



1: Introduction

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

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

It is therefore critical that countries support channels for their population to access LLINs by other means and on a continuous basis^{ab}. The



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

The focus on LLIN scale-up really began in 2002 when the American Red Cross and Measles Initiative partners pilot-tested the first integrated campaign by putting together LLIN distribution with supplementary immunization activities in one region of northern Ghana. The results of the pilot study demonstrated that distributing free LLINs to children under five years of age as part of a mass measles vaccination campaign led to "rapid, high and equitable coverage at low cost"^c. The encouraging results led to similar activities in five districts of Zambia in 2003. When the LLIN distributions were evaluated six months after the campaign, the results showed that 97 per cent of targeted households had retained their campaign nets and overall household coverage had increased from 29 per cent before the campaign to 85 per cent after the campaign. Another important accomplishment was the achievement of high equity across economic quintiles¹ after mass distributions, compared with inequitable access to nets prior to the campaign distributions, meaning that through the mass distribution model the poorest and least poor quintiles of the population have equal access to LLINs.

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

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

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

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

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

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

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

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

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

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

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

The WHO policy shift from targeted to universal LLIN coverage was made to provide more comprehensive and equitable protection. Individual use of a treated net is still one of the best possible forms of personal protection in malaria-endemic areas and remains valuable in public health terms^g but when ITNs are used by a large proportion of the community, as is encouraged by universal coverage, the presence of a significant amount of insecticide also has a community or mass effect akin to the “herd

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



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immunity” of large-scale immunization. In areas where most of the population are using treated nets, this “baited trap” effect caused by the dual action of repelling and killing mosquitoes will in time reduce the transmission of malaria by the local mosquito population as a whole^h. This large-scale use of nets can therefore confer significant protection to the entire human population, in the sense that in addition to the direct personal benefit to the person(s) sleeping under the net, nearby people with no nets may also be protectedⁱ. Universal coverage assumes that nets are available to 100 per cent of the population and that at least 80 per cent of those with access will use the net each and every night, thus maximizing the benefits of treated nets by protecting the total population from malaria infection. The strength of this mass effect presumably increases with the level of local treated net coverage^k, giving an even greater incentive for countries to reach and maintain universal coverage.

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



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

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

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

- implement strategies to sustain high levels of LLIN coverage in parallel with strategies for achieving rapid scale-up¹

1.3 The Global Malaria Action Plan (GMAP)

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

The GMAP has four parts:

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

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

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

1.4 New opportunities and new challenges in LLIN scale-up

While the shift in policy from targeted to universal coverage was based on sound scientific evidence, country/partner experiences with reaching universal coverage and therefore guidance on implementation has to date been limited. In 2007 almost no country had even attempted to reach universal coverage. While integrated campaigns had the advantage of EPI's experience with organizing mass campaign activities, the delinking

of target populations (immunization often targets children under five years of age, while malaria universal coverage targets all age-groups) has meant less integration with EPI. In addition, with targeted distributions, National Malaria Control Programmes were able to use the population figures for children under five from EPI which were more accurate than using total population figures, often based on out-dated census data, and estimating number of households for meeting universal coverage targets.

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

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



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

1.5 Scaling up use of LLINs to ensure impact

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

a very high proportion (80 per cent) of available ITNs is used^m.

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

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

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

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

Endnotes

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