Stakeholder Review

Experiences in Long Lasting Insecticidal Net (LLIN) Urban Distribution Campaigns

NetWorks Project

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Acronyms

BCC	Behavior Change Communication
CCP	Center for Communication Programs
CSO	Civil Society Organization
DFID	Department for International Development (UK)
DHT	District Health Team
DP	Distribution points
DRC	Democratic Republic of Congo
GFATM	Global Fund for HIV/AIDS, TB and Malaria
HH	Household
IEC	Information Education Communication
ITN	Insecticide Treated Net
JHU	Johns Hopkins University
LGA	Local Government Area
LLIN	Long Lasting Insecticidal Net
MEDA	Mennonite Economic Development Associates
MFP	Malaria Focal Person
MOH	Ministry of Health
NGO	Non-Governmental Organisation
NMCP	National Malaria Control Program
PMI	President's Malaria Initiative
PSI	Population Services International
USAID	United States Agency for International Development
VHT	Village Health Teams

Executive summary

The shift from targeted to universal coverage of Long Lasting Insecticidal Nets (LLINs) across a number of African countries has resulted in an increasing number of large scale campaign distributions targeting urban populations.

Distributions of this nature often require a different approach from that guided by the national mass distribution strategy, which has traditionally been developed for the rural context. The differing socio-economic, cultural, demographic, and environmental backdrop of urban areas, when compared with rural areas, has tended to cause challenges during the distribution itself as well as in meeting overall activity outcome targets.

While experience in the conduct of mass LLIN campaigns in urban areas is growing, there has been little systematic documentation of this experience. The objectives of this review were to explore the recent strategies used for mass distribution of LLINs in urban settings of African countries, particularly noting problems encountered and solutions developed, and to propose recommendations to support the planning of effective LLIN distributions in urban settings as part of an overall universal coverage strategy.

Three key data collection methods were adopted: a review of published literature, a stakeholder consultation, and a review of relevant grey literature. Experiences from ten countries were included in this review, selected for their recent experiences in mass campaigns in urban areas: the Democratic Republic of Congo, Liberia, Madagascar, Mali, Nigeria, Senegal, Sierra Leone, Tanzania, Togo, and Uganda.

The results show that recent distributions of LLINs in urban areas across a number of African countries have, on a formal level, tended to largely follow national guidelines. During the micro planning and implementation phases, however, a number of adaptations were necessary in each of the key phases of typical LLIN distributions. There is a need to consider specific adjustments to distribution guidelines to account for factors which characterize the urban context, namely, high population density, enhanced population mobility, the heterogenic nature of urban populations, varied household compositions, heightened security needs, enhanced congestion and other access issues, and a generally different programmatic environment than what is found in rural areas.

To do this, sufficient time and resources must be made available to enable the agreement of, and process for, necessary adaptations, and the intense planning necessary ahead of implementation.

1.0 Introduction

It is currently estimated that over one-third of Africa's population reside in urban areas, and this proportion is predicted to increase to 50% by 2030[1]. Although large heterogeneity exists, it is commonly accepted that the process of urbanization in Africa reduces malaria transmission. This reduction is explained by the facts that urban environments are generally unsuitable for malaria vectors due to the lack of suitable breeding sites and pollution of existing larval habitats, and that there is an increased ratio of humans to mosquitos[2,3,4]. However, there remains a concern regarding urban malaria in areas undergoing rapid and unprecedented urbanization, where large over-crowded areas with poor living conditions exist. Thus there are great variations in transmission in urban settings.

The shift from targeted to universal coverage of LLINs across a number of African countries has meant an increasing number of large scale campaign distributions targeting urban areas. Previously, campaigns focused on distributing to specific vulnerable groups, such as children under five and pregnant women; inhabitants of rural areas tended to be prioritised given their lower access to services and perceptions of lower capacity to pay for malaria prevention commodities. Thus, there is far less experience with mass campaign distribution of LLINs in urban areas, and the documentation and dissemination of recent experiences has been limited. Since strategies for targeting urban malaria must address a challenging and continually evolving context, more research will establish appropriate malaria prevention strategies for urban areas.

The differing socio-economic, cultural, demographic, and environmental context of urban areas, when compared with rural areas, creates challenges during the actual LLIN distribution itself as well as in meeting overall activity outcome targets. Urban distributions often require a different approach from the national mass distribution strategy. Factors such as population density, socioeconomic diversity, security, sleeping arrangements, daytime routines and mobility, preferred communication channels, community structures, infrastructure and health-related behaviours and lifestyles are all factors which determine the shape and process of mass LLIN distributions, and these factors vary considerably between rural and urban areas.

The NetWorks Project, funded by PMI/USAID, has compiled lessons learned from recent mass distributions of LLINs in urban areas of several African countries[5] to inform planning for countries developing strategies to reach universal coverage, which will include urban areas. Given the continued pace of urbanization across Africa and the ongoing challenge presented by urban malaria, it is critical to develop and/or adapt LLIN distribution strategies to more effectively suit the urban context.

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[1] UNEP, 2012 (www.unep.org)

[2] Robert V, Macintyre K, Keating J, Trape J-F, Duchemin J-B, Warren M, Beier JC. Malaria transmission in urban sub-Saharan Africa. AmJTrop Med Hyg. 2003;68:169–176. ALSO Donnelly M, McCall PJ, Lengeler C, Bates I, D'Alessandro U, Barnish G, Konradsen F, Klinkenberg E, Townson H, Trape J-F, Hastings I, Mutero C. Malaria and urbanization in sub-Saharan Africa. Malar J. 2005;4:12. doi: 10.1186/1475-2875-4-12.

[3] Trape JF. Malaria and urbanization in Central Africa: The example of Brazzaville: Part IV. Parasitological and serological surveys in urban and surrounding rural areas. Trans R Soc Trop Med Hyg. 1987;81:26–33.

[4] Hay SI, Guerra CA, Tatem AJ, Atkinson PM, Snow RW. Urbanization, malaria transmission and disease burden in Africa. Nat Rev Micro. 2005;3:81–90. doi: 10.1038/nrmicro1069.

[5] Given the purpose of the review was to generate evidence on the process of large scale, mass campaigns in urban settings, the study scope was not limited to campaigns targeting just universal coverage but also recent mass campaigns targeting vulnerable groups in urban areas.

2.0 Objectives

The objectives of the review were as follows:

- Review the recent strategies used for the mass distribution of LLINs in urban settings of African countries, particularly noting problems encountered and solutions developed;
- Develop recommendations to support the planning of effective LLIN distributions in urban settings as part of an overall universal coverage strategy.

An exploration of, and recommendations for, integrated vector control strategies for malaria in urban settings are considered beyond the scope of this review. Similarly, the review does not intend to make direct comparisons between urban and rural LLIN distribution strategies, although some comparisons are inevitable.

3.0 Methodology

Three key methods were adopted to acquire data for this study; a review of published literature, a stakeholder consultation, and a review of relevant grey literature.

3.1 Literature review

Papers for this review were located through PubMed, Web of Knowledge and Google Scholar searches using combinations of the following search terms: urban, distribution, Africa, LLIN, ITN. Abstracts were screened for relevance, and then related articles read in full.

It is important to note that there was a lack of published literature available concerning lessons learned from mass LLIN distributions in urban areas. The majority of publications found through the search were outcome oriented. For example, these articles focused on campaign impact on vector populations, incentives or determinants of net usage/non-usage, or evaluations of alternative distribution strategies in urban settings. The latter articles covered geographically defined private sector strategies, social marketing approaches, routine or continuous distribution, or the integration of LLIN distribution into other public health commodity delivery systems. Therefore none of these published papers were reviewed in depth. There may be a value in searching papers on other mass campaign activities in urban areas from which lessons could be drawn, but this was not done as part of this study.

3.2 Stakeholder consultation

Selection and recruitment of stakeholders

Stakeholders from ten countries of sub-Saharan Africa, including the Democratic Republic of Congo, Liberia, Madagascar, Mali, Nigeria, Senegal, Sierra Leone, Tanzania, Togo and Uganda, were interviewed for inclusion in this report. The report staff sought to interview stakeholders who had been involved in many recent campaign distributions in urban settings across African countries since 2007. It was especially important to find stakeholders who were involved with campaigns which included both targeted and universal coverage distributions, and/or campaigns that were integrated with the

distribution of other commodities, such as de-worming tablets (see Appendix 5 for details). The report staff also attempted to meet those who played key roles in planning, implementing, and reviewing the distribution. These included key implementing or technical support partner(s), usually NGOs and UN agencies, and representatives from the Ministry of Health, usually the National Malaria Control Programme (NMCP). Once stakeholders were identified, the reporting staff asked them to nominate others who might be appropriate to consult (the snowball sampling method); if time allowed and these individuals were accessible, they were interviewed as well. A full list of stakeholders interviewed can be found in the Appendices. Efforts have been made to protect the confidentiality of stakeholders where quotes are reported.

Interviews

The interviews were semi-structured, using a "Topic Guide" (see Appendix 2) to ensure that all subjects were covered, and also to help prompt the interviewee during the discussion. The various categories of the topic guide were chosen to reflect the different phases of campaign distribution. This also assisted interviewees in describing the campaign process from beginning to end. The Topic Guide was adapted from a guide used in a recent evaluation of the urban distribution strategy in Uganda[6], which was also piloted prior to use. Interviews were conducted in person, by telephone or by Skype, and generally lasted 60-90 minutes. Where possible, attempts were made to interview individually to encourage transparency in response. Transcripts were developed from shorthand notes or recordings of the interviews. All interviewees signed a consent form which explained the purpose of the review and how the information would be used and managed (see Appendix 4).

3.3 Review of grey literature

As the stakeholders were interviewed, the interviewer asked for references to relevant documentation related to the urban distribution in question. Copies were requested and where possible, obtained. In this way the interviewer was able to accumulate grey literature such as post-distribution survey reports, detailed diaries of net distribution activities, and minutes of meetings, as well as journal articles.

3.4 Analysis

Information from both the stakeholder transcripts and the grey literature were analysed together using a qualitative approach whereby both common themes were identified and the content organized into broad categories which related to the phases of a campaign distribution as well as additional categories which were created based on the data.

[6] Report on the Qualitative Evaluation of the Global Fund Round 7 LLIN Distribution Activities in the Urban Areas of Kampala and Wakiso, Uganda, 2010, Malaria Consortium/Stop Malaria Project, PMI/USAID, Uganda Ministry of Health, 2010.

4.0 Results and discussion

Since there were no papers taken forward for in-depth review as a result of the literature review, this section presents the analysis results from both the stakeholder consultations and the review of the grey literature. This section is broadly structured, based on the usual distinct phases of mass campaign distributions with some additional sections added which were deemed useful.

For each key campaign distribution phase, we attempt to present the approaches or strategies adopted, noting challenges and related solutions. Recommendations to support the planning of effective LLIN distributions in urban settings in the future will be addressed in the subsequent section.

4.1 Adaptation of existing strategies for urban distribution

For the most part, countries creating a program for urban distribution did not, during initial planning, enter into a formal process of adapting rural distribution to suit an urban setting. This was largely due to time and resource limitations, and also perhaps due to a limited understanding of the need for any adaptation. In most countries, however, informal changes were made either during planning or while the actual distribution was in process, in response to specific urban related challenges which arose. These are highlighted in the appropriate sections of the report.

> *"We looked at the application of the model – and we considered the workload of people in the towns and we looked at the supervision model for rural areas and considered what needed to change. We considered increasing the number of distribution points – we also feared to have many people together because of terrorism concerns at the time."* **Uganda interviewee**

In some countries, there were adaptations made during the planning phase to behavior change communication and social mobilization strategies, in anticipation of the need for such changes. These changes were made based on the country's previous experiences in conducting health campaigns in urban settings. These adaptations are covered in more detail in section 4.6 below.

After the campaigns were completed, there was a general agreement across most countries that, for future projects, changes were needed to the distribution guidelines. Some countries which were conducting several phases of distributions in urban areas stated that lessons learned in early phases would be applied, or had been, to subsequent rounds. In Nigeria for example, respondents reported that while the national strategy did not have an overall component specifically addressing urban settings, the strategies were broad and flexible so that lessons learned could be incorporated into them. In Tanzania, a short, separate distribution plan for Dar-es-Salaam was later developed to address challenges faced during previous distributions. This plan outlined issues specific to urban settings.

4.2 Central level coordination

In all countries covered by this report, the central level coordination was handled by a national level coordination or steering committee, comprised of Ministry of Health personnel and technical support or implementing partners, usually NGOs and UN agencies, and other stakeholders. In some cases, stakeholders included the police commissioner or civil defense, due to the large populations being targeted within a defined space, as was the case in Nigeria and Uganda. There were usually sub-committees created to take over responsibility for the central coordination of specific aspects of the distribution, such as technical, logistics, BCC and social mobilization, and finance and resource management. These committees were also responsible for taking forward relevant macro planning.

While multiple partners are involved in both urban and rural planning processes, it was generally felt that for urban areas full stakeholder buy-in was more important, and also more of a complex process. In Nigeria, for example, a stakeholder mapping and communication matrix was developed to facilitate stakeholder coordination. Early planning and inclusion of partners included preparation and approval by all partners of detailed plans, including itemized budgets. Full attendance at planning meetings and strong leadership of planning committees was found to be valuable in ensuring a smooth operation. In urban areas, respondents from at least two countries expressed the need for more regular coordination meetings to discuss issues with the distribution process. In Tanzania, after experiencing difficulty with earlier distribution programs, regular meetings of the distribution taskforce were scheduled to deal with problems.

Respondents in Nigeria found problems when including partners later on during the planning phase, since they did not always fully understand the distribution process and sometimes passed incorrect or inaccurate messages to their communities. Lack of clarity of roles and responsibilities among various stakeholders was also a key challenge mentioned by some interviewees. In Mali, many of the difficulties faced during campaign implementation were linked to confusion over finalization of plans and budgets during both macro and micro-planning.

A few countries, including Nigeria, Sierra Leone, and Senegal, also reported that the coordination and follow up of plans was easier in urban areas, due to the proactivity and professionalism of the stakeholders involved.

> "*Once they get the checklist of things they need to do, follow up is easier than in the rural areas. In the peri-urban and urban areas, it is easier to share responsibility, but in the rural areas you have to be there all the time. In the urban areas, there is a different level of instruction and understanding – although they may be[busier and therefore] less available*" **Senegal interviewee**

4.3 Macro planning

Macro planning involves the development of the national campaign strategy, including activity timeline, quantification for personnel and commodities, and overall budgeting. Micro planning involves organizing the day to day tasks that need to get done in order to run the campaign. These two phases are not usually combined, but in some cases, they were merged due to the need for involving a large spectrum of stakeholder in the central and local levels. This was the case in Uganda and Mali.

While, as discussed above, there were most often no formal revisions made to the distribution guidelines during macro-planning, the planning teams made sometimes made practical changes to the distribution plan in consideration of the urban context. For example, changes were made regarding the number of households to be reached per day, the number of days to be allocated for the distributions and the personnel required the categorization of distribution point catchment populations, and related storage and supply chain implications. These adaptations are covered in more detail in the relevant sections below.

The geographical and administrative units that were used as distribution point catchment areas were adapted for the urban distributions in some countries to take into account larger population densities and logistical constraints. This was true in Uganda and Togo. In other countries, such as Nigeria, the distribution units remained the same, yet they each served significantly larger populations – some of the wards served up to 7,000 people. Many cities also had geographical and administrative units which

included rural, urban, and peri-urban areas. The way in which specific areas were categorized was usually decided during the macro planning phase, with further categorization of specific distribution point catchment populations categorized as rural or urban during micro planning. This categorization was important to guide resource and personnel allocation and to inform distribution processes.

> *"Parishes for Kampala we considered all urban and we elevated the sub counties to gain district status for the purposes of the campaign. The parishes were taken as sub counties. Then we planned like that"* **Uganda interviewee**

> *"We divided Lome into five communes for the campaign rather than just taking it as one so you have to train five groups of people for Lome."* **Togo interviewee**

> *"In the big cities, we must divide the areas. We need to divide the city into many neighbourhoods to do things to achieve an orderly distribution. For Tamatav, it is one urban commune with a lot of inhabitants and several foktanys and these are divided into 'parcelles' or sites. In rural areas, we combine a few foktanys into one site but it's the opposite in the urban areas. So in Tamatav, we needed to divide the foktanys even more to make the distribution easier. In the rural areas, there was just one distributor."* **Madagascar interviewee**

Challenges in estimating population numbers was a common challenge during the macro planning phase. The fast growing nature of many African cities meant that the population estimates which were routinely used, for example when planning rural based distributions, were often considered under-estimates. In some cases, data was required from a range of sources, including project census data, survey data, and in in some cases routine health system monitoring data, to develop population estimates that all stakeholders agreed on.

In some countries, budgets were adapted to recognise additional requirements in urban areas relating to storage, personnel and commodity quantification, and security, but in other cases they were not, which led to later challenges during implementation, as addressed in more detail in later sections. In many cases, respondents reported that budgeting values were often underestimated and people were consequently often underpaid for their work, causing low motivation among workers and delays.

It is important for macro planning budgets to clearly specify the amount of funding available for people involved in each stage of the campaign, how many people will be required, and the duration of their involvement. The cost of time did appear to differ in rural and urban areas; individuals involved in planning, implementing, and supervising the campaigns were often engaged in other formal employment and tended to request a larger reimbursement for their time.

The role of politics in macro planning was a common theme in many of the interviews. In Uganda and Nigeria, the campaigns occurred at similar times as elections, and therefore macro planning required a careful balance to involve political leaders in recognition of their role in the community and to raise the profile of the campaign, while ensuring the campaign itself was seen as politically neutral.

> *"In urban areas they [political leaders] want to make a name for themselves and to be famous… they are competing for recognition"* **Uganda interviewee**

> *"Political leaders have the authority to stop all campaign activities in the state. We realised a bit late the level of involvement needed for the political leadership"* **Nigeria interviewee**

"It would have been a big problem if [the campaign] had gone wrong – politically" **Tanzania interviewee**

4.4 Micro planning

The micro planning phase is usually initiated when the overall campaign strategy, the output from the macro planning phase, is taken to the implementation level for detailed planning. As highlighted above however, the initiation of this planning phase is not always clearly defined.

It was generally reported that in urban areas, micro planning needed to be more precise than in rural areas, and as such required more time. A point emphasised by all interviewees was that effective planning was crucial to the success of the distribution, perhaps more so than in rural areas.

While it is generally simple to identify the local leadership in rural areas to be involved in the micro planning phase and to support the distribution, this can be challenging in urban areas. Many of the elected local representatives may also bring political motives to the campaign or may be keen to be involved yet not have sufficient time available.

"In the urban areas, because there is a different level of instruction and understanding, it is easier to share responsibility… however, even though you have people with a higher level of instruction, they are less available" **Senegal interviewee**

"In the rural areas, the local chiefs were heavily involved in the planning to ensure security and to help with the movement of nets – the community member carried them on their heads. In the urban areas, we met with councillors who are politicians and the idea is that each politician makes sure that the constituency is covered. The chiefs are not there in the urban areas – instead of chiefdoms, we have zones and wards which are bigger. The councillors play a different role to the chiefs. They are chiefs because they come from a family who are supposed to be chiefs but councillors are elected." **Sierra Leone interviewee**

There was also a range of operational issues in planning the specific phases of the campaign which differ between rural and urban settings – these will be addressed in detail in the relevant sections below.

4.5 Training

Cascade training was generally conducted beginning at the central level, with Training of Trainers. Those trained then went on to train others at subsequent levels, with the last level of trainees being the individuals who would actually conduct the LLIN distribution, such as community health workers. Training materials used for urban LLIN distributions were largely the same as those developed for rural distributions, with some specific changes highlighted, and most respondents mentioned that there had been considerable discussion during training on specific points related to the urban context. Strategies to support full registration of households, crowd control issues, contingency plans for non-registered households attending the distribution, and a possible shortage of nets were some of the common discussion topics. The training sessions in urban areas were reported as more participatory and lively than those in rural areas. None of the respondents specifically suggested adapting the training curriculum or other materials to better suit the urban context.

Respondents across some countries noted that general competency tended to be higher among the urban trainees than in rural areas. A Nigerian respondent noted that this was necessary given the extra demands placed on those leading the distribution in urban areas.

> *"We also needed … scenario type questions for mobilisers as we expected people to be more curious which was probably more to do with levels of awareness … related to education status which you would expect to be higher in urban areas"* **Nigeria interviewee**

> *"The ASCs [community health workers] in the cities have a higher intellectual level than those in the rural areas. The ASCs in the rural areas have studied some and are considered 'intellectuals,' but in the cities, they are university and high schools students and have a higher level and usually other employment ready. This was the difference."* **Togo interviewee**

On the other hand, because of higher levels of education and experience, it was reported, such as in Uganda, that participants were sometimes perceived to be "uninterested" or felt that they "already thought they knew" the material.

The large number of people needing training at different levels was mentioned as a common challenge. In Uganda, the large trainee class size reportedly compromised the quality of the training. In Tanzania, there was a larger number of local leaders who were trained, thus adding to class size. In Nigeria, more participants meant that training courses needed to be "decentralized" in order to reduce the class size. Respondents from Nigeria also emphasized the need for residential (i.e. hotel based) training courses in order to ensure the full attention and participation of trainees.

Trainees often complained that the training sessions were too short. This was reportedly due to budget constraints or the lack of effective budget preparedness. . The larger class size also often made each session longer.

The content of the training also came under question in Uganda, with respondents noting an over-emphasis on the technical side over the logistical side. They wanted to learn more about transport, storage and security of nets, registration, and the allocation and distribution processes, particularly given the logistical challenges of urban distributions.

> "*We do need to think about focusing on the logistical side and not the technical bit – people know the story of malaria now – especially in the urban areas. There is a need to focus on finance management, have more of a logistical focus and the planning and organisational skills of the supervisors needs more attention*" **Uganda interviewee**

4.6 Mobilization/ pre- and post- campaign communication

In most countries, there were significant differences between rural and urban distribution campaigns in terms of the objectives of the communication activities, the communication channels, and the influentials involved. Experience gained from urban communication campaigns for other purposes was drawn upon during the planning phase.

The overall objective of the communication strategy across the countries, in both urban and rural areas, was to prime (or mobilize) the population ahead of the actual distribution. However it was generally accepted that in urban areas people were familiar with mosquito nets and already understood their importance in enabling family protection from malaria. Therefore communication activities were more

focused on reminding people to use the nets. In contrast, communication strategies targeting rural populations would typically include a more educative element to explain how the nets work and why they are important. Some respondents, such as from DRC and Uganda, also made the point that communication was needed more in urban areas to encourage registration and distribution in order to address and counteract rumours which could easily be spread around the aims and process of the distribution (see below for more details).

The communication channels used differed significantly between rural and urban areas. In urban areas, it was suggested that "word of mouth" is less effective for information dissemination, largely because urban communities tend to be less tightly connected than in rural areas, and urban areas encompass a larger range of languages and ethnicities. In DRC, Liberia and Nigeria, respondents described how communication in rural areas is relatively easy because people respect messages, such as from village leaders or community health workers, and tend to proactively pass them on. In Tanzania, respondents described how health educators needed to be more "credible" in urban areas if their messages are to reach their audiences. Respondents from Uganda also noted that in urban areas women tended to have more household decision-making authority with regard to public health issues than in rural areas, which was useful to consider when planning communication activities.

> *"The whole process of mobilization was challenged because of the issue of social structure within the urban settings being so different to rural areas"* **Nigeria interviewee**
>
> *"Women pay more attention to [issues affecting family health] in urban areas – yet in rural areas, it is the man"* **Uganda interviewee**
>
> *"In rural areas, people listen to the community health workers but in urban areas, we need to use mass communication channels."* **Liberia interviewee**

Respondents reported that a variety of communication channels were needed in urban areas in order to reach the diverse population. Depending on age and socio-economic status, different groups will access specific media, including radio stations, television channels, newspapers, or loudspeakers. In addition, in some countries (Nigeria, Sierra Leone, and Tanzania) events in which large crowds gathered were reported as being particularly useful, such as disseminating messages at football game half-times and at religious events. In some countries, launch events for the net distribution were also tagged onto other events, with the aim of saving cost and maximizing population reach.

> *"We need to realise that urban areas do not have homogenous populations and we need to adapt our communications to different areas for example slums, middle-class and high-brow areas"* ***Nigeria interviewee***
>
> *"It is a question of the avenues. In the urban areas, we have the TV and radio. In the rural areas, you rely on town criers and street mobilisers who remind people of things. Also we have the drama groups who move from village to village. In the urban areas, we also have national events –this is the avenue which brings awareness. In the urban area, we also had the president and his councillor members to create awareness."* **Sierra Leone interviewee**

Uncertainty around message "reach" in urban areas was an issue in most countries. That is, once messages were disseminated it was not always clear whether people had received them, due to the mobility of the population and the range of communication channels available. Many countries

expected that a high number of households were not reached. However, none of the countries evaluated message reach or penetration.

In urban areas, higher rates of literacy and levels of education generally led to demands for more detailed and complex information. Respondents across the countries reported the importance of anticipating the questions that might arise about the nets and about malaria, and the value of being prepared with effective responses. In Uganda and Nigeria, training of health educators and those distributing the nets included scenario-based questioning from users.

> *"The urban area, they have information, they raise questions, they are curious, they have money to call into radios. The beneficiaries sometimes know even more than the VHTs [Village Health Teams] – they are informed – it is not the same in rural areas"* **Uganda interviewee**

The scheduling of communication activities was highlighted as a key issue by a number of countries. Communication activities in most countries took place at specific points in time, such as pre-campaign (mobilization), during, or post-campaign (follow up), and were usually not continuous. However urban populations are well placed to benefit from ongoing reminder messages because of regular access to communication channels with wide reach such as popular radio stations and TV. Identifying the optimum timing for the mobilization was also highlighted as key by some respondents, particularly with regard to urban populations. Dissemination of messages at the distribution points was identified by some as challenging, which has also been the case with rural distributions, largely due to the presence of large crowds and other distractions, and the distribution team members prioritizing other, more pressing, activities.

> *"The 'teaser campaign' that was expected and included in the work plan was materialised – it helped us but if anything it groomed the community and they became demanding. The teaser campaign was put up and ended before we got nets – but it was meant to end with what you are teasing them about – so this time, the nets. You were taken as if you weren't honest and then next time, they doubt you"* **Uganda interviewee**

> *"They are excited about the nets [at the distribution points] – when they get, they go. They don't listen"* **Uganda interviewee**

Some countries, such as DRC, also found that their communication campaigns evolved during the process of the distribution to counteract rumours or issues that arose. For example, campaign organisers discovered that people were selling their coupons for free nets. As a result, two additional radio spots were released to remind people that nets would be distributed free of charge to registered households.

The issue of coordinating communication activities with other technical and logistical activities of the net distribution was also raised, particularly from Uganda. It is important that this coordination takes place at central level and trickles down to the field level, yet there can be a tendency for communication activities to operate as a parallel program.

> *"The issue really was on aligning the communication activities with the other activities – they weren't always together. We were sometimes delayed because of availability of funds and the communications side didn't always have the same plans necessarily...[for the mobilisation] the communications team would go without information regarding dates for the distribution and other*

plans. And the technical people went without communications materials. The teams were also being supervised by different people. Next time we need to move together and have one implementation plan with the district" **Uganda interviewee**

Similarly, the need for communication activities to be well planned to enable effective and concurrent roll out across different locations was highlighted as critical.

"We were also running concurrently in both districts and when it came to using the film vans, the film vans were limited – we had maybe two or three. If you have started distributing leaflets here and community talk shows there then others complain that you didn't start with them first" **Uganda interviewee**

4.7 Registration and allocation of beneficiaries

Registration was one of the most problematic phases of net distribution in urban areas and several countries had to adjust their strategies, both in a planned manner (during micro planning) ahead of registration initiation, as well as on the spot during the activity to address challenges. Some of the key issues which arose included: a lack of accurate household lists to guide in registration and to identify borders of geographic and administrative units (and thus distribution point catchment populations), difficult access to higher socioeconomic urban populations, the mobile nature of urban populations and related accessibility, varying household compositions, and falsification. Other more frequent challenges with registration which may affect urban as well as rural areas, such as counting and validating sleeping spaces and the inclusion of institutions such as schools and prisons, were not given focus during the interviews and will not be discussed in depth here.

All respondents reported difficulties in estimating population sizes when calculating how many nets they would need. The lack of availability of accurate and up to date demographic data by administrative units in urban areas (sometimes helped by household lists), as well as the presence of informal or slum areas, and a typically very mobile population, meant that official population estimates were often far lower than the data collected during registration. In Sikasso, Mali, the actual population was found to be double that in the most recent official estimate. In DRC, specific population groups such as the military, police or island populations were also described as "permanently migrating."

"Estimations are difficult, there are no permanent settlements" **Tanzania Interviewee**

Challenges in defining administrative boundaries due to the lack of up to date demographic data affected registration during many of the campaigns, largely because it was not always clear which distribution teams were responsible for which areas of the city. There were also fewer indications on the ground of administrative boundaries, as opposed to the way that villages are clustered in rural areas. Some attempts were made to redefine boundaries around smaller sized units for the purpose of registration. In Uganda, for example, all administrative areas were "upgraded" by one level, so a parish was considered a sub county according to the distribution guidelines; in Tanzania, one urban street was taken to be equivalent to a rural village.

"Mapping of the urban areas is a nightmare – the overlap, people being missed, being counted twice. You see houses on the street but it can be difficult to work out where people actually sleep" **Senegal interviewee**

In most countries, respondents reported that higher socioeconomic areas in cities were difficult to access, as guards or the beneficiaries themselves would not allow volunteers to enter houses to assess sleeping spaces or to register residents. While questions may be raised over the extent to which higher socioeconomic groups should be targeted, according to universal coverage all households are to be targeted. It was estimated that around 40% of Kampala's residents in Uganda were not registered, many of these people being from higher socioeconomic groups, largely due to access issues as well as suspicion from urban residents. This level of suspicion was actually related to the forthcoming election and possible political motives behind the campaign. In DRC, the "Medicin Inspecteur de Province" in Kinshasa resolved the problem of access to high socioeconomic areas by assigning a well-known doctor who usually attended residents in those areas to carry out registration. Low registration numbers not only result in lower coverage levels but also present logistical and site management challenges given that unregistered residents may later expect to receive nets during the actual distribution, as was the case in Nigeria.

> *"In Lome, I must say, it is the entirety of the population – all ethnicities, foreigners, everyone. We find all social categories: poor, rich and all. The whole population is taken care of, but there are people in the big villas, in the richer areas, who refuse to let people in."* **Togo interviewee**

The issue of how political affiliation affected registration was not always limited to higher socioeconomic groups however.

> *"In these [higher socio-economic] areas, it was difficult to find people to take the roles of LC1s [Local Council 1s, village leaders] and VHTs [Village Health Teams] so we had to find others – but we could not always trust these people. And some people did not want to be registered as they equated net distribution with politics – especially if the people doing the registration were politically motivated and we could not control this. However politics was positive in a few places – people were keen – they made sure everyone was reached"* **Uganda interviewee**

> *"The campaign was being influenced and people were not being registered because of affiliation with different parties"* **Tanzania interviewee**

As is highlighted in the quote from the Ugandan interviewee above, while Village Health Teams have proven valuable in LLIN campaigns in rural areas, they appear to have a smaller role in urban areas, particularly those dominated by higher socioeconomic groups. Individuals in urban areas have access to, and preference for, other health services and so many will not seek assistance from VHTs. VHTs, where they are functional, may not be well known by urban populations and so may face difficulties in accessing homes during registration and follow-up. Local leaders in urban areas tend to also have other jobs and other commitments, and so are more stretched for time.

> *"The VHT structure does not work in towns – they are not well known like in the villages. The beneficiaries also look at the value of the net compared to the value of exposing their home to potential thieves"* **Uganda interviewee**

> *"It is important to get volunteers from the areas - they can register people when they are there, such as in the evening"* **Senegal interviewee**

For urban areas, it was discovered that the optimum days and times for registration differed considerably to those in rural areas, largely due to the mobile nature of the population. Many people are

away from their homes and working during the day, and thus if registration was not conducted at weekends, in the early mornings or the evenings when more people were more likely to be home, considerable proportions of community members were missed. There was also the challenge of people moving into the city during the day then back to more rural areas at night, where they usually resided. In some countries, more days were needed to re-visit missed households at more convenient times. Because of these accessibility issues, the urban-based registration often took much longer than anticipated. Two countries, however, Liberia and Sierra Leone, reported a faster registration process in urban areas compared to rural areas, given the rural areas can be sparsely populated.

> *"In the future, we would still have two weekend days but add other working days for the registration"* **Uganda interviewee**

> *"Registration was the same [as in rural areas], but the number of days is different. It takes more time in rural areas as communities are far apart. In urban areas, it takes less time as we can use motorcycles."* **Liberia interviewee**

There were also differences between urban and rural campaigns regarding household composition, and this had an effect on registration. In urban settings, households were generally closer together, and some could be missed because they had not been identified as separate entities if, for example, they were in the same compound as non-residential buildings or other households. Some of the urban areas included in this review were also found on average to have smaller household sizes than in rural areas, due to increased single person households. This can have the effect of increasing overall net need, given that each single person dwelling requires one net. In some cases, such as Nigeria, where there were proportionally larger numbers of older men living alone who could not afford to marry, single person households were also not considered eligible for nets. Conversely, other countries reported higher numbers per household in urban settings, such as was the case in Sierra Leone.

> *"In urban areas we had more single individuals sleeping – but looking at the definition used during the rule out process, these would not have been included."* **Nigeria interviewee**

> *"The population per household is higher in urban areas because of the setting of the housing – we have shanty towns etc. All those kind of scenarios also make it very difficult to know who is where. We insisted on going door to door. Registration did take longer in the urban areas."* **Sierra Leone interviewee**

Finally, in terms of challenges faced, there were some instances across the countries of falsification during the registration process with the aim of the receiving extra nets. Individuals either reported additional people living in the household, created additional households, or hid existing nets. Some respondents expected such falsification to be more pronounced in urban than rural areas. Where nets are allocated according to uncovered sleeping spaces, it was sometimes difficult to get permission to enter households to validate the number of nets required.

> *"In the urban areas, we have a 'virtual gap' i.e. there is more hiding of nets because people want more nets."* **Senegal interviewee**

Respondents described various ways of addressing challenges they faced with registration. The timing between registration and distribution is critical. Respondents cited a need for separation of registration and distribution activities to enable sufficient time to analyse registration data, allocate nets to

distribution points, and prepare for the distribution. Yet on the other hand, they also noted that this delay should not be too long because of the dynamic nature of urban populations and because registration is often combined with the mobilization of the population.

Tanzania adopted some alternative registration strategies to address issues that had arisen during earlier distribution rounds. First, the number of days for registration was increased. Secondly, in Dar es Salaam, two rounds of registration were held, the first by volunteers who issued coupons at household level, and a second which was preceded by a communication campaign requesting unregistered people to go to their village executive officers for registration (usually termed a "mop up" exercise). The second round of registration took place three weeks prior to distribution. This alternative registration strategy, which was considered more successful, required strong coordination. First, coordination was needed between partners working on different components of the distribution; secondly, strong communication coordination was needed to tell communities when the registration and distributions were to take place.

Some respondents suggested that given the challenges of urban registration, registration should be centralized, as should distribution. It would be important, however, to recognize the potential for significant under-registration with such a strategy.

Few issues were identified regarding allocation of nets. Respondents from Uganda however did note the extra time required to process and validate the registration data for allocation, given the overall quantity of registration data. Data entry at the point of registration would speed up this process, limit the time lag between registration and distribution, and enable more effective validation.

> *"With so much data for the urban areas, the supervisors also cried. It took a little longer. Any attempts to verify those figures took time. Next time we could enter the data at household level so it is cleaned up and faster"* **Uganda interviewee**

4.8 Distribution of nets

Distribution points were generally well frequented places, such as schools in Senegal, EPI vaccination points in Tanzania and health facilities or schools in Uganda. Generally, it was reported that the distribution points were well chosen during the micro planning process. Often more than one distribution point was identified for each administrative area, whereas in rural areas, there would have been only one.

Urban area distributions generally required an increase in security arrangements while the LLINs were in storage and on the distribution day. Traffic and congestion often meant that nets had to be stored as close as possible to distribution points, often bypassing higher-level, more central storage facilities, in order to avoid the net delivery being held up in traffic. Therefore, there was a much higher density of storage sites than is the case in rural distributions. Many countries hired security companies/officials for central or regional stores, and entrusted nets at distribution points to local officials. While the security arrangements were more logistically demanding, many of the security issues raised related to the distribution points themselves, where it was difficult in some cases for the guards to protect the nets, given the large crowds.

Crowd control was crucial to the smooth running of the distributions. Some countries used physical barriers and created a "buffer zone" between the waiting area and the distribution area. At some

distribution points, security guards were employed to guard the main stock of nets, and someone would send out more as needed to the front desk.

> *"Security of nets at points of distribution was also not guaranteed. We needed to plan for daily deliveries. The level of distribution sites were also different – in urban areas, because the structure needed to have more security considerations in place, we had for example 3 or 4 outlets aggregated at one point. At one post, 7,000 nets were given out in one day. Security I would say was one of the main considerations and a real challenge at some sites."* **Nigeria interviewee**

> *"In some places it was calm, in other areas it was chaotic as always. Some people were given nets over a fence or through a window. Some people didn't sign. There was a disconnect between those with the nets and those with the registration lists – in rural areas, this doesn't happen as they are together"* **Uganda interviewee**

> *"Yes, the security. Because as we discussed in Tamatav, there were people who were not registered for their nets so there were areas where we had to stop the distribution and start up again a few days later because there was too much disruption… In urban areas we can also organise the police and gendarmes and mayors and commune leaders. We didn't plan for this in 2009 or 2010 – we didn't call on them."* **Madagascar interviewee**

Inadequate registration was an issue that many countries had to deal with. In order to resolve the issue of poor registration, most countries increased the numbers of buffer stocks available at urban distribution points in anticipation of high numbers of unexpected beneficiaries. Across countries, it appeared that non-registered people were allowed to receive nets if they came to the distribution point, provided that community leaders were able to validate that they lived where they claimed to. In some countries, though, this was a problem because the leaders were not acquainted with all of the community members. In other countries, such as Senegal, the proportion of non-registered attendees seemed to vary little between rural and urban areas.

> *"We had an extra buffer stock of nets knowing registration was not done as well"* **Tanzania interviewee**

> *"I would say that more people tend not to be registered in the urban areas compared to rural areas but it is a bit difficult to generalize. We identified leaders of communities to identify missed people in urban and rural areas after the distribution – this list informed the mop up process – which was essentially the same for both rural and urban areas. Follow up was more effective in rural areas. We relied on stakeholders who had been engaged during mobilsation process i.e. community leaders from women's groups or traditional leaders would call meetings etc. The assistants were less well formed in the urban areas – community volunteers were largely representatives of women's groups but it depended who was active in the area. There are the challenges in getting people involved in urban areas due to access. You can get access to traditional leaders in urban areas but also their strength of influence is less than in rural areas."* **Nigeria interviewee**

In Uganda, due to the large number of distribution sites, traffic congestion and high density living, which affected access including road breadth, the team paid more attention to planning the transport of nets. This enabled simultaneous distribution to a large number of distribution points.

> *"We needed smaller trucks to go to more places, rather than giving two or three large trucks which would have caused delays at distribution points. At night they could not offload, so they kept until the next day"* **Uganda interviewee**

Many respondents described the need for extremely careful planning and effective coordination when organizing urban distributions. In Nigeria, a larger than expected number of Local Government Authority (LGA) teams were briefed and trained to ensure effective operation. Another problem arose in an area where, due to weather problems associated with the rainy season, the organizers had to hire boats at the last minute when transport routes changed. Many of these are issues which should have been considered during the micro planning stage.

Many of the interviewees reported that the actual distribution in urban areas took longer than expected. In Uganda, Nigeria and Tanzania, the distributions were held over a weekend to ensure that people were able to attend, and the number of distribution days was increased. Some areas ensured the distribution points were open for longer periods each day to allow people to attend before or after work.

> *"We had the issue of how you positioned the distribution days as individuals* [were] *going to work, and so we had to strategize for over the weekend."* **Nigeria interviewee**

As has been discussed in the BCC and social mobilization section, there were also many fewer demonstrations of net hanging at distribution points than would occur with rural distribution programs. While this was not necessarily specific to urban sites, it was perhaps more of an issue in these areas. In Mali this was not done since it was felt that the population was suitably familiar with net use and thus it was not needed. Fears about nets being stolen also prevented hang-up displays in Uganda.

> *"We had thought that we would use that [distribution] opportunity for continued education. Unfortunately it was not possible. People will come, they just get their net. The nets arrive late, they start fighting around who receives what and that includes those hang-up nets - but that happens everywhere. They are excited about the nets – when they get, they go. They don't listen."* **Uganda interviewee**

4.9 Follow-up/hang-up

Follow-up visits to households to support net hang-up, promote key messages on net maintenance and use, and provide an opportunity for questions and instruction took place, usually through door to door, community level strategies, across most of the countries interviewed. However, because the distributions in urban areas tended to consume more resources than was initially budgeted for, such as in Uganda, there were often fewer funds available for follow up activities. The lack of funds available to pay the distribution team members for the time this activity required may have limited its effectiveness. There also appeared to be few funds available to support post campaign mass communication activities. Time pressures also hampered follow up activities, such as in Nigeria, where the State support teams had to move quickly to other states for continued roll-out.

> *"It is difficult to say that the hang-up was done in urban areas. If the distribution and allocation alone were considered problems and the VHTs were complaining there was little money, then I wouldn't think they went back."* **Uganda interviewee**

As with registration, there were difficulties in gaining entry into homes.

> *"In urban areas, people fear giving access to their houses so* [it is] *difficult to support in hang-up. People are more suspicious here. Maybe we just need to improve the communications activities around how to hang them."* **Uganda interviewee**

Research to assess the value of door-to-door hang-up campaigns, particularly in urban areas, may also be needed.

4.10 Supportive supervision

Most respondents reported that for urban LLIN distribution campaigns, supervision planning was critical. For example, more supervisors were needed than for rural projects, there was often a lack of clarity around administrative boundaries for supervision, and remuneration affected the supervisors' motivation. Supervision was also hampered due to challenging access to high density urban communities.

> *"[Supervision] just required more micro-planning as we had more vehicles and it just needed more planning in urban areas with regards to who, where and when. Partners are based here too so it just needed more coordination in Dar to avoid overlap or duplication of efforts"* **Tanzania interviewee**

> *"We will find it difficult to get supervisors for Kampala for next time! Also the allowance was different as they went home at night – the supervisors complained that they should get per diem like when they go to other districts. They got just UGX12,000 each day. But they ended up doing more than other districts but paid less! Some supervisors even pulled out before the start of the distribution – once they heard about the conditions of working in Kampala"* **Uganda interviewee**

> *"It is more difficult to supervise in the urban areas – in the rural areas, there are the issues of physical terrain and distances. But in the urban areas, there is the traffic and the population – hills and valleys in Freetown and many high rise buildings. And then we have a lot of slums and temporary buildings. So really it is very difficult to monitor in the urban areas – it is easier for them to return to their homes. It is a question of discipline and commitment of the monitors themselves."* **Sierra Leone interviewee**

4.11 Reporting

Consistency in reporting is important to enable comparison and data collection. There were few differences in reporting strategies between the rural and urban areas, and a few challenges arose which would most likely apply to rural distribution programs. Some of the challenges were: a need for clarification in designating specific responsibilities when it comes to reporting; a need to minimize the number of forms required for data collection to avoid data redundancy as well as data collection fatigue (which may lead to errors or lack of quality validation); adequate budgeting to reimburse those who complete the reporting; and timeliness when entering data.

5.0 Discussion

The review aimed to explore the recent strategies used for the mass distribution of LLINs in urban settings of African countries, particularly noting problems encountered and solutions developed, and to develop recommendations to support the future planning of effective LLIN distributions in urban settings as part of an overall universal coverage strategy.

The distributions explored as part of this review tended to largely follow national guidelines of LLIN distribution, which are usually developed based on campaign distribution experiences in rural areas. However, across many of the distributions explored, specific practical changes were made within each distribution phase during both the macro and micro planning phases as well as during implementation itself. These changes were in response to the differing demands raised by the urban context, including those differences related to behaviors, attitudes, lifestyles, knowledge of malaria and LLINs, infrastructure and access, security, and community structures. Many of the field level adaptations were effective in meeting the aims and requirements of the different distribution phases, but nevertheless many challenges affected the overall efficiency of the distributions and the outcomes, in terms of coverage and use of the nets.

Valuable experience has been collated and generated from this review which, if utilized effectively in the future, may result in better overall outcomes, including higher targeting, coverage, and levels of sustained use of nets. While it may be considered important to maintain one national guideline document for the distribution of LLINs, for urban areas it is recommended that programs work to:

- Strengthen the overall coordination and management system by including additional partners and defining clear responsibilities
- Intensify both the macro and micro planning phases even to the extent of over-estimating human resource and funding requirements and/or ensuring a sufficient contingency fund which can be tapped if needed
- Remember that unless accurate, up to date data is available, urban population estimates should be considered under-estimates, so base budgets and plans on an inflated number (to an agreed amount)
- Agree on specific administrative/geographic boundaries for the distribution areas
- Develop, if needed, annexes/supporting documents to provide guidance on issues specific to the urban context, which can be used for the training of trainers and participants, and also to provide guidance on implementation during the distribution phases
- Revisit the communication strategy and related aides/tools to take into account the heterogenic nature of urban populations and the larger range of communication channels available
- Revisit the registration activity to take into account the enhanced mobility of the population, different daily routines and availability, varied accessibility, differences in household composition, likelihood of lower registration numbers and potentially heightened falsification
- Arrange for additional security during transport, storage and distribution of the nets
- Put in place enhanced supportive supervision throughout the activity

Specific recommendations relating to each phase of a typical LLIN campaign distribution are provided in Table 1 below.

It is also recommended that further investigations be carried out to explore:

- The efficiency of new or adapted urban distribution models
- Net coverage and use in urban areas post distribution
- The effectiveness of adapted communications strategies
- The value of hang-up campaigns using different message dissemination channels in urban settings
- Assessments of malaria epidemiology, including changes in levels of transmission, in urban areas
- The effect of free mass distributions on the urban commercial market of mosquito nets - in the interest of long term sustainability of net ownership.

6.0 Recommendations

Table 1 below outlines specific recommendations for each phase of a typical LLIN campaign distribution in an urban context.

Table 1: Specific recommendations by LLIN distribution phase: urban distributions

Key phases of LLIN campaign distributions	*Specific recommendations*
Macro planning and central level coordination	• Include all key implementation partners to ensure full ownership of the process, the effective use of all available resources, the benefit of collective experience, an intimate knowledge of the beneficiary communities, and consistency in messaging to all beneficiaries • Ensure strong leadership from the central level, led by the Ministry of Health. This may involve the establishment of specific steering committees, coordinated by one overall task force. • Establish a coordination system to help schedule meetings and reports. These may already exist from national LLIN distribution efforts. If not, the program may need additional committees or leadership structures to support the urban distribution • Ensure early agreements are reached on specific adaptations to the national LLIN guidelines, curricula, and tools to suit the urban context (i.e. using this list of specific recommendations as guidance). • Make sure that sufficient time and resources are available to support the adaptations. Use the coordination mechanism to make sure there are opportunities for additional adaptations as needed • Involve additional personnel beyond the usual implementation partners from the outset, such as security personnel and political leaders. Consider how to best utilise political leaders as advocates for the distribution, whilst ensuring the campaign itself remains politically neutral • Gather all data available on population numbers in the urban area and agree on the estimates on which to base initial quantifications and registration activities
Micro planning	• Clearly outline a detailed timeframe spanning all distribution phases (with some contingency time allowed) • Clearly outline the agreed upon roles and responsibilities of each stakeholder involved, including details of organisations/individuals responsible for finalisation and dissemination of plans/strategies, budgets, reporting tools, security plans, and implementation schedules • Agree on the administrative/ geographic units on which to plan the urban distributions, as these may vary from those used for rural distributions • Ensure that contracts with transport or storage companies are pre-agreed in terms of fuel and storage price/cost • Budget for possible additions such as accidents, compensation, and additional storage • Try to overestimate human resource requirements and effectively budget for remuneration for all involved
Training	• Agree on the changes, if any, to the training curricula • Create annexes to the curricula, if needed, in order to provide guidance on aspects/adaptations specific to the urban context i.e. household registration, security and crowd control, specific plans for non-registration of households, management of net buffer stocks, selection of distribution points, transport and storage and alternative communication strategies • Shift the emphasis of training materials from technical to logistical content. • Include scenario-based exercises during the training • Make training participatory rather than didactic • Make sure there is sufficient time for discussion during training so that

	trainees can raise additional concerns • Select trainers carefully and make sure there is enough time to train them in the adaptation of the distribution model, specifically if the trainees are experienced only in rural distribution. • Take into account the increased number of participants at all levels of the training cascade • Ensure sufficient time enable quality of training throughout the cascade • Provide sufficient technical and logistical knowledge on net distribution to mobilisers and communications staff - they made need this in order to maintain their credibility
Mobilization and pre-campaign communication	• Make sure there is solid collaboration between communication and technical and logistical teams in order to ensure the effective coordination and use of resources • Change the communication strategy to better suit the urban context: o Messaging may need to focus more on the ongoing use of the nets rather than how the nets work and why they are important o Different communication channels will be needed to target different ages and socioeconomic groups o Multiple channels may be needed to reinforce messages o Opinion leaders and influential agents will be different to those typically used in rural areas o Consider that women tend to have more household decision making authority regarding public health issues in urban areas than rural areas o There may be events or existing advertising campaigns which the campaign could utilise (though attention must be given to clarity of messaging on the campaign) • Consider the optimum timing for the mobilization activity, and that it is followed closely by registration. If there is an extended delay between mobilization/communication and registration, it may create suspicion that some areas are being excluded from campaigns. Ensure that there are sufficient resources to enable simultaneous roll out • Plan for communication activities (perhaps integrated with other advocacy or communication campaigns) to promote the ongoing use of the nets • Plan for the evaluation of the communication strategy in order to build experience and understanding
Registration and allocation of beneficiaries	• Plan the registration activity with enough people and over enough days to account for the problems with urban registration: o Be aware that official estimates may be significantly lower than what registration data may indicate o Accurate and up to date household lists are not always available for urban areas – urban populations are more mobile and slum area populations are difficult to document • Ensure that administrative boundaries for the purpose of registration, and related responsibilities, are clear • Schedule the registration activity during the weekends and/or evenings when more people may be likely to be at home, or at least ensure ample time is allocated to mop up unregistered households • Select registration personnel who are likely to be known by the majority of

	beneficiaries as this will increase access into households. Remember that higher socioeconomic groups are usually the most difficult to access, so take extra care in who is assigned for these areas. • When quantifying net need, the guidance may need review in order to allow for the different household compositions found in urban areas. However, care must be taken to ensure uniform methods are adopted nationally • Issues of falsification may be heightened in urban areas, so strategize for this from the outset • Separate the registration and distribution activities, but ensure distribution closely follows registration • Ensure ample time for the allocation exercise, which may take longer than in rural areas due to the quantity of registration data • Consider setting up data entry at the point of registration (i.e. through PDAs) in order to limit the time lag between registration and distribution and to enable more effective validation of data
Distribution of nets	• The campaign may require more distribution points per administrative/ geographic unit in urban areas, each of which may need additional personnel to ensure smooth distribution • Be flexible with transportation – the campaign may need different forms of transport to enable simultaneous distribution to a larger number of distribution points (i.e. a larger number of smaller trucks than what may be used in rural areas) • More security may be required for the transportation, storage and actual distribution of the nets • Store larger buffer stocks of nets (for example up to 15%), if needed, close to distribution points in order to resolve potential issues with underestimating populations and because of challenges with moving nets around large distances due to traffic congestion • If you have potential for "chaotic" distribution points, alert local police and ask for crowd control assistance, brief officers on desired process and procedures; make contingency plans for supplemental deliveries if stocks move faster than planned; plan for before and after-work hours at distribution sites. • Allocate enough days - the distribution may take longer than in rural areas, and it may also be useful to open the distribution points for longer periods to allow people to attend before or after work • Consider implementing communication activities at the distribution points based on the specific audiences attending
Follow up/hang-up	• Make sure that the personnel conducting follow up are familiar with the beneficiaries (perhaps utilising the same personnel as in the registration and/or mobilization activities) • Budget so that funds for the activity, including remuneration for personnel involved, are included at the micro planning stage • Consider planning for the evaluation of this activity, either through the collection of process data or through a more detailed review to include outcome data, in order to gain experience on the value of this phase in urban settings and how approaches could be improved
Supportive supervision	• Make sure there are enough supervisors - there may be a need for more supervisors per administrative/ geographic unit in urban areas than rural

	areas, because of high density populations and difficulties in moving around the city due to traffic congestion. • Make sure there are enough resources to support the supervisors' activities, especially remuneration, vehicles, etc. – this should be done during the micro planning phase. • Ensure administrative/ geographic supervision are clear to avoid gaps or duplication in supportive supervision • Ensure that supervisors are familiar with the local areas they are assigned to • Consider using both central level supervisors and locally based supervisors during the distribution process
Reporting	• Make sure that reporting systems, including tools and processes, are in line with one national reporting system for net distribution, to enable comparisons between different areas, including rural and urban

7.0 Conclusion

In recent campaign distributions of LLINs targeting urban populations in African cities, the campaigns have used rural distribution models without much adaptation.

There is, however, a need to consider specific adaptations to account for the urban context, specifically the high population density, enhanced population mobility, the heterogenic nature of urban populations, varied household compositions, heightened security needs, enhanced congestion and other access issues, and a generally different programmatic environment than what is usually found in rural areas.

Results from this review demonstrate that while there were some differences between country experiences, for the most part distribution teams faced similar challenges across different urban environments. Countries planning mass distributions in urban settings should consider allocating the resources and time necessary in order to adapt tools and guidelines as part of more intensive planning phases from the outset.

Appendices

Appendix 1: Published and grey literature sources

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Appendix 2: Topic guide

TOPIC GUIDE FOR NETWORKS PROJECT BACKGROUND PAPER ON URBAN LLIN DISTRIBUTION STRATEGIES, APRIL 2011

This topic guide is to be used as a basis for semi-structured interviews with all key informants, principally partner and MoH/NMCP staff, supporting LLIN distributions in urban contexts across a range of African countries.

For the interviewer: Make sure that the person being interviewed understands that these questions are to identify the main challenges, lessons learned and recommendations to inform the planning for future LLIN distributions in urban contexts as part on an ongoing learning approach. Ensure that the main points outlined below, but relevant to the specific distribution, are discussed and related responses effectively documented. It may be useful to explain that the interview is expected to take around one hour and give an overview of the scope and ordering of the questions at the beginning. Additional probing questions can be added as considered useful.

Date of interview:

Interviewer:

Interviewee:

Summary of interview:[to add]

Please add any additional remarks with regards to the context of the interview or other aspects which may have influenced the responses in any way.

1) DISTRIBUTION DETAILS

If not already acquired or you would like clarification, ask the informant for the key details of the distribution which will be captured in the summary table in the report.

2) OVERVIEW OF DISTRIBUTION

Please describe the urban context for this distribution, including how it differs from other, such as more rural, parts of the country.

Probe:

- *How does the social, economic, spatial, and demographic context differ from more rural areas?*
- *What can you say about the population characteristics in this urban setting?*

3) OVERVIEW OF URBAN DISTRIBUTION STRATEGY ADAPTATION

Please outline the overall distribution strategy [note: this may shape subsequent questions]

Were there specific adaptations made to the distribution guidelines to account for the urban nature of the distribution? If not, how were the adaptations (if any) agreed?

Were changes made to the guidelines after the distribution to guide further distributions in urban areas? Were there any reviews or evaluations done of the campaign which covered the urban area?

4) **MACRO AND MICRO PLANNING**

What changes were made, if any, to the distribution strategy (or the actual distribution) with regard to the macro and micro planning component, to account for the urban context?
What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from what was done in the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*
- *How was the overall supply chain management of the nets, including transport and storage?*
- *How was the coordination between stakeholders?*
- *Was there a need for additional stakeholders to be involved because of the distribution's urban nature?*
- *How was the coordination at different levels?*

5) **TRAINING/SENSITIZATION**

What changes were made, if any, to the distribution strategy or practice with regard to the training and sensitization components, to account for the urban context?
What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*

6) **MOBILIZATION/PRE-CAMPAIGN COMMUNICATION**

What changes were made, if any, to the distribution strategy or practice with regard to the mobilization/pre-campaign communication component, to account for the urban context?
What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*
- *Were there enough communication activities?*
- *Were the communication activities effectively planned and coordinated?*

7) **REGISTRATION AND ALLOCATION OF BENEFICIARIES**

What changes were made, if any, to the distribution strategy or practice with regard to the registration of and allocation of nets to beneficiaries, to account for the urban context?
What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution, and what solutions were put in place?*

8) DISTRIBUTION

What changes were made, if any, to the distribution strategy or practice with regard to the actual distribution of nets to beneficiaries, to account for the urban context?

What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*
- *Was the storage sufficient?*
- *How was the transportation of the nets?*
- *Were the distribution sites well organized?*
- *Were the distribution sites well selected?*
- *Were there any problems with security?*
- *Did many people turn up who were not registered? How was this handled?*
- *Was any follow up (i.e. hang-up) conducted? How did this go?*

9) (SUPPORTIVE) SUPERVISION

What changes were made, if any, to the distribution strategy or practice with regard to the (supportive) supervision activities, to account for the urban context?

What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*
- *What was the overall quality of the supervision?*
- *How did the different level of supervisors coordinate with each other?*

10) COMMUNICATION

What changes were made, if any, to the distribution strategy or practice with regard to the communication activities (beyond what we have already discussed in relation to motivation) to account for the urban context?

What recommendations would you have for this component for future distributions in urban contexts?

Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*

11) REPORTING

What changes were made, if any, to the distribution strategy or practice with regard to the reporting aspects of the distribution to account for the urban context?
What recommendations would you have for this component for future distributions in urban contexts?
Probe:

- *How was this component of the distribution different from the rural areas?*
- *What were the challenges associated with this component of the distribution and what solutions were put in place?*

12) OTHER THOUGHTS

Is there anything else you would like to raise?

13) REPORTS, DOCUMENTATION AND FURTHER CONSULTATION

Can you share any reports or documentation from the distribution?
Are there any additional people you suggest I interview?

Appendix 3: Key urban distribution details of all LLIN campaigns included in the review

Country (number of interviews per country)	Distribution location	Distribution dates	Estimated urban population targeted	LLINs distributed	Targeted or universal coverage	Implementing partner(s)	Donor(s)	
DRC (2)	Kinshasa	July 2008 – March 2009	10 million	1.98 million	Universal coverage	MOH, World Bank, PSI	World Bank	
Liberia (3)	Monrovia	2009	1.1 million	196,976	Universal coverage	MOH, Starks Foundation, Restore Our Children's Health Inc, Christian Health Incorporated Liberia	PMI/CDC	
Madagascar (1)	Toamasina I	November 2009	214,330	134,775	Universal coverage	MOH, PSI, USAID DELIVER PROJECT, PMI, UNICEF, OMS, Croix Rouge Malagasy/Red Cross Madagascar	GFATM, PMI, IFRC	
Mali (0)	Sikasso	April 2011	Sikasso region 807,000, Sikasso town 225,000	336,900 to the whole region	Universal coverage	MOH, PSI	PMI	
Nigeria (5)	Kano and Umbra States (a mixture of urban, per-urban and rural)	May – July 2009	9.4 million	4 million	Universal coverage	MOH, SuNMaP/ Malaria Consortium	DFID	
Nigeria	Schools in Obubra LGA in Cross River	July 2012		July 2012- 8,444 nets	Targeted (in phase 1, now aiming to fill gaps)	MOH, ICRC, MC, JHU	PMI	R

	State (a mixture urban, peri-urban and rural)							
Senegal (1)	Peri-urban Dakar	2008/2009		456,300	Targeted	MOH	PRN (programme de reforcement de la nutrition)	
Senegal	Kaolack and Tambacounda	Jan – Mar 2011	1,630,553	641,998	Targeted	MOH, JHU	PMI/USAID/NMCP	
Senegal	Touba	May/June 2011	938,780	530,294	Universal coverage	MOH, JHU	PMI/USAID	
Senegal	Urban Dakar	Planned for end 2011/			Universal coverage	MOH		
Sierra Leone (7)	Freetown	2010			Universal coverage	MOH, Sierra Leone Red Cross, Y Men International		
Tanzania (4)	Dar es Salaam	May 2010	556,213	615,875	Targeted	MEDA, PSI, World Vision	Govt. of Tanzania	
Tanzania	Dar es Salaam	Planned August 2011	1,426,124 sleeping spaces	1,697,240 planned	Universal coverage	MEDA, PSI, World Vision	GFATM (Rd 8)	
Togo (2)	Lomé	2004	Children under five	134,542	Targeted	NMCP/DEPI	CRC, FM, UNICEF	
Togo	Lomé	2008	Children under five	176,379	Targeted	NMCP/ Nutrition/ DEPI	CRC, FM, UNICEF, Plan Togo, Vestergaard	

Togo	Lomé	2011	Households	474,275	Universal coverage	DSC, NMCP/ Nutrition, PNLO, Plan Togo	Global Fund Swiss Red Cross UNICEF Plan Togo OCDI HDI Vestergaard
Uganda (3)	Kampala and Wakiso districts	April/May 2010			Phase 1: Targeted. Phase 2: Top up to reach universal coverage	MOH, Stop Malaria Project/ Malaria Consortium, 8 local CSOs	GFATM (Rd 7)/PMI