, the percentage of households receiving one net for every two household members ranges from a low of 11.3 per cent to a high of 35 per cent. When three nets are allocated, the percentage of households receiving one net for every two household members ranges from 15.7 per cent to 43.3 per cent. In nearly all countries, an allocation of two nets per household provides an insufficient number of nets to achieve universal coverage, while an allocation of three nets provides households with too many nets and is an inefficient use of resources." Ibid.

f. See also WHO interim recommendations (WHO Global Malaria Plan – draft publication).

g. See also Luman E et al. *Use and abuse of rapid monitoring to assess coverage during mass vaccination campaigns.* Bull World Health Organ. 2007 September: 85(9): 651. See: www.ncbi.nlm.gov/pmc/articles/PMC2636402