Global Malaria Programme



# First meeting of the Vector Control Technical Expert Group (VCTEG)

Meeting report, 3–5 July 2013, Geneva, Switzerland



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### **SUMMARY**

This was the inaugural meeting of the WHO Malaria Vector Control Technical Expert Group (TEG). The sixteen members of the TEG met 3 to 5 July, 2013 to review background documents and make recommendations on key vector control strategic issues, including maintenance of universal coverage Long Lasting Insecticidal Net (LLIN); guidance on estimating the physical life span of nets in the field; and guidance on capacity building in vector control. The TEG also reviewed progress on developing guidance for: prioritizing vector control interventions; entomological surveillance; the combination of LLINs and Indoor Residual Spraying; and tools for personal protection and vector control issues to be considered in the future. Summaries of the guidance documents, recommendations and key discussion points are included in this report. When finalized, the guidance documents for maintenance of LLIN coverage and estimating LLIN physical life span will be presented to the Malaria Policy Advisory Committee (MPAC) in September 2013 for consideration and endorsement. Other guidance documents will be presented to MPAC in March 2014. The list of TEG members is provided in the Annex.

# **ROLE AND FUNCTIONS OF THE VECTOR CONTROL TEG**

The Vector Control TEG is tasked with reviewing and providing guidance and making draft recommendations to MPAC on the implementation of malaria vector control including issues related to programme management. The TEG is constituted by and reports to the MPAC.

The responsibilities of the TEG on malaria vector control are:

- Review and recommend to MPAC on the predicted effectiveness and appropriate mix of vector control interventions for particular situations of
  – including the adoption of new forms of vector control following recognition of "proof of principle" from the VCAG
- Formulate and propose to MPAC evidence-based norms, standards and guidelines for the implementation and management of malaria vector control;
- Address policy issues related to building capacity for entomological monitoring and optimization of vector control investments; and
- Identify gaps in evidence and suggest specific areas of priority research to improve management and implementation of malaria vector control.

The VCTEG is distinct from the newly formed Vector Control Advisory Group (VCAG) in that the VCAG is focused on tool development and validation across all vector control, while the VCTEG is focused on strategies and implementation. The VCTEG comprises a mixture of skills, including public health entomology (vector biology and ecology) insecticide resistance, epidemiology, impact assessment of vector control, program management and heath economics.

# **OBJECTIVES OF MEETING**

- 1. Review and propose draft recommendations to MPAC on:
  - a. Methods to sustain universal coverage with LLINs
  - b. Guidance to countries and partners on how to estimate the median durability of LLINs after deployment for policy and procurement decisions

- c. Guidance to countries on how to prioritize malaria vector control interventions when faced with unstable resources
- d. Guidance to countries and partners for capacity building in malaria vector control
- 2. Update TEG members on the following areas requiring policy guidance for MPAC decision in 2014:
  - a. Guidance to countries on control tools for early and outdoor biting
  - b. Guidance for entomological surveillance
  - c. Guidance to countries and partners on the use of IRS and LLINs together for malaria vector control
- 3. Identify priority areas for policy guidance and dates for the Second TEG meeting.

These are WHO policy recommendations and are therefore directed at the Ministries of Health. The conclusions and recommendations will also be posted to the WHO website, with the full report and documents as annex.

# GUIDANCE TO COUNTRIES ON METHODS FOR MAINTAINING COVERAGE WITH LONG-LASTING INSECTICIDAL NETS

Global malaria control efforts have achieved remarkable success over the past decade with estimated malaria-related deaths decreasing by 25% globally and by 33% in sub-Saharan Africa between 2000 and 2010. Much of the success is related to the rapid scale-up of distribution of long-lasting insecticidal nets (LLINs)<sup>1</sup>.

These achievements must not be taken for granted. If vector control is withdrawn from an area where malaria transmission was originally intense but was suppressed for a few years by effective interventions, transmission is likely to return to its previous intensity, and can do so rapidly. Thus, there is a serious risk of malaria resurgence in many parts of Africa if LLIN coverage is allowed to decline. In the past, such lapses in intervention coverage have caused major epidemics with substantial loss of life. The malaria control community therefore has a shared responsibility to maintain coverage, despite challenges of constrained resources. The aim of this document is to guide national malaria control programmes seeking to achieve and sustain universal coverage of LLINs.

Our goal remains universal coverage. Gaps in coverage should therefore be addressed by using a mix of approaches, including mass campaigns coupled with routine distribution as appropriate<sup>2</sup>, especially to pregnant women and infants through antenatal and child health immunization clinics. It is important to note that use is expected to be high when populations have access to nets. The World Malaria Report 2012 compared the proportion of the population with access to an ITN and the proportion sleeping under an ITN in 17 countries in Africa, and found that the median proportion of the population using an ITN among the population with access to one was very high, at 91%.

The WHO *Position Statement on ITNs* recognises that net distribution campaigns are a cost-effective way to achieve rapid scaling-up of net coverage, but emphasises the need for "strategies to sustain

<sup>&</sup>lt;sup>1</sup> World Health Organization. World malaria report 2012. Geneva, 2012.

<sup>&</sup>lt;sup>2</sup> In the context of LLINs, the term "continuous" is used to describe distribution systems that deliver nets continuously and without interruption over time, as opposed to "campaigns" which deliver a consignment of nets to a defined target population in a single time-limited operation. "Routine" LLIN systems deliver nets along with other routine health services (especially ante-natal care and child immunization, through established health system delivery channels.

high levels of LLIN coverage in parallel with strategies for achieving rapid scale-up." In particular, it recommends that mass campaigns should be complemented by LLIN distribution to pregnant women through antenatal services, and to infants through immunization services, in order to ensure continuous and sustainable coverage. Further experience in the last five years has revealed that the physical lifespan of nets is highly variable, with a gradual loss beginning immediately after the campaign. For this reason, WHO recommends that routine distribution through antenatal and immunisation should be given equal priority to mass campaigns.

The *Position Statement on ITNs* also recognises that other distribution channels may also play an important role: schools, workplace programs and community-based networks have all been used for distribution of nets bought with public health funds. In some settings (especially in Asia) commercial markets have also made a substantial contribution to net coverage, including LLINs.

Mass campaigns can achieve high and equitable coverage quickly and efficiently, but this coverage declines over time and significant coverage gaps can appear in between campaigns. By contrast, routine distribution through routine channels such as antenatal and immunization clinics can sustain coverage levels that are stable over time, but fall significantly short of universal coverage (Figure 1). Progress has been made in assessing various continuous distribution channels in a range of country contexts, particularly in antenatal and child health clinics. There is also some experience with schools, community based distribution and the commercial sector in certain settings.

Although there is still much we do not know, it is possible to draw some initial conclusions about the strengths and weaknesses of the various options for maintaining LLIN coverage. These recommendations are discussed below, with emphasis on the public health channels.

## **RECOMMENDATIONS**

#### Complementary campaign and continuous distribution systems

- Universal coverage remains the goal: this is defined as full coverage with effective vector control of all people at risk of malaria<sup>3</sup>
- In order to maintain universal coverage, WHO recommends a combination of mass distributions, complemented by continuous or "routine" distributions through multiple channels, in particular antenatal and immunisation services.
- There should be a single national plan for both routine and campaign distribution strategies that all partners adhere to. This unified plan will include a comprehensive quantification and gap analysis for all public sector LLIN distribution channels
- As with immunization programs, which also employ a combination of campaign and routine delivery services, LLIN campaign and routine distribution systems should be planned and coordinated as a unified program, with shared resources, communications and LLIN stocks.
- These continuous distribution channels should be functional before, during and after the mass distribution campaigns, there should be no gap in access to LLINs and the *behaviour* change communications should be coordinated for both the campaign and continuous distribution activities.

<sup>&</sup>lt;sup>3</sup>WHO. *Insecticide-treated mosquito nets: a WHO position statement*. Geneva, World Health Organization, 2007. Accessible at: <u>http://www.who.int/malaria/publications/atoz/itnspospaperfinal/en/index.html</u>

### Distribution channels appropriate for country contexts

- Each national malaria control programme should develop an overall co-ordinated LLIN distribution strategy. This strategy should be based on an analysis of local opportunities and constraints, and should identify a combination of distribution channels that will *achieve* and sustain high coverage.
- Mass free distribution campaigns will remain an important component for maintaining universal LLIN coverage. Technical training materials to support planning, *implementation* and evaluation of distribution campaigns are available through WHO and the Alliance for Malaria Prevention.<sup>4</sup>
- Antenatal, immunisation and child health clinics should be considered as the highest *priority* LLIN continuous distribution channels in countries where contact rates are high, as they are in much of Africa south of the Sahara.
- One possible method of delivering access to LLINs through public sector channels is the use of vouchers, which allow the recipient to obtain an LLIN either free or at subsidized cost through participating retail outlets. These outlets are then responsible for supply and storage of the nets, rather than in the public sector.
- Schools may also be explored as a channel for LLIN distribution in countries where this approach is feasible and equitable.

# Supplemental distribution methods

Additional channels may also be considered. Each country context is unique, with its own opportunities. Other channels such as community-directed distribution, church and mosque-based networks, and agricultural and food-security support schemes should be explored. Additional channels to be considered in the national strategy might include:

- Occupation-related distribution channels. In some settings particularly in Asia where transmission ecology is often localised and patchy -- the risk of malaria may be strongly *associated* with specific occupations, such as plantation and farm workers and their *families*, as well as miners, soldiers and forest workers. The opportunities for distribution through local channels, including private sector employers and farmers' organisations etc., may be explored where appropriate.
- While not the direct rresponsibility of control programmes, the private and commercial sector *can* be an important supplementary channel to the free LLIN distributed through the public sector channels. Private sector engagement can take many forms:
  - Retail sales of all kinds of net have public health benefits, and should be encouraged. However, an LLIN is twice as effective as an untreated net.
  - Retail sales of LLINs may be encouraged throughout the country. LLIN products should be regulated by the national registrar of pesticides, in order to ensure the quality of the insecticide following the specifications as described by WHOPES.
  - Workplace programs, whereby the employer provides free malaria preventive services to the employee families and surrounding communities, can also be effective.
  - Existing commercial markets in untreated nets are also beneficial and should not be discouraged. In the case of nylon and polyester nets, it may be possible to convert these nets into LLINs during or just after manufacture, using novel techniques: either by

<sup>&</sup>lt;sup>4</sup> More information on Alliance for Malaria Prevention available at: <u>http://www.allianceformalariaprevention.com/index.php</u>

applying a long-lasting insecticidal treatment to a batch of nets in bulk, or by using an insecticide-impregnated yarn made for this purpose. These technologies allow the additional cost of the insecticide to be paid by public funds, while the cost of the net and its distribution are paid for the net-buyers who would normally be buying untreated nets. Such net treatments can therefore be considered an additional channel for improving LLIN access.

Time and place for mass distribution campaigns and continuous distribution

- LLIN distribution campaigns are a cost-effective way to rapidly achieve high and equitable coverage, and in almost all settings repeated campaigns will be needed. As coverage gaps will start to appear almost immediately post-campaign through net *deterioration*, loss of nets and population growth, complementary continuous distribution channels should be in place.
- The *interval* between mass campaigns should normally be no more than three years unless there is reliable observational evidence that a longer interval is appropriate (for example because routine distribution through ANC and EPI channels is maintaining high coverage or nets are lasting longer).
- In the future, there should be a gradual shift in the methods used to distribute publicly-funded LLINs, away from campaigns and towards a system where continuous *distribution* systems, are the primary means of sustaining coverage. Campaigns may still be necessary, but will be deployed as a supplementary measure, as and when coverage is seen to be inadequate.
- In order to manage this shift in methods, programmes will need to track coverage as it evolves over time, and they will also need to distinguish the relative contributions to overall coverage of various parallel delivery channels. Appropriate indicators and methods are noted below.
- There should also be consideration of improving the product and/or behaviour change interventions to improve net longevity and usage.
- The lifespan of LLINs varies widely between individual nets in a cohort, and between settings. This variability makes it difficult to plan the rate or frequency at which replacement nets need to be procured and delivered. In several settings in Africa, the median lifespan of a cohort of LLINs (the interval until 50% of the nets are worn out or lost) has been observed to be approximately three years. WHO has developed technical guidance for countries and partners on how to monitor the survival of LLINs in field studies in sentinel sites, and recommends that all medium and large-scale LLIN programmes should carry out such monitoring.
- LLIN durability in the field is a major factor in the costs of maintaining universal coverage. Current evidence suggests that some LLIN products can be significantly more durable than others, depending on the setting. Programs are encouraged to compare the durability of

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