Achieving universal coverage with long-lasting insecticidal nets in malaria control

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RECOMMENDATION

Long-lasting insecticidal nets (LLINs) have played an important role in the remarkable success in reducing malaria burden over the past decade.[1] They are a core prevention tool, and widely used by people at risk of malaria. WHO recommends:

1. *Universal coverage*[2] remains the goal for all people at risk of malaria.
2. In order to maintain universal coverage, countries should apply a combination of mass free distributions and continuous[3] distributions through multiple channels, in particular antenatal and immunisation services. Mass campaigns are a cost-effective way to rapidly achieve high and equitable coverage, but coverage gaps start to appear almost immediately post-campaign through net deterioration, loss of nets, and population growth, requiring complementary continuous distribution channels.
    - For mass campaigns, one LLIN should be distributed for every two persons at risk of malaria.
    - However, for procurement purposes since many households have an odd number of members, the calculation needs to be adjusted when quantifying at the population level. Therefore, an overall ratio of 1 LLIN for every 1.8 persons in the target population should be used.[4]
3. Mass campaigns should be repeated normally at an interval of no more than three years unless there is reliable observational evidence that a longer interval could be appropriate.
4. Continuous distribution channels should be functional before, during, and after the mass distribution campaigns to avoid any gap in universal access to LLINs.

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5. There should be a single national plan, under the leadership of the national malaria control programme, for both continuous and campaign distribution strategies. This unified plan should include a comprehensive quantification and gap analysis for all public sector LLIN distribution channels. Coordination should include sharing resources, communications, and LLIN stocks.

6. Each national malaria control programme should develop its own LLIN distribution strategy, based on analysing the context of its local opportunities and constraints, and identifying a combination of distribution channels to achieve and sustain universal coverage, **which in addition to mass campaigns**, could include:

    - Antenatal, immunisation and child health clinics – they should be considered as a high priority LLIN continuous distribution channel in countries where contact rates are high, as they are in much of Africa south of the Sahara.
    - Schools and community-based distribution channels – these can also be explored as a channel for LLIN distribution in countries where this approach is feasible and equitable.
    - Church and mosque-based networks, and agricultural and food-security support schemes – these should be explored as an additional channel, where appropriate.
    - The private and commercial sector – although this is not the direct responsibility of national malaria control programmes, it can be an important supplementary channel to free LLIN distribution through public sector channels. LLIN products should be regulated by the national registrar of pesticides, in order to ensure quality following the specifications described by WHOPES.
    - Occupation-related distribution channels – in some settings, particularly in Asia where transmission ecology is often patchy, the risk of malaria may be strongly associated with specific occupations, such as plantation and farm workers and their families, miners, soldiers and forest workers. Opportunities for distribution through channels, such as private sector employers, workplace programmes and farmers' organisations, may be explored.
    - The use of vouchers or coupons – this is one possible method of delivering access to LLINs through public sector channels, which allow the recipient to obtain a free LLIN through participating retail outlets.

7. Where national health systems have been strengthened to support continuous distribution systems **through health facilities**, opportunities to sustain coverage should be explored in the future for a gradual shift away from campaigns to distribute publicly-funded LLINs. Where coverage will still be inadequate, campaigns may be necessary, but should be deployed as a supplementary measure to ensure continuous distribution. In order to manage this future shift in methods, national malaria control programmes will need to track coverage as it evolves over time. They will also need to distinguish the relative contributions of various parallel delivery channels to the overall LLIN coverage.

8. The lifespan of LLINs varies widely between individual nets and between settings, making it difficult to plan the rate or frequency at which replacement nets need to be procured and delivered. All medium and large-scale LLIN programmes should carry out durability monitoring using WHO guidance documents. In addition, there should be efforts to improve LLINs and/or behaviour change interventions to improve net longevity and usage.

9. Periodic "top-up campaigns" are **not** recommended at present. A national malaria control programme may only consider some top-up if 40% or more of the target population have LLINs that are less than two years old.

10. In some countries, where untreated nets are widely available, national malaria control programmes should explore how to promote LLINs through changes to the market and techniques for treating those nets.

11. Ministries of Health should ensure that national malaria control programmes have adequate human and financial resources for efficient programme management, as well as for LLIN procurement and distribution.

12. For monitoring whether universal coverage is being achieved, currently the four basic survey indicators, as developed by the RBM Monitoring and Evaluation Reference Group (MERG) and used by WHO for the World Malaria Report, are:

    a) Percentage of households with at least one ITN/LLIN

    b) Percentage of population with access to an ITN/LLIN within the household)

    c) Percentage of population reporting having slept last night under an ITN/LLIN

    d) Percentage of under-five children reporting having slept last night under an ITN/LLIN

    In addition to these cross-sectional outcome indicators, measured in Demographic and Health Surveys, Multi Indicator Cluster Surveys and Malaria Indicator Surveys, process indicators are likely to be necessary.

Further information

Vector Control Technical Expert Group (2013). Methods for achieving universal coverage with long-lasting insecticidal nets in malaria control. Report to MPAC September 2013. www.who.int/malaria/mpac/mpac_sp13_vcteg_universal_llin_coverage_report.pdf

World Health Organization (2014). Estimating population access to ITNs versus quantifying for procurement for mass campaigns. www.who.int/malaria/publications/atoz/who-clarification-estimating-population-access-itn-mar2014.pdf

Endnotes

1. World Health Organization. World Malaria Report 2012. Geneva, 2012.

2. Defined as universal access to, and use of, LLINS.

3. 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.

4. World Health Organization. Estimating population access to ITNs versus quantifying for procurement for mass campaigns. Geneva, 2014. www.who.int/malaria/publications/atoz/who-clarification-estimating-population-access-itn-mar2014.pdf